12-45 Log #738 NEC-P12 **Final Action: Reject**
(670.3(A))

Submitter: Melvin K. Sanders, TECo., Inc.
Comment on Proposal No: 12-82
Recommendation: Revise the proposed text of 670.3(A) as follows. In addition, retain the existing second paragraph of 670.3(A) and retain the existing 670.3(B).

670.3 Machine Nameplate Data.

(A) Permanent Nameplate. A permanent nameplate shall be attached to the control equipment enclosure or machine and shall be plainly visible after installation. The nameplate shall include the following information:

(1) Supply voltage, phase, frequency, and full-load current.

(2) Maximum ampere rating of the short-circuit and ground-fault protective device.

(3) Ampere rating of largest motor or load.

(4) Short circuit interrupting ~~current~~ rating of the machine overcurrent-protective device, if furnished ~~industrial control panel based on one of the following :~~

~~a. Short circuit current rating of a listed and labeled machine control enclosure or assembly.~~

~~b. Short circuit current rating established utilizing an approved method.~~

~~FPN: UL 508A 2001 Supplement SB is an example of an approved method~~.

(5) Electrical diagram number(s) or the number of the index to the electrical drawings.

Substantiation: The proposal, as submitted, had not been reviewed by the entire NFPA 79 Technical Committee prior to submittal, nor had it been circulated to the entire NFPA Technical Committee for comment either by letter or electronically. Upon review by the entire NFPA 79 Technical Committee September 24-26, 2003, while the listing concept was agreeable, it was pointed out there is no definition for "industrial control panel" and it would be impracticable or even impossible for machinery tool builders to provide meaningful short circuit current ratings because they have no control over the electrical characteristics of purchaser.

In addition, a review of UL 508A Industrial Control Panels dated April 25, 2001 shows many areas of concern also. For instance, on page 1, it states that this proposed standard is substantially in accordance with UL Bulletin dated November 18, 1996. This effectively ignores changes to NFPA 79-1997 Edition and proposed 2002 Edition. It appears to be an effort to fine-tune the text taken from the 1993 NEC and NFPA 79-1994 Editions. There have since been numerous changes made in the NFPA publications in the 1997 version, attempting to harmonize with international standards on machinery. In addition, the proposed and adopted NFPA 79-2002 has an entirely new format and numbering system, adapts language from SAE and IEC standards on the same subject, and provides more application information for branch circuit and covers conductor sizes of less than 14 AWG. This will have the effect of drastically restricting use of acceptable, newer methods, obsolete concepts will to be presented as the latest ideas, and ignore the fact that NFPA 79-20002 has deleted use of ungrounded control circuits unless an insulation monitoring device is utilized in order to comply with 250.20(B)(1). For example, the specific section from NFPA 79-2002 is as follows:

"8.3.1 Ungrounded control circuits shall be provided with an insulation monitoring device that either indicates a ground (earth) fault or interrupts the circuit automatically after a ground (earth) fault."

As a member of the NFPA 79 Technical Committee, this is not intended to represent the viewpoint of any other NFPA 79 Technical Committee members, but I believe it fairly represents the grave concern of almost all, if not all, that was expressed at the meeting.

Panel Meeting Action: Reject
Panel Statement: The panel reaffirms its position and action taken on Proposal 12-82 and does not agree that the changes proposed by the submitter will increase safety.

The panel recognizes that the submitter has voiced a single concern as a member of the NFPA 79 Technical Committee.

In addition, the panel advises the submitter that proposal 12-82 resulted from the work of a task group including technical committee members of NFPA 79, and members of Code-Making Panel 12.

Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

12-46 Log #3362 NEC-P12 **Final Action: Reject**
(670.3(A))

Submitter: Gary J. Locke, Lockheed Martin Systems Integration
Comment on Proposal No: 12-82
Recommendation: Revise text to read as follows:

670.3 Machine Nameplate Data.

(A) A permanent nameplate shall be attached to the machine or machine controller ~~control equipment~~ enclosure ~~or machine~~ and shall be plainly visible after installation. The nameplate shall include the following information.

(1) Supply voltage, phase, frequency, and full-load current,

(2) Maximum ampere rating of the short-circuit and ground-fault protective device,

(3) Ampere rating of largest motor or load

(4) Short Circuit Current Rating of the machine controller, ~~industrial control panel, based on one of the following:~~

~~(a) Short Circuit Current Rating of a listed and labeled machine control enclosure or assembly~~

~~(b) Short Circuit current rating established utilizing an approve method~~

FPN: UL 508A-2001 Supplement SB is an example of a ~~an approved~~ method with which to establish the Short Circuit Current Rating of a machine controller.

(5) Electrical diagram number(s) or the number of the index to the electrical drawings shall be attached to the control equipment enclosure or machine where plainly visible after installation.

The full-load current shown on the nameplate shall not be less than the sum of the full-load currents required for all motors and other equipment that may be in operation at the same time under normal conditions of use. Where unusual type loads, duty cycles, and so forth require oversized conductors or permit reduced-size conductors, the required capacity shall be included in the marked "full-load current." Where more than one incoming supply circuit is to be provided, the nameplate shall state the above information for each circuit.

Substantiation: 670(A): "Control equipment" is not a term that is defined in the NEC. The definition of "control equipment" as found in NFPA 79 is not appropriate for use relative to NEC 670(A). "Controller," which is a term defined in NEC Article 100 I, is more appropriate as applied to NEC 670(A).

Placing "machine" ahead of "machine controller enclosure" is editorial relative to sentence flow.

670(A)(4): Most are in concurrence that the simple identification of the Short Circuit Current Rating of a machine protective device does not provide sufficient safety related data to those who interact with the electrical system of said machine. The issue, therefore, becomes one of how to best ensure that the Short Circuit Current Rating of a more complex machine controller can be most effectively, efficiently and expeditiously ascertained, and provided. A short, concise, requirement - as identified in the proposal section above - is desirable to that end. Such a requirement affords some immediate implementation utility wherever a machine controller is evaluated for Listing to UL 508A - as UL 508A Supplement SB will be used.

Furthermore, action of a positive nature by CMP12 on this comment may cause the Technical Committee on Electrical Equipment of Industrial Machinery to identify a suitable method of ascertaining the Short Circuit Current rating of a machine controller as part of the requirements of NFPA 79, Electrical Standard for Industrial Machinery. Such requirements in NFPA 79 will provide accessible, standardized methodology to that segment of the industrial machinery market that does not build controllers to UL 508A. (Perhaps the Technical Correlating Committee can, or may see fit to, formally charge the Technical Committee on Electrical Equipment of Industrial Machinery to take such action.) As NFPA 79 is now in revision cycle such aforesaid requirements would most likely become available to the NFPA 79 user community in 2005.

670(A)(4) FPN: The FPN indicates to the affected parties that they can avail themselves of the methodology identified in UL 508A Supplement SB. Such an availing will thereby not predispose any affected party to an undesirable, difficult and unsafe predicament whereby some as of yet undetermined, alternative, poorly evaluated method might be offered for ad hoc consideration. UL 508A Supplement SB can safely suffice as the de facto method until at which time an additional method might be identified in NFPA 79.

Panel Meeting Action: Reject
Panel Statement: The panel reaffirms its position and action taken on Proposal 12-82. The panel does not agree that the changes proposed by the submitter will increase safety.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

12-47 Log #1255 NEC-P12 **Final Action: Reject**
(670.5)

Submitter: Charles M. Trout, Maron Electric Co. Inc.
Comment on Proposal No: 12-86
Recommendation: This proposal should be Accepted in Principle. Do not delete as the proposal suggests but rather add a second and third paragraph to 670-5 to read:

The name(s) of the qualified person(s) shall be kept in a permanent record at the office of the establishment in charge of the completed installation and at the office of the Authority Having Jurisdiction. Notification of any changes in the employment of the designated qualified person(s) shall be made to the office of the Authority Having Jurisdiction.

A person designated as a qualified person shall possess the skills and knowledge related to the construction and operation of the electrical equipment and installation and shall have received documented safety training on the hazards involved. Documentation of their qualifications shall be on file with the office of the Authority Having Jurisdiction and the office of the establishment in charge of the completed installation.

Substantiation: It was not necessarily my desire to have the wording in 670.5 deleted, if the wording could be changed to include prescriptive requirements that could ensure that qualified persons are actually performing the maintenance and supervision as required by 670.5 The National Electrical Code is a prescriptive code and it is the technical committees' responsibility

to ensure that prescriptive requirements are present for the Authority Having Jurisdiction to use. Our concern should be if the qualified person is actually present and is documented as a qualified person. The only way to appropriately apply 670.5 is to provide prescriptive requirements that the Authority Having Jurisdiction can use to enforce the intent of 670.5. Section 670.5 has been deleted by Panel Action on Proposal 12-84. This comment is in the event of a change to that action.

It is difficult to understand how it is possible to relax requirements for safety in a Code that tells us in 90.1(B), "this Code contains provisions that are considered NECESSARY for safety." This section further states that "Compliance therewith and proper maintenance will result in an installation that is ESSENTIALLY free from hazard but NOT NECESSARILY efficient, convenient, or ADEQUATE for good service or future expansion of electrical use." It appears to me that this tells us that these requirements are the MINIMUM requirements for safety and anything less will result in an installation that is NOT FREE FROM HAZARD.

Proponents of this travesty, knowing the truth in this, attempt to circumvent the obvious degradation of safety by using phraseology such as "the installation is under engineering supervision" or "a qualified person will monitor the system." What is monitoring the installation? What does engineering supervision mean?

I have submitted several proposals to delete these exceptions to requirements for safety but they were all rejected. Perhaps in the comment stage, enough persons will comment in favor of accepting these proposals or at least accepting them in a manner where some prescriptive requirements will be added to accurately describe what "engineering supervision" entails. What does "monitoring" the installation mean, what type of record keeping is necessary to assure compliance, what is a "monitor" or what is a "qualified person?" How is documentation of the qualifications and presence of a "qualified person" accomplished by the Authority Having Jurisdiction?

Without these prescriptive requirements, these exceptions to the requirements for safety appear to be "just another subterfuge to avoid compliance with the safety requirements of the National Electrical Code without regard to putting persons and equipment at risk."

Panel Meeting Action: Reject
Panel Statement: The panel understands that the action taken on Proposal 12-84 has removed 670.5.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

ARTICLE 675 — ELECTRICALLY DRIVEN OR CONTROLLED IRRIGATION MACHINES

19-56 Log #854 NEC-P19 **Final Action: Accept**
(675.8(A) Exception (New))

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 19-156
Recommendation: The Technical Correlating Committee directs the panel to reconsider the proposal and correlate the requirement with the requirements for controllers in 430.83. This action will be considered by the Panel as a Public Comment.
Substantiation: This is a direction from the National Electrical Code Technical Correlating Committee in accordance with 3-4.2 and 3-4.3 of the Regulations Governing Committee Projects.
Panel Meeting Action: Accept
Accept Proposal 19-156.
Panel Statement: The panel has reconsidered its action on Proposal 19-156 and concurs with the Technical Correlating Committee action to correlate this section with 430.83(A)(3). The panel reverses it original action and accepts Proposal 19-156.
Number Eligible to Vote: 8
Ballot Results: Affirmative: 8

ARTICLE 680 — SWIMMING POOLS, FOUNTAINS, AND SIMILAR INSTALLATIONS

17-101 Log #1871 NEC-P17 **Final Action: Accept**
(680.5(B) (New))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-58
Recommendation: Continue to reject the proposal.
Substantiation: The submitter was closely involved with the 2002 rewrite of Article 680, and this is one of a group of comments intended to bring a common editorial perspective to the proposals submitted in this cycle that apply to the various changes that were implemented as part of that process.
The panel statement is correct. One reason for shifting the location of this requirement is to clarify exactly what the submitter now realizes, namely, that the old requirement only applied to underwater lights.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-102 Log #1872 NEC-P17 **Final Action: Accept**
(680.8)

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-61
Recommendation: The proposal should be accepted in principle. Revise the new sentence to read (in two sentences) as follows: "Overhead conductors shall meet the clearance requirements in this section. Where a minimum clearance from the water level is given, the measurement shall be taken from the maximum water level of the specified body of water."
Substantiation: The submitter was closely involved with the 2002 rewrite of Article 680, and this is one of a group of comments intended to bring a common editorial perspective to the proposals submitted in this cycle that apply to the various changes that were implemented as part of that process.
This is an editorial comment. Once text is added to the parent section, it should say what the section is about before it jumps into a clarification of clearance measurements. This section requires clearances from many other things in addition to the water level itself. The proposal as submitted literally conflicts with all "B" clearances, since those clearances are not measured from the water level. This comment provides the correct wording.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-103 Log #1873 NEC-P17 **Final Action: Reject**
(680.9 Exception (New))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-63
Recommendation: The proposal should be accepted in principle. Revise as follows: "Listed instantaneous electric water heaters shall be permitted to have their loads subdivided in accordance with 422.11(F)(3)."
Substantiation: This is intended to be a permissive exception, and as such should be clearly stated. The proposal as written literally forbids listed water heaters to use the more conservative subdivision procedure mandated in the parent rule. If this comment is accepted, it will also modify the action on Proposal 17-62.
Panel Meeting Action: Reject
Panel Statement: The panel has reconsidered its original action on Proposal 17-63 in light of the information provided in the substantiation of Comment 17-104. In addition the recommendation of Comment 17-103 is editorial in nature. See panel action on Comment 17-104. Also see panel action on Comment 17-97.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-104 Log #2194 NEC-P17 **Final Action: Accept**
(680.9 Exception)

Submitter: Robert E. Wisenburg, Coates Heater Co., Inc.
Comment on Proposal No: 17-62
Recommendation: Delete Exception: in DRAFT of proposed 2005 Edition of the NEC. All ELECTRIC heaters used for the purpose of heating swimming pools and spas should have their loads subdivided as required in 680.9; not exceeding 48 amps per circuit and protected by not more than 60 amps.
Substantiation: The Proposed changes to 680.9 are an attempt to circumvent the NEC and the Standard for Electric Swimming Pool and Spa Heaters, UL 1261. Use of the word "INSTANTANEOUS" is a misnomer when applied to heating a pool or spa. The heater itself has resistance heating elements that work the same as any other water heater. The only difference of this heater is that the tank is very small, usually in the area of 1 to 2 pints instead of several gallons as in more conventional pool and spa heaters. NEC 422.11(F)(1) requires electric heaters with resistance heating elements to have circuits subdivided into 48 amp loads. 422.11(F)(3) is related to water heaters and boilers that are ASME rated and listed for use in other than pool and spa heating. UL 1261 is a well-developed Standard that should be adhered to. The product that is proposed will not have to meet UL 1261 Standard and will be installed without any supplementary branch circuit protectionl. These are heaters that will exceed 50 kilowatts, over 200 amps with no circuit subdivision, in residential installations.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-105 Log #3196 NEC-P17 **Final Action: Accept**
(680.10)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 17-64
Recommendation: This proposal should be rejected in its entirety, contrary to the panel action.
Substantiation: With the highly corrosive nature of swimming pool, spa, and similar waters, the likelihood of the conductors becoming corroded is eminent. Due to the construction method of MC cable, it is impossible to replace the conductors. While the argument has been presented that the NEC presently allows Rigid as a wiring method, and some areas of the country experience additional corrosive environments that would cause the interior of the conduit to rust and cause seizing of the conductors, this should be addressed by the local AHJ body for more stringent evaluation. By allowing the use of MC cable, CMP-17 is stating that the remove-ability of conductors is unimportant. 90.1(A) states that, "the purpose of the NEC is to provide the practical safeguarding of persons and property from the hazards arising from the use of electricity." 90.1(B) further states, "compliance herewith and proper maintenance will result in an installation that is essentially free from hazard but not necessarily efficient, convenient, or adequate for good service or future expansion of electrical use." Initially, it may seem that any concern regarding the ability to replace damaged or corroded conductors is not the concern of the NEC. However, upon further consideration it demonstrates a direct concern with safety and not necessarily good work practices or proper design. As stated in 90.1(C), "This Code is not intended as a design specification...". It should be the requirement of the NEC to ensure the application of the above requirements when considering changes to Article 680. As such, it would create a hazardous condition to allow a wiring method to be employed that would encourage repairs on damaged conductors that would not meet the free-length requirement indicated under 300.14. Without a removable method, the conductors associated with MC cable will recreate a potentially hazardous condition. CMP-17 should NOT consider the NEC requirements being limited to new or remodel conditions, but to cover maintenance concerns as well. In closing, it is important to also note that the 1999 NEC, 680-25(C) was revised to make the exception a part of the general rule. Then the 2002 NEC, 680-25(A) relocated the requirement to Part A and eliminated the liquidtight flexible metal conduit and the MC cable. It should also be our concern as an industry to consider the safety aspects of any flexible metal media of the wound tape type that could corrode and in lieu of a "parallel grounding path" become a "ground choke" during a fault condition.
This comment represents the official position of the International Brotherhood of Electrical Workers Codes & Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-106 Log #3197 NEC-P17 **Final Action: Accept**
(680.10)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 17-64
Recommendation: The panel should reject this proposal.
Substantiation: The submitter gives no evidence of how the including of this wiring method would add to the safety of electrical wiring around a pool. MC cable is a wiring method that has the electrical conductors installed in the raceway at the time of installation and the conductors cannot be extracted for repair or replacement. All of the other wiring methods listed in Table 680.10 are installed without the conductors in the raceways and conductors can be extracted for repair, modification or replacement. In pool construction, especially residential installations, the work is done by homeowners or contractors many of which may not be aware of the special care or the proper time to install this wiring system. This could lead to damage or unusable conductors that my not be detected until after construction is completed which would be an additional expense to the owner and safety hazards. By using the wiring methods that are now listed in Table 680.10, the installation of the conductors is usually done after the concrete is poured and most of the construction work is completed. Therefore, I recommend that the panel reject this proposal.
This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-107 Log #3494 NEC-P17 **Final Action: Accept**
(680.10)

Submitter: J. Ron Caccamese, Nathan Alterman Electric Company, Ltd.
Comment on Proposal No: 17-64
Recommendation: This proposal should be rejected in its entirety, contrary to the panel action.
Substantiation: With the highly corrosive nature of swimming pool, spa, and similar waters, the likelihood of the conductors becoming corroded is eminent. Due to the construction method of MC cable, it is impossible to replace the conductors. While the argument has been presented that the NEC presently allows rigid as a wiring method, and some areas of the country experience additional corrosive environments that would cause the interior of the conduit to rust and cause seizing of the conductors, this should be addressed by the local AHJ body for more stringent evaluation. By allowing the use of MC cable. CMP 17 is stating that the remove-ability of conductors is unimportant. Article 90.1(A) states that, "the purpose of the NEC is to provide the practical safeguarding of persons and property from the hazards arising from the use of electricity." Article 90.1(B) further states " compliance herewith and proper maintenance will result in an installation that is essentially free from hazard but not necessarily efficient, convenient, or adequate for good service or future expansion of electrical use." Initially, it may seem that any concern regarding the ability to replace damaged or corroded conductors is not the concern of the NEC. However, upon further consideration it demonstrates a direct concern with safety and not necessarily good work practices or proper design. As stated in Article 90.1(C),, "This code is not intended as a design specification..." It should be the requirement of the NEC to ensure the application of the above requirements when considering changes to Article 680. As such, it would create a hazardous condition to allow wiring method to be employed that would encourage repairs on damaged conductors that would not meet the free-length requirement indicated under Article 300.14. Without a removable method the conductors associated with MC cable will recreate a potentially hazardous condition. CMP 17 should NOT consider the NEC requirements being limited to new or remodel conditions, but to cover maintenance concerns as well. In closing, it is important to also note that the 1999 NEC, article 680.25(c) was revised to make the exception a part of the general rule. Then, the 2002 NEC, article 80.25(A) relocated the requirement to part A and eliminated the liquidtight flexible metal conduit and the MC cable. It is should also be our concern as an industry to consider the safety aspects of any flexible metal media of the wound tape type that could corrode and in lieu of a "parallel grounding path" become a "ground choke" during a fault condition.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-108 Log #1297 NEC-P17 **Final Action: Accept in Part**
(680.12)

Submitter: Alan H. Nadon, City of Elkhart, IN
Comment on Proposal No: 17-71
Recommendation: This proposal should be rejected.
Substantiation: Many installations consist of more than one piece of utilization equipment. This equipment is frequently located in a locked room with the needed maintenance disconnecting means. Multiple pieces of equipment may need multiple disconnects.
Accessibility may apply to a qualified person, or a pool user, in the second case being readily accessible, may create a hazard.
Requiring a single, readily accessible disconnect could easily be misunderstood to require an emergency switch for a pool.
Panel Meeting Action: Accept in Part
Revise the current text of 680.12 to read as follows:
680.12 Maintenance Disconnecting Means.
One or more means to disconnect all ungrounded conductors shall be provided for all utilization equipment other than lighting. Each means shall be readily accessible and within sight from its equipment.
Panel Statement: The panel concurs that it may be misunderstood that the phrase "means to disconnect" could be misconstrued to mean a single disconnecting means for all equipment. The panel agrees with the addition of the word "readily."
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-109 Log #1874 NEC-P17 **Final Action: Accept**
(680.12)

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-69
Recommendation: Continue to reject this proposal.
Substantiation: The submitter was closely involved with the 2002 rewrite of Article 680, and this is one of a group of comments intended to bring a common editorial perspective to the proposals submitted in this cycle that apply to the various changes that were implemented as part of that process.
The proposal would apply the minimum spacing requirement throughout the article, because of its location in Part I. Although appropriate for pools, it is not appropriate for spas, for example, where the disconnect could be under the skirt. In such locations it will never be reached by a person in the water, and yet be very accessible for maintenance personnel, particularly in commercial spa or hot tub enterprises. The panel action was correct.

Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-110 Log #1875 NEC-P17 **Final Action: Accept in Part**
(680.12)

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-71
Recommendation: Continue to accept the proposal.
Substantiation: The submitter was closely involved with the 2002 rewrite of Article 680, and this is one of a group of comments intended to bring a common editorial perspective to the proposals submitted in this cycle that apply to the various changes that were implemented as part of that process.
This change is in the interest of safety and should not present problems to the industry.
Panel Meeting Action: Accept in Part
See panel action on Comment 17-108.
Panel Statement: See panel action and statement on Comment 17-108.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-111 Log #2837 NEC-P17 **Final Action: Reject**
(680.12)

Submitter: Linda J. Little St. Louis, MO
Comment on Proposal No: 17-68
Recommendation: The proposal should be accepted.
Substantiation: The panel statement to reject this proposal reads in part "No evidence has been provided to indicate emergency switches are needed for safety at a pool." However, ample technical substantiation exists in the American Red Cross publication "Don't Swim with Shocks". The American Red Cross has compiled sufficient data to support this proposal with the following statistics: "There have been 60 electrocutions and nearly 50 serious electrical shocks, involving hazards in and around swimming pools, since 1990." This same publication contains the recommendation that if an individual in the water is experiencing an electrical shock, someone should "immediately turn off all power." This is only possible when a clearly marked switch in the pool area is accessible to the users.
The same hazards are present near pools as those near spas and hot tubs. The swimming pool maintenance disconnecting means now required to be "accessible and within site of its equipment" can be hidden behind access panels and hard to find. Children are the most likely victims of pools accidents and least likely to know where to find the disconnecting means. This proposal is safety driven and is a classic example of the stated purpose of the NEC as it is "practical" to require a safety disconnecting means for the purpose of "safeguarding persons." Therefore, the original proposal should be accepted.
Note: Supporting material is available for review at NFPA Headquarters.
Panel Meeting Action: Reject
Panel Statement: The comment submitter did not provide substantial evidence that a revision to the disconnect location was warranted. Article 680.12 is in reference to a maintenance disconnect, not to an emergency shut-off.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 9 Negative: 1
Explanation of Negative:
YASENCHAK: It is essential to provide the already required disconnecting means in a visible and accessible location for use by other than maintenance personnel. The hazards associated with swimming pool equipment go beyond the equipment itself and into the swimming pool system. Should an emergency occur, the present wording without revision allows the pool equipment to not only be out of sight, but to be contained within a locked area (not accessible) or room. This leaves rescue personnel with little or no ways of knowing where the equipment disconnects are located. Valuable time could be lost during any rescue attempt.

17-112 Log #3195 NEC-P17 **Final Action: Reject**
(680.12)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 17-68
Recommendation: This proposal should be accepted.
Substantiation: The panel statement to reject this proposal reads in part, "No evidence has been provided to indicate emergency switches are needed for safety at a pool." However, American Red Cross data indicate otherwise. In the publication Don't Swim With Shocks, they cite the following statistics: "There have been 60 electrocutions and nearly 50 serious electrical shocks, involving hazards in and around swimming pools, since 1990." This same publication contains the recommendation that if an individual in the water is experiencing an electrical shock, someone should "immediately turn off all power." This is only possible when a clearly marked switch in the pool area is accessible to the users.
The same hazards are present near pools as those near spas and hot tubs. The swimming pool maintenance disconnecting means now required to be 'accessible and within site of its equipment' can be hidden behind access panels and hard to find. Children are the most likely victims of pool accidents and least likely to know where to find the disconnecting means. Therefore, the original proposal should be accepted.
This comment represents the official position of the International Brotherhood of Electrical Workers Codes & Standards Committee.
Panel Meeting Action: Reject
Panel Statement: See panel action and statement on Comment 17-111.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 9 Negative: 1
Explanation of Negative:
YASENCHAK: See my explanation of negative vote on Comment 17-111.

17-113 Log #1876 NEC-P17 **Final Action: Reject**
(680.21(A)(1))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-74
Recommendation: The proposal should be accepted in principle. Revise as follows:
"In any location other than the interior of a single family dwelling and accessory buildings as covered in (4), any wiring method employed shall contain an insulated copper equipment grounding conductor sized in accordance with 250.122 but not smaller than 12 AWG."
Substantiation: The submitter was closely involved with the 2002 rewrite of Article 680, and this is one of a group of comments intended to bring a common editorial perspective to the proposals submitted in this cycle that apply to the various changes that were implemented as part of that process.
The proposal is intended to correct an error that crept in to the 2002 rewrite, for which this submitter takes responsibility. It was never intended to remove this requirement. However, as written, the proposal creates a conflict with paragraph 4 following, since Type NM cable is not customarily produced with an insulated grounding conductor. This comment meets the submitter's intent without creating a conflict. If this comment is accepted, it will also change the result of the action on Proposal 17-73.
Panel Meeting Action: Reject
Panel Statement: The additional wording is not necessary. Item (1) applies generally while (2), (3), (4), and (5) apply to specific occupancies or installations.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-114 Log #1877 NEC-P17 **Final Action: Reject**
(680.21(A)(4))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-75
Recommendation: Reject the proposal.
Substantiation: The submitter was closely involved with the 2002 rewrite of Article 680, and this is one of a group of comments intended to bring a common editorial perspective to the proposals submitted in this cycle that apply to the various changes that were implemented as part of that process.
This proposal reduces the safety of the installation without any observable substantiation. The lack of an insulated equipment grounding conductor in the other areas cited in the substantiation resulted from a drafting error in the 2002 rewrite process and has been corrected by the action on the same submitter's Proposal 17-73 and others. If a raceway is being used, there is no good reason not to install the insulated conductor.
Panel Meeting Action: Reject
Panel Statement: The need for an insulated equipment grounding conductor is required in the general statement in 680.21(A)(1) as addressed in the panel action on Comment 17-113. The submitter has not provided substantiation that safety will be reduced.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-115 Log #3194 NEC-P17 **Final Action: Reject**
(680.21(A)(4))

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 17-76
Recommendation: This proposal should have been Accepted.
Substantiation: Article 680-6(d) of the 1999 NEC was a new section that added ground-fault circuit interrupters as follows: "motors in other than dwelling units. Wiring supplying pool pump motors rated 15 and 20 amperes, 125 volts or 240 volts, single phase, whether receptacle or direct connection, shall be provided with ground-fault circuit interrupter protection for personnel." During the revision to reorganize article 680 in the 2002 version of the NEC, this requirement was inadvertently omitted. In addition, this requirement was

a component of Part A, General, and, therefore, applied to all parts unless specifically modified by other parts of article 680. It is essential that the level of protection previously afforded be maintained by reinstating this requirement in the 2005 NEC. Furthermore, with the GFCI requirements for receptacles as listed in 680.22(A), and the inherent hazards associated with electrical equipment in and around permanently installed pools, maintaining consistency with GFCI protection on all electrical equipment whether permanently connected or cord and plug connected, especially the pump motors that interact with the water system, is essential. To include GFCI protection for all pool associated motors as previously required in the 1999 NEC allows for uniformity, and helps to ensure safety measures are not circumvented by attempting to "hard-wire" equipment to eliminate the need for GFCI protection.

This comment represents the official position of the International Brotherhood of Electrical Workers Codes & Standards Committee.

Panel Meeting Action: Reject

Panel Statement: The panel does not agree that this requirement was inadvertently omitted (see submitter's substantiation on Comment 17-130). The submitter has not provided substantiation that a hazard exists.

Number Eligible to Vote: 10

Ballot Results: Affirmative: 8 Negative: 2

Explanation of Negative:

ROCK: See my Explanation of Negative Vote on Comment 17-2c.

YASENCHAK: See my explanation of negative vote on Comment 17-117.

17-116 Log #3495 NEC-P17 **Final Action: Reject**
(680.21(A)(4))

Submitter: J. Ron Caccamese, Nathan Alterman Electric Company, Ltd. / Rep. IBEW

Comment on Proposal No: 17-76

Recommendation: The proposal should be accepted in its entirety, contrary to the panel action.

Substantiation: Article 680.6(d) of the 1999 National Electrical Code was a new section that added ground-fault circuit-interrupters as follows: "motors in other than dwelling units. Wiring supplying pool pump motors rated 15 and 20 amperes, 125 volt or 240 volt single phase, whether receptacle or direct connection, shall be provided with ground-fault circuit -interrupter protection for personnel." During the revision to reorganize Article 680 in the 2002 version of the NEC, this requirement was inadvertently omitted. In addition, this requirement was a component of Part A, General and therefore applied to all parts unless specifically modified by other parts of Article 680. It is essential that the level of protection previously afforded be maintained by reinstating this requirement in the 2005 NEC. Furthermore, with the GFCI requirements for receptacles as listed in 680.22(A), and the inherent hazards associated with electrical equipment in and around permenantly installed pools, maintaining consistency with GFCI protection on all electrical equipment whether permanently connected or cord and plug connected, especially the pump motors that interact with the water system, is essential. To include GFCI protection for all pool associated motors as previously required in the 1999 NEC allows for uniformity, and helps to ensure safety measures are not circumvented by attempting to "hardwire" equipment to eliminate he need for GFCI protection.

Panel Meeting Action: Reject

Panel Statement: The panel does not agree that this requirement was inadvertently omitted (see submitter's substantiation on Comment 17-130). The submitter has not provided substantiation that a hazard exists.

Number Eligible to Vote: 10

Ballot Results: Affirmative: 8 Negative: 2

Explanation of Negative:

ROCK: See my Explanation of Negative Vote on Comment 17-2c.

YASENCHAK: See my explanation of negative vote on Comment 17-117.

17-117 Log #3193 NEC-P17 **Final Action: Reject**
(680.21(A)(6))

Submitter: Michael I. Callanan, IBEW

Comment on Proposal No: 17-77

Recommendation: This proposal should be accepted.

Substantiation: This proposal would reinstate the 1999 Code language requiring GFCI protection on single phase hard-wired pump motors. This is an important safety issue that should be considered.

Receptacle fed pump motors are already required to be GFCI protected. Hard-wired circuits are intended for the same application - to feed pump motors; the same hazards are present. The original requirement for permanently connected pool pump motors to be GFCI protected was based on an OSHA report of an investigation conducted after a 17-year old female was electrocuted when she contacted an ungrounded electric motor (See http://www.cdc.gov/niosh/face/In-house/full8835.html). An operating GFCI would have prevented this fatality. Therefore, the panel accepted the proposal to protect permanently connected pool motors. No justification was provided to remove this requirement in the 2002 NEC.

Safety of the user over the life of the pool must be a priority. It is inevitable that a hard-wired pump motor will eventually be disconnected. The seal on the pump has a limited life because chlorine causes it to corrode. Changing the seal requires disconnecting the electric in order to remove the motor bolts and the pump housing. Hard-wiring may also be disconnected for winterizing purposes. Because the connection is not permanent, there is a greater likelihood of problems. The cost of providing GFCI protection is minimal (approximately $100) with respect to the cost of the pool. Any individual in the area of a swimming pool has the right to expect this added measure of safety.

The U.S. Consumer Product Safety Commission (CPSC) in a recent Safety Alert (See http://www.cpsc.gov/cpscpub/pubs/5039.html) states that the CPSC is aware of more than a dozen electrocutions and a similar number of electrical shock incidents involving circuits around swimming pools between 1997 and 2002. The CPSC urges consumers to have a qualified electrician install GFCI protection "for all pool, spa, and hot tub electrical equipment and for underwater swimming pool lighting fixtures." They do not make an exception or distinction for hard-wired equipment.

Based on these arguments, we disagree with the panel and assert that sufficient evidence does exist to warrant GFCI protection on all pool pump motors. This evidence, coupled with the fact that manufacturer's installation instructions recommend GFCI protection for swimming pool pump motors justify the proposal.

This comment represents the official position of the International Brotherhood of Electrical Workers Codes & Standards Committee.

Panel Meeting Action: Reject

Panel Statement: The referenced OSHA report states that the electrocution occurred even though a cord-and-plug-connection with a GFCI had been installed. The grounding pin on the male plug had been removed, and the GFCI had been improperly wired. The report does not provide a basis for installing GFCI on hard wired circuits for pool motors.

The CPSC press release is not specific as to hard wire pool pump motors being the cause of the hazard.

Number Eligible to Vote: 10

Ballot Results: Affirmative: 8 Negative: 2

Explanation of Negative:

ROCK: See my Explanation of Negative Vote on Comment 17-2c.

YASENCHAK: Upon examination of the logic given for the exclusion of GFCI protection for "hardwired" pools does not adequately explain the rejection of this proposal. On the contrary, it further substantiates the need for properly installed GFCI protection for all equipment associated with swimming pools. In accordance with 680.22 (A)(5) requires GFCI protection on receptacles within 20-feet of the inside walls of a pool, 680.22(B)(4) requires GFCI protection of luminaires and ceiling fans located within 5-feet horizontally of the inside walls of the pool and 5-feet above the maximum water level, 680.23(A)(3) requires GFCI protection of underwater luminaires for re-lamping protection, 680.27(B)(2) requires GFCI protection of electrically operated pool cover motors and controllers, and 680.51(A) requires GFCI protection of equipment associated with fountain equipment. In all the areas cited, GFCI protection is deemed necessary for the protection of personnel due to the hazards associated with electrical equipment and its proximity to the various bodies of water covered under article 680. The same hazards exist with pool pump motors that are hardwired. Due to the highly corrosive nature of swimming pool water, the likelihood of the conductors becoming corroded is eminent. This includes the grounding and bonding conductors. However, when GFCI protection is included, the inherent hazards associated with electrical equipment in and around permanently installed and hardwired pools are eliminated, Maintaining consistency with GFCI protection on all electrical equipment whether permanently connected or cord and plug connected, especially the pump motors that interact with the water system, is essential. To include GFCI protection for all pool associated motors as previously required in the 1999 NEC allows for uniformity, and helps to ensure safety measures are not circumvented by attempting to "hardwire" equipment to eliminate the need for GFCI protection.

17-118 Log #3496 NEC-P17 **Final Action: Reject**
(680.21(A)(6))

Submitter: J. Ron Caccamese, Nathan Alterman Electric Company, Ltd. / Rep. IBEW

Comment on Proposal No: 17-77

Recommendation: The proposal should be accepted in its entirety, contrary to the panel action.

Substantiation: Article 680.6(d) of the 1999 National Electrical Code was a new section that added ground-fault circuit-interrupters as follows: "motors in other than dwelling units. Wiring supplying pool pump motors rated 15 and 20 amperes, 125 volt or 240 volt single phase, whether receptacle or direct connection, shall be provided with ground-fault circuit -interrupter protection for personnel." During the revision to reorganize Article 680 in the 2002 version of the NEC, this requirement was inadvertently omitted. In addition, this requirement was a component of Part A, General and therefore applied to all parts unless specifically modified by other parts of Article 680. It is essential that the level of protection previously afforded be maintained by reinstating this requirement in the 2005 NEC. Furthermore, with the GFCI requirements for receptacles as listed in 680.22(A), and the inherent hazards associated with

electrical equipment in and around permenantly installed pools, maintaining consistency with GFCI protection on all electrical equipment whether permanently connected or cord and plug connected, especially the pump motors that interact with the water system, is essential. To include GFCI protection for all pool associated motors as previously required in the 1999 NEC allows for uniformity, and helps to ensure safety measures are not circumvented by attempting to "hardwire" equipment to eliminate he need for GFCI protection.
Panel Meeting Action: Reject
Panel Statement: See panel action and statement on Comment 17-115.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 8 Negative: 2
Explanation of Negative:
ROCK: See my Explanation of Negative Vote on Comment 17-2c.
YASENCHAK: See my explanation of negative vote on Comment 17-117.

17-119 Log #3054 NEC-P17 **Final Action: Reject**
(680.21(C))

Submitter: Linda J. Little St. Louis, MO
Comment on Proposal No: 17-79
Recommendation: Recommendation: The panel should accept in principle as follows:
Emergency Switch. A clearly labeled emergency shutoff or control switch shall be installed at a point readily accessible to the users and not less than 1.5m (5 ft) away, adjacent to, and within sight of any pool having only one drain.
Substantiation: Although I agree with the panel statement that these issues are already addressed in the ANSI/NSPI, the American Red Cross recommends that persons in the vicinity of any pool should be able to "immediately turn off all power." This requires the use of a shutoff switch. The hazards that are present in pools having only one drain are the same as those in spas and hot tubs where a shutoff switch is already required. Additionally, a shutoff switch would provide an extra measure of protection for other potential accidents.
An exception for pools with at least two drains is not necessary because the wording can be incorporated in the original statement. Also, it is not necessary to list the purpose of the switch as the Code lists prescriptive requirements.
Note: Supporting material is available for review at NFPA Headquarters.
Panel Meeting Action: Reject
Panel Statement: The panel rejects the comment based on the previously rejected Proposal 17-79, and the panel statement continues to be "the hazards are already addressed by an ANSI/NSPI series of standards for pools," and no new information was given to change the panel's action.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 9 Negative: 1
Explanation of Negative:
YASENCHAK: See my explanation of negative vote on Comment 17-111.

17-120 Log #3192 NEC-P17 **Final Action: Reject**
(680.21(C))

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 17-79
Recommendation: This proposal should have been Accepted in Principle to read as follows:
Emergency Switch. A clearly labeled emergency shutoff or control switch shall be installed at a point readily accessible to the users and not less than 1.5 m (5 ft) away, adjacent to, and within sight of any pool having only one drain.
Substantiation: Although we agree with the panel statement that these issues are already addressed in the ANSI/NSPI, the American Red Cross recommends that persons in the vicinity of any pool should be able to "immediately turn off all power." This requires the use of a shutoff switch. The hazards that are present in pools having only one drain are the same as those in spas and hot tubs where a shutoff switch is already required. Additionally, a shutoff switch would provide an extra measure of protection for other potential accidents.
An exception for pools with at least two drains is not necessary because the wording can be incorporated in the original statement. Also, it is not necessary to list the purpose of the switch as the Code lists prescriptive requirements .
Note: If proposal 17-68 is accepted through action on our comment, this proposal is unnecessary.
This comment represents the official position of the International Brotherhood of Electrical Workers Codes & Standards Committee.
Panel Meeting Action: Reject
Panel Statement: See panel action and statement on Comment 17-119.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 9 Negative: 1
Explanation of Negative:
YASENCHAK: See my explanation of negative vote on Comment 17-111.

17-121 Log #3055 NEC-P17 **Final Action: Reject**
(680.22(A))

Submitter: Linda J. Little St. Louis, MO
Comment on Proposal No: 17-80
Recommendation: Recommendation: The proposal should be accepted.
Substantiation: This proposal would reinstate the 1999 Code language requiring GFCI protection on single phase hard-wired pump motors. This is an important safety issue that should be considered.
Receptacle fed pump motors are already required to be GFCI protected. Hard-wired circuits are intended for the same application - to feed pump motors; the same hazards are present. The original requirement for permanently connected pool pump motors to be GFCI protected was based on an OSHA report of an investigation conducted after a 17-year-old female was electrocuted when she contacted an ungrounded electric motor (See http://www.cdc.gov/niosh/face/In-house/full8835.html). An operating GFCI would have prevented this fatality. Therefore, the panel accepted the proposal to protect permanently connected pool motors. No justification was provided to remove this requirement in the 2002 NEC.
Safety of the user over the life of the pool must be a priority. It is inevitable that a hard-wired pump motor will eventually be disconnected. The seal on pump has a limited life because chlorine causes it to corrode. Changing the seal requires disconnecting the electric supply in order to remove the motor bolts and the pump housing. Hard-wiring may also be disconnected for winterizing purposes. Because the connection is not permanent, there is a greater likelihood of problems. The cost of providing GFCI protection is minimal with respect to the cost of the pool. Any individual in the area of a swimming pool has the right to expect this added measure of safety.
The U.S. Consumer Product Safety Commission (CPSC) in a recent Safety Alert (See http://www.cpsc.gov/cpscpub/pubs/5039.html) states that the CPSC is aware of more than a dozen electrocutions and a similar number of electrical shock incidents involving circuits around swimming pools between 1997 and 2002. The CPSC urges consumers to have a qualified electrician install GFCI protection "for all pool, spa, and hot tub electrical equipment and for underwater swimming pool lighting fixtures." They do not make an exception or distinction for hard-wired equipment.
I agree with the explanation of negative as written by Mr. Pearse and Mr. Yasenchak. I disagree with the panel action and panel statement and assert that sufficient technical substantiation does exist to warrant GFCI protection on all pool pump motors. This technical substantiation, coupled with the fact that the Manufacturer's installation instructions recommend GFCI protection for swimming pool pump motors justify the proposal and the CMP gave no substantiation whatsoever for the removal of this requirement in the last cycle.
Note: Supporting material is available for review at NFPA Headquarters.
Panel Meeting Action: Reject
Panel Statement: See panel action and statement on Comment 17-117.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 8 Negative: 2
Explanation of Negative:
ROCK: See my Explanation of Negative Vote on Comment 17-2c.
YASENCHAK: See my explanation of negative vote on Comment 17-117.

17-122 Log #3191 NEC-P17 **Final Action: Reject**
(680.22(A))

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 17-80
Recommendation: This proposal should have been accepted.
Substantiation: This proposal would reinstate the 1999 Code language requiring GFCI protection on single phase hard-wired pump motors. This is an important safety issue that should be considered.
Receptacle fed pump motors are already required to be GFCI protected. Hard-wired circuits are intended for the same application - to feed pump motors; the same hazards are present. The original requirement for permanently connected pool pump motors to be GFCI protected was based on an OSHA report of an investigation conducted after a 17-year old female was electrocuted when she contacted an ungrounded electric motor (See http://www.cdc.gov/niosh/face/In-house/full8835.html). An operating GFCI would have prevented this fatality. Therefore, the panel accepted the proposal to protect permanently connected pool motors. No justification was provided to remove this requirement in the 2002 NEC.
Safety of the user over the life of the pool must be a priority. It is inevitable that a hard-wired pump motor will eventually be disconnected. The seal on the pump has a limited life because chlorine causes it to corrode. Changing the seal requires disconnecting the electric in order to remove the motor bolts and the pump housing. Hard-wiring may also be disconnected for winterizing purposes. Because the connection is not permanent, there is a greater likelihood of problems. The cost of providing GFCI protection is minimal (approximately $100) with respect to the cost of the pool. Any individual in the area of a swimming pool has the right to expect this added measure of safety.

The U.S. Consumer Product Safety Commission (CPSC) in a recent Safety Alert (See http://www.cpsc.gov/cpscpub/pubs/5039.html) states that the CPSC is aware of more than a dozen electrocutions and a similar number of electrical shock incidents involving circuits around swimming pools between 1997 and 2002. The CPSC urges consumers to have a qualified electrician install GFCI protection "for all pool, spa, and hot tub electrical equipment and for underwater swimming pool lighting fixtures." They do not make an exception or distinction for hard-wired equipment.

Based on these arguments, we disagree with the panel and assert that sufficient evidence does exist to warrant GFCI protection on all pool pump motors. This evidence, coupled with the fact that manufacturer's installation instructions recommend GFCI protection for swimming pool pump motors justify the proposal.

This comment represents the official position of the International Brotherhood of Electrical Workers Codes & Standards Committee.

Panel Meeting Action: Reject
Panel Statement: See panel action and statement on Comment 17-117.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 8 Negative: 2
Explanation of Negative:
ROCK: See my Explanation of Negative Vote on Comment 17-2c.
YASENCHAK: See my explanation of negative vote on Comment 17-117.

17-123 Log #3497 NEC-P17 **Final Action: Reject**
(680.22(A))

Submitter: J. Ron Caccamese, Nathan Alterman Electric Company, Ltd. / Rep. IBEW
Comment on Proposal No: 17-80
Recommendation: The proposal should be accepted in its entirety, contrary to the panel action.
Substantiation: Article 680.6(d) of the 1999 National Electrical Code was a new section that added ground-fault circuit-interrupters as follows: "motors in other than dwelling units. Wiring supplying pool pump motors rated 15 and 20 amperes, 125 volt or 240 volt single phase, whether receptacle or direct connection, shall be provided with ground-fault circuit -interrupter protection for personnel." During the revision to reorganize Article 680 in the 2002 version of the NEC, this requirement was inadvertently omitted. In addition, this requirement was a component of Part A, General and therefore applied to all parts unless specifically modified by other parts of Article 680. It is essential that the level of protection previously afforded be maintained by reinstating this requirement in the 2005 NEC. Furthermore, with the GFCI requirements for receptacles as listed in 680.22(A), and the inherent hazards associated with electrical equipment in and around permenantly installed pools, maintaining consistency with GFCI protection on all electrical equipment whether permanently connected or cord and plug connected, especially the pump motors that interact with the water system, is essential. To include GFCI protection for all pool associated motors as previously required in the 1999 NEC allows for uniformity, and helps to ensure safety measures are not circumvented by attempting to "hardwire" equipment to eliminate he need for GFCI protection.
Panel Meeting Action: Reject
Panel Statement: See panel action and statement on Comment 17-115.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 8 Negative: 2
Explanation of Negative:
ROCK: See my Explanation of Negative Vote on Comment 17-2c.
YASENCHAK: See my explanation of negative vote on Comment 17-117.

17-124 Log #21 NEC-P17 **Final Action: Reject**
(680.22(A)(5))

Submitter: Stanley J. Folz, Folz Electric, Inc.
Comment on Proposal No: 17-80
Recommendation: The panel should reconsider and accept the proposal.
Substantiation: As the submitter stated, there seems to be no substantiation why this requirement was removed from the 2002 NEC, although substantiation was given during the NEC 1999 cycle that was sufficient to have the proposal accepted. To say that there is no substantiation to put it back in is asking the submitter to perform a higher standard than the committee had to perform to when they removed the requirement during the 2002 NEC cycle.
Panel Meeting Action: Reject
Panel Statement: See panel action and statement on Comment 17-115.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 8 Negative: 2
Explanation of Negative:
ROCK: See my Explanation of Negative Vote on Comment 17-2c.
YASENCHAK: See my explanation of negative vote on Comment 17-117.

17-125 Log #768 NEC-P17 **Final Action: Reject**
(680.22(A)(5))

Submitter: Michael J. Johnston Plano, TX
Comment on Proposal No: 17-80
Recommendation: This proposal should be accepted to reinstate the change accepted by the Panel for the 1999 NEC that inserted a GFCI requirement for pool pump motors in other than dwelling units. Revise text as submitted in proposal 17-80 as follows:

(5) GFCI Protection. All 125-volt receptacles located within 6.0 m (20 ft) of the inside walls of a pool or fountain shall be protected by a ground-fault circuit interrupter. ~~Receptacles that supply p~~ Pool pump motors ~~and~~ that are rated 15 or 20 amperes, 120 volt through 240 volts, single phase, shall be provided with GFCI protection.

Substantiation: This proposed change in the 1999 cycle (ROP 20-96 on page 991 of the ROP) was originally rejected by the panel. In the comment stages of the 1999 cycle a comment was submitted (ROC 20-96 on page 679 of the ROC) that provided substantiation to insert this requirement into Article 680. Panel 20 accepted the change which inserted the requirement into 680-6(d) of the 1999 NEC. In the 2002 NEC cycle there was an extensive rewrite of Article 680 proposed in ROP 20-31 AND Panel proposal 20-30a. This rewrite appeared to remove this GFCI requirement for motors in other than dwelling units without technical substantiation, but as a part of the rewrite and reorganization. This was a technical change that was inserted without sufficient substantiation. See ROP 20-30a on page 1135, ROP 20-31 on page 1140, ROP 20-31 on pages 1151 and 1160. On page 1160 there is an indication that the panel reconsidered the GFCI for hard wired pump motors but decided there was "insufficient substantiation to keep the rule" which is there decision, but the referred to ROP 20-49 and 20-50 (page 1167) which the panel accepted in principle but never retained the requirement as was intended by the submitter. Clearly in 1998 ROP 20-96 and panel action on 1999 ROC 20-96 there were injuries and fatalities provided as a bases for requiring the change as indicated by the panel initial action. Not restoring this requirement for GFCI protection for motors has lessened the requirements from the 1999 NEC to the 2002 NEC and should be restored. I have attached copies of the 1998 ROP and ROC actions and also the 2001 ROP and ROC actions which clearly indicated the panel's actions and did not reflect sufficient justification to lessen the requirement.

Note: Supporting material is available for review at NFPA Headquarters.

Panel Meeting Action: Reject
Panel Statement: See panel action and statement on Comment 17-115.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 8 Negative: 2
Explanation of Negative:
ROCK: See my Explanation of Negative Vote on Comment 17-2c.
YASENCHAK: See my explanation of negative vote on Comment 17-117.

17-126 Log #785 NEC-P17 **Final Action: Reject**
(680.22(A)(5))

Submitter: Michael J. Johnston Plano, TX
Comment on Proposal No: 17-77
Recommendation: This proposal should be accepted in principle and renumbered from 680.21(A)(6) to 680.22(A)(5), and reworded as proposed in proposal 17-80 to reinstate the GFCI requirements for pool pump motors in other than dwelling units.
Substantiation: The substantiation is the same as that provided for Proposal 17-80 and 17-86.
Panel Meeting Action: Reject
Panel Statement: See panel action and statement on Comment 17-115.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 8 Negative: 2
Explanation of Negative:
ROCK: See my Explanation of Negative Vote on Comment 17-2c.
YASENCHAK: See my explanation of negative vote on Comment 17-117.

17-127 Log #786 NEC-P17 **Final Action: Reject**
(680.22(A)(5))

Submitter: Michael J. Johnston Plano, TX
Comment on Proposal No: 17-86
Recommendation: This proposal should be accepted in principle to restore the GFCI requirement for motors in other than dwelling units that existed in 1999 NEC 680-6(d).
Substantiation: The substantiation is the same that was provided with the original proposal and the information from the 1998 ROP (pages 992 and 993) and 1998 ROC (page 679) are provided to assist the Panel in identifying what has been left out of Article 680 in the 2002 edition. There was no proposal (other than a rewrite of Article 680) that removed the requirements of 1999 NEC Section 680-6(d) from the Code.

See also substantiation to support Comment to Proposal 17-80.
Panel Meeting Action: Reject
Panel Statement: See panel action and statement on Comment 17-115.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 8 Negative: 2
Explanation of Negative:
ROCK: See my Explanation of Negative Vote on Comment 17-2c.
YASENCHAK: See my explanation of negative vote on Comment 17-117.

17-128 Log #1237 NEC-P17 **Final Action: Reject**
(680.22(A)(5))

Submitter: Donald A. Ganiere Ottawa, IL
Comment on Proposal No: 17-80
Recommendation: Panel should accept in principle.
(5) GFCI Protection. All 125-volt receptacles located within 6.0 m (20 ft) of the inside walls of a pool or fountain shall be protected by a ground-fault circuit interrupter. Pool pump motors that are supplied by branch circuits ~~Receptacles that supply pool pump motors and that are~~ rated 15 or 20 amperes, 120 volt through 240 volts, single phase, shall be provided with GFCI protection.
Substantiation: The GFCI protection that was required for hard wired pool pump motors in the 1999 code should be restored. The rating should apply to the branch circuit and not to the pump motor itself. With the current wording if the pump motor is not rated 15 or 20 amperes, GFCI protection is not required.
Panel Meeting Action: Reject
Panel Statement: See panel action and statement on Comment 17-117.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 8 Negative: 2
Explanation of Negative:
ROCK: See my Explanation of Negative Vote on Comment 17-2c.
YASENCHAK: See my explanation of negative vote on Comment 17-117.

17-129 Log #1597 NEC-P17 **Final Action: Reject**
(680.22(A)(5))

Submitter: Alan Manche, Schneider Electric/Square D Co.
Comment on Proposal No: 17-80
Recommendation: The panel should reconsider and accept proposal 17-80.
Substantiation: The 2002 NEC clearly states the GFCI protection requirement is for cord and plugged connected pumps, however CMP-20 for the 1999 NEC introduced the requirements for the protection of single phase direct connect pumps due to the substantiation presented to that panel. Contrary to the panel statement that "there is no substantiation to require hard wired motors to be GFCI protected," Based on the CMP comment, CMP-20 never question the OSHA report and substantiation for requiring GFCI on direct wired motors, however they rejected the proposal based on the availability of GFCI equipment. There is no mention of there not being adequate substantiation for requiring GFCI protection during the 1999 NEC cycle. The requirement no longer appeared after the rewrite of Article 680 and is deemed by many in the industry as an inadvertent mistake that will be taken care of in the 2005 NEC. Below is the extracted material from the ROP and ROC of the 1999 NEC which clearly established justification and a position to require the protection of direct connected single phase motors and there has been no further substantiation or proposal that would have supported removing it during the 2002 NEC cycle.
20- 96 - (680-6(b)): Reject (Log #100)
SUBMITTER: Victor V. Timpanaro, Municipal Electrical Inspectors Assoc. of NJ, Inc.
RECOMMENDATION:
Add new subsection (b) titled: "In Other than Dwelling Units"
Change existing subsection (b) to (c) and (c) to (d).
680-6(b) will read as follows:
(b) Other than Dwelling Units. Wiring, whether a receptacle or hard-wired, installed in accordance with this article and section for supply to pool filter pump motors shall have ground-fault circuit protection.
SUBSTANTIATION: We have had numerous accidents and several fatalities in New Jersey resulting from shock hazards in locations other than dwelling units, such as apartment complexes, private swim clubs, etc. As a result of these recent accidents and fatalities occurring in NJ last summer and this past season, the NJ Dept. of Health attempted to require GFCI protection at all non-dwelling pool locations. As President of the Municipal Electrical Inspectors Association of NJ, I was contacted for comment and explained that due to current legislation passed in 1977 adopting a Uniform Construction Code Regulation with the adoption each Code cycle of a Model Code, state law forbids the imposing of any electrical requirement not part of the current NEC.
We attempted to address this issue in the 1996 Code cycle with little positive action on the part of CMP 20, in spite of documentation of several deaths resulting from pool incidents. While we were looking for all pools, perhaps the members of CMP 20 will concede that these other pools are maintained by personnel usually not qualified as electricians, therefore unfamiliar with safe, and proper bonding and grounding requirements. This added Code requirement can supply local enforcing agencies with needed authority and regulation to ensure life safety to the numerous occupants of public and commercial pools that use these facilities each and every year.
The OSHA report on the fatality in one N.J. municipality alone addressed serious electrical violations of known safety requirements, that if GFCI protected, could have prevented the death of a young lifeguard, even if the other methods were overlooked. Apartment complexes and private swim clubs do not maintain electrical equipment about pools as they should with competent electrical personnel. For this reason alone, this requirement we feel is essential to the inspector to provide the needed protection. Also, and most importantly, the aforementioned pools are never cord-and-plug connected and our current code does NOT require GFCI protection under these circumstances.
We believe that the hazard is even greater at higher voltages when hard wired because if bonding and grounding has been compromised somewhere by repair or replacement, there is NO protection whatsoever for the pool users.
PANEL ACTION: Reject.
PANEL STATEMENT: The submitter is asking for a requirement that can not be enforced at this time. Many pumps in commercial applications are operated from 480 volt motors and exceed the ampere rating of GFCI's available at this time.
NUMBER OF PANEL MEMBERS ELIGIBLE TO VOTE: 11
VOTE ON PANEL ACTION: AFFIRMATIVE: 10
NEGATIVE: 1
EXPLANATION OF NEGATIVE:
EGAN: Objection to panel statement: 480 volt motors can incorporate GFI protection through incorporation of such in the contractor coil circuit.
==========
The panel action in the 1998 ROC clearly established wording to cover direct connected motors as found below:
20-96 - (680-6(b)): Accept in Principle (Log #21)
SUBMITTER: Victor V. Timpanaro, Municipal Electrical Inspectors Assoc. of NJ, Inc.
COMMENT ON PROPOSAL NO: 20-96
RECOMMENDATION: Add new text to read as follows:
(b) Other than dwelling units. Wiring supplying pool pump motors rated 15 and 20 ampere, 125 volt or 240 volt, single phase, whether by receptacle or direct connection, shall be provided with ground-fault circuit interrupter protection for personnel.
SUBSTANTIATION: Using the same substantiation as previously provided, (See Proposal 20-96 in the NEC ROP) except that we have specifically designated type of connection and rating of supply voltage and amperage.
Panel's reason to reject original proposal is understood. Comment to proposal suggests a change in language that provides protection advocated with Panel's reasoning considered.
PANEL ACTION: Accept in Principle.
Modify the submitter's recommendation as follows:
Add new text to read as follows:
(b) (d) Motors in oOther than dwelling units. Wiring supplying pool pump motors rated 15 and 20 amperes, 125 volt or 240 volt, single phase, whether by receptacle or direct connection, shall be provided with ground-fault circuit-interrupter protection for personnel.
PANEL STATEMENT: The material was relocated to a new subsection (d) to avoid confusion of having the new requirements mixed in with requirements of Section 680-6(b) which deals with lighting fixtures, lighting outlets and ceiling fans.
NUMBER OF PANEL MEMBERS ELIGIBLE TO VOTE: 11
VOTE ON PANEL ACTION: AFFIRMATIVE: 11
Panel Meeting Action: Reject
Panel Statement: See panel action and statement on Comment 17-117.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 8 Negative: 2
Explanation of Negative:
ROCK: See my Explanation of Negative Vote on Comment 17-2c.
YASENCHAK: See my explanation of negative vote on Comment 17-117.

17-130 Log #1878 NEC-P17 **Final Action: Reject**
(680.22(A)(5))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-80
Recommendation: Accept this proposal in principle. Delete the last sentence of 680.22(A)(5) and insert the following paragraph as 680.21(B), renumbering existing (B) as (C):
(B) GFCI Protection. Outlets supplying pool pump motors from branch circuits with short-circuit and ground-fault protection rated 15 or 20 amperes, 125 volt or 240 volt, single phase, whether by receptacle or direct connection, shall be provided with ground-fault circuit-interrupter protection for personnel.
Substantiation: The submitter was closely involved with the 2002 rewrite of Article 680, and this is one of a group of comments intended to bring a common editorial perspective to the proposals submitted in this cycle that apply to the various changes that were implemented as part of that process.

The assertion in some of the similar proposal substantiations that the change was inadvertent is entirely incorrect. The change resulted from a documented, specific panel action to remove the proposed 680.21(B) from the submitter's Proposal 20-31. In so doing, the panel maintained the consistency of this requirement going back to the 1960s, in that it only covered receptacles, as clearly stated in the table of panel changes to the original proposal. If the requirement is broadened to all such motors, then it must be done correctly. The original wording in 2002 Proposal 20-31 is the correct if that is the decision. A rule that applies to all motor outlets must be located in Section 21, and the requirement for motor receptacles in 680.22(A)(5) at that point becomes superfluous.

The wording suggested in this comment corrects the incompetent wording in the 1999 NEC, which has been resurrected in other proposals on this issue. It properly covers "outlets" instead of "wiring" and all occupancies instead of only nonresidential applications. There wasn't any substantiation that supported a nonresidential restriction when the 1999 proposal was acted on, and it seems apparent that the original submitter was under the misapprehension that all residential applications already had a GFCI requirement. That, of course, isn't true. It also solves the problem of exactly what parameters are being measured in the wiring specification. What, for example, is the rating of "wiring supplying pool pump motors"? The voltage (e.g. 600 V THWN?) The motor FLC (perhaps 13.4A?) The running overload protection setting? The disconnect rating? The overcurrent protective device rating? If CMP 17 does not continue to reject these proposals, then this comment is the way to bring the GFCI requirement into the NEC on these motors.

Panel Meeting Action: Reject
Panel Statement: See panel action and statement on Comment 17-117.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 8 Negative: 2
Explanation of Negative:
ROCK: See my Explanation of Negative Vote on Comment 17-2c.
YASENCHAK: See my explanation of negative vote on Comment 17-117.

17-131 Log #3498 NEC-P17 **Final Action: Reject**
(680.22(A)(5))

Submitter: J. Ron Caccamese, Nathan Alterman Electric Company, Ltd. / Rep. IBEW
Comment on Proposal No: 17-82
Recommendation: The proposal should be accepted in its entirety, contrary to the panel action.
Substantiation: Article 680.6(d) of the 1999 National Electrical Code was a new section that added ground-fault circuit-interrupters as follows: "motors in other than dwelling units. Wiring supplying pool pump motors rated 15 and 20 amperes, 125 volt or 240 volt single phase, whether receptacle or direct connection, shall be provided with ground-fault circuit -interrupter protection for personnel." During the revision to reorganize Article 680 in the 2002 version of the NEC, this requirement was inadvertently omitted. In addition, this requirement was a component of Part A, General and therefore applied to all parts unless specifically modified by other parts of Article 680. It is essential that the level of protection previously afforded be maintained by reinstating this requirement in the 2005 NEC. Furthermore, with the GFCI requirements for receptacles as listed in 680.22(A), and the inherent hazards associated with electrical equipment in and around permenantly installed pools, maintaining consistency with GFCI protection on all electrical equipment whether permanently connected or cord and plug connected, especially the pump motors that interact with the water system, is essential. To include GFCI protection for all pool associated motors as previously required in the 1999 NEC allows for uniformity, and helps to ensure safety measures are not circumvented by attempting to "hardwire" equipment to eliminate he need for GFCI protection.
Panel Meeting Action: Reject
Panel Statement: See panel action and statement on Comment 17-115.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 8 Negative: 2
Explanation of Negative:
ROCK: See my Explanation of Negative Vote on Comment 17-2c.
YASENCHAK: See my explanation of negative vote on Comment 17-117.

17-132 Log #3056 NEC-P17 **Final Action: Reject**
(680.22(D))

Submitter: Linda J. Little St. Louis, MO
Comment on Proposal No: 17-86
Recommendation: Recommendation: This proposal should be accepted.
Substantiation: The submitter's substantiation that the requirement was unintentionally removed from the Code in the re-write is accurate. Several proposals dealing with 680-6(d) in the 1999 NEC were submitted during the 2002 Code development process. However, not one of these proposals suggests omitting hard-wired pump motors from the GFCI requirement. The 2001 ROP (proposal 20-30a, p. 1133) provides a cross reference table showing revised section locations from the 1999 NEC. The cross reference table completely omits section 680-6(d). The section was neither revised nor relocated - it was omitted without substantiation. In fact, it is written in the 2001 ROC that "It is the panel intention to retain the editorial rewrite of Proposal 20-30a without changing the requirements of the 1999 NEC" (see 2001 ROC, p. 542). Clearly, correction of this oversight should be rectified by the panel for 2005.
Panel Meeting Action: Reject
Panel Statement: See panel action and statement on Comment 17-115.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 8 Negative: 2
Explanation of Negative:
ROCK: See my Explanation of Negative Vote on Comment 17-2c.
YASENCHAK: See my explanation of negative vote on Comment 17-117.

17-133 Log #3190 NEC-P17 **Final Action: Reject**
(680.22(D))

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 17-86
Recommendation: This proposal should have been accepted.
Substantiation: The submitter's substantiation that the requirement was unintentionally removed from the Code in the re-write is accurate. Several proposals dealing with 680-6(D) in the 1999 NEC were submitted during the 2002 Code development process. However, not one of these proposals suggests omitting hard-wired pump motors from the GFCI requirement. The 2001 ROP (proposal 20-30a, p. 1133) provides a cross reference table showing revised section locations from the 1999 NEC. The cross reference table completely omits 680.6(D). The section was neither revised nor relocated - it was omitted without substantiation. In fact, it is written in the 2001 ROC that "It is the panel's intention to retain the editorial rewrite of Proposal 20-30a without changing the requirements of the 1999 NEC" see 2001 ROC, p. 542). Clearly, correction of this oversight should be rectified by the panel for 2005.

This comment represents the official position of the International Brotherhood of Electrical Workers Codes & Standards Committee.

Panel Meeting Action: Reject
Panel Statement: See panel action and statement on Comment 17-115.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 8 Negative: 2
Explanation of Negative:
ROCK: See my Explanation of Negative Vote on Comment 17-2c.
YASENCHAK: See my explanation of negative vote on Comment 17-117.

17-134 Log #3499 NEC-P17 **Final Action: Reject**
(680.22(D))

Submitter: J. Ron Caccamese, Nathan Alterman Electric Company, Ltd. / Rep. IBEW
Comment on Proposal No: 17-86
Recommendation: The proposal should be accepted in its entirety, contrary to the panel action.
Substantiation: Article 680.6(d) of the 1999 National Electrical Code was a new section that added ground-fault circuit-interrupters as follows: "motors in other than dwelling units. Wiring supplying pool pump motors rated 15 and 20 amperes, 125 volt or 240 volt single phase, whether receptacle or direct connection, shall be provided with ground-fault circuit -interrupter protection for personnel." During the revision to reorganize Article 680 in the 2002 version of the NEC, this requirement was inadvertently omitted. In addition, this requirement was a component of Part A, General and therefore applied to all parts unless specifically modified by other parts of Article 680. It is essential that the level of protection previously afforded be maintained by reinstating this requirement in the 2005 NEC. Furthermore, with the GFCI requirements for receptacles as listed in 680.22(A), and the inherent hazards associated with electrical equipment in and around permenantly installed pools, maintaining consistency with GFCI protection on all electrical equipment whether permanently connected or cord and plug connected, especially the pump motors that interact with the water system, is essential. To include GFCI protection for all pool associated motors as previously required in the 1999 NEC allows for uniformity, and helps to ensure safety measures are not circumvented by attempting to "hardwire" equipment to eliminate he need for GFCI protection.
Panel Meeting Action: Reject
Panel Statement: See panel action and statement on Comment 17-115.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 8 Negative: 2
Explanation of Negative:
ROCK: See my Explanation of Negative Vote on Comment 17-2c.
YASENCHAK: See my explanation of negative vote on Comment 17-117.

17-135 Log #3545 NEC-P17 **Final Action: Reject**
(680.22(D))

Submitter: David Williams, Delta Township
Comment on Proposal No: 17-86
Recommendation: Add new text to read:
(D) Motors in other than dwelling units.
Substantiation: This section was removed from the 1999 NEC without any substantiation. Manufacturers usually require GFCI protection, most installers do not read these instructions.
Panel Meeting Action: Reject
Panel Statement: See panel action and statement on Comment 17-115.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 8 Negative: 2
Explanation of Negative:
ROCK: See my Explanation of Negative Vote on Comment 17-2c.
YASENCHAK: See my explanation of negative vote on Comment 17-117.

17-136 Log #3057 NEC-P17 **Final Action: Accept**
(680.23)

Submitter: Linda J. Little St. Louis, MO
Comment on Proposal No: 17-87
Recommendation: Recommendation: Continue to reject the proposal.
Substantiation: Although I agree with the panel action, the submitter is correct in that some clarification may be helpful to users of the Code. Since NEC does not specify depths for conduits containing low voltage conductors, burial depths in 680.10 apply. The submitter acknowledges confusion among installers, and this probably exists due to the fact that low voltage conductors are allowed to be direct-buried. Perhaps language should be added to clarify that burial depths in 680.10 apply regardless of circuit voltage.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

3-106a Log #1879a NEC-P03 **Final Action: Reject**
(680.23(B)(2))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 3-35
Recommendation: Accept the proposal in principle. Delete the words "as provided" from the sentence. In addition, add a third lettered paragraph as follows:
(c) Burial Depth. Rigid nonmetallic conduit extending to a forming shell shall, except where rising at terminations, have a minimum burial depth of not less than 450 mm (18 in.)
Substantiation: The first part of this comment is purely editorial. The sentence is complete and understandable, and consistent with comparable usage throughout the Code, if it simply refers to the requirements in a stipulated section.
The second, and principal part of this comment is actually a comment on Proposal 3-35, and is submitted in this guise in order to place the material before CMP 17 where it belongs. It is not new material. It is a direct response a proposal acted on by CMP 3 that is squarely within the scope of Article 680. Any proposal published in the ROP is deemed to be available for public review whether or not the final disposition is made by the panel to which the proposal was originally directed.
The proposal is a classic example of what should be a Chapter 6 provision, amending the normal requirements in Chapter 3. Column 5 in Table 300.5 already has the most unwieldy column title in the entire NEC, and if this rule stays where it is, NFPA staff will have a whole new formatting challenge just getting it on the page. This is the antithesis of user-friendliness. Installers looking for special requirements for raceways for swimming pool equipment look in Article 680, not 300. This is why 680.10 has its own burial table. The wording in this comment provides the editorial framework and appropriate location for the requirement.
The submitter has no strong technical position regarding whether or not an amendment to the Table 300.5 burial depths is, in fact warranted in Article 680. It may be preferable to advise the TCC that jurisdiction belongs with CMP 17 and that the proposal should be rejected. The installation cited violated 300.5 anyway, since the cover depths for a wet-niche luminaire raceway are unamended at this time in Article 680. There was no substantiation that the burial depth for such circuits in 300.5 are inadequate. This comment applies a minimum depth of 18 in. for RNC, which countermands the normal allowance in Table 300.5 for residential GFCIs and landscape lighting (and thus does constitute a Chapter 6 amendment of Chapter 3), but does not change the depth for rigid metal conduit. CMP 17 has the expertise to address this question comprehensively. The submitter has placed a companion comment on the CMP 3 agenda.
Panel Meeting Action: Reject
Panel Statement: The scope of this proposal is outside the jurisdiction of CMP 3 and should be acted on by CMP 17 since they have jurisdiction and expertise over pools. Burial depths for underground wiring supplying forming shells are found in Article 680. Adding this information to Article 300 would confuse the user, since Article 680 deals with all information necessary for pool wiring.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

17-137 Log #1879 NEC-P17 **Final Action: Accept in Part**
(680.23(B)(2))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-89
Recommendation: Accept the proposal in principle. Delete the words "as provided" from the sentence. In addition, add a third lettered paragraph as follows:
(c) Burial Depth. Rigid nonmetallic conduit extending to a forming shell shall, except where rising at terminations, have a minimum burial depth of not less than 450 mm (18 in.)
Substantiation: The first part of this comment is purely editorial. The sentence is complete and understandable, and consistent with comparable usage throughout the Code, if it simply refers to the requirements in a stipulated section.
The second, and principal part of this comment is actually a comment on Proposal 3-35, and is submitted in this guise in order to place the material before CMP 17 where it belongs. It is not new material. It is a direct response a proposal acted on by CMP 3 that is squarely within the scope of Article 680. Any proposal published in the ROP is deemed to be available for public review whether or not the final disposition is made by the panel to which the proposal was originally directed.
The proposal is a classic example of what should be a Chapter 6 provision, amending the normal requirements in Chapter 3. Column 5 in Table 300.5 already has the most unwieldy column title in the entire NEC, and if this rule stays where it is, NFPA staff will have a whole new formatting challenge just getting it on the page. This is the antithesis of user-friendliness. Installers looking for special requirements for raceways for swimming pool equipment look in Article 680, not 300. This is why 680.10 has its own burial table. The wording in this comment provides the editorial framework and appropriate location for the requirement.
The submitter has no strong technical position regarding whether or not an amendment to the Table 300.5 burial depths is, in fact warranted in Article 680. It may be preferable to advise the TCC that jurisdiction belongs with CMP 17 and that the proposal should be rejected. The installation cited violated 300.5 anyway, since the cover depths for a wet-niche luminaire raceway are unamended at this time in Article 680. There was no substantiation that the burial depth for such circuits in 300.5 are inadequate. This comment applies a minimum depth of 18 in. for RNC, which countermands the normal allowance in Table 300.5 for residential GFCIs and landscape lighting (and thus does constitute a Chapter 6 amendment of Chapter 3), but does not change the depth for rigid metal conduit. CMP 17 has the expertise to address this question comprehensively. The submitter has placed a companion comment on the CMP 3 agenda.
Panel Meeting Action: Accept in Part
The first part of the comment, which is the deletion of "as provided" in the 2002 NEC, is accepted. The second part, (C), is rejected, since burial depths are covered in Table 680.10.
Panel Statement: The panel action and statement in Proposal 17-89 remains.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-138 Log #1880 NEC-P17 **Final Action: Accept**
(680-23(B)(2)(b))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-90
Recommendation: Continue to accept the proposal.
Substantiation: The submitter was closely involved with the 2002 rewrite of Article 680, and this is one of a group of comments intended to bring a common editorial perspective to the proposals submitted in this cycle that apply to the various changes that were implemented as part of that process.
The substantiation for this proposal, part of a global reexamination of the distinctions between bonding and grounding, is correct.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-139 Log #1881 NEC-P17 **Final Action: Accept**
(680.23(B)(6) (New))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-98
Recommendation: Accept the proposal in principle. Revise to read as follows:

(6) Servicing. All luminaires shall be removable from the water for relamping or normal maintenance. Luminaires shall be installed in such a manner that personnel can reach the luminaire for relamping, maintenance, or inspection while on the deck or equivalently dry location.
Substantiation: The proposal is excellent but as worded it does not actually prohibit what it intends to prohibit. As long as someone were willing to get thoroughly wet, he or she could relamp an underwater luminaire under the new wording from inside the pool, since doing so would not require the water level to be reduced or the pool drained. This comment uses positive text (shall rather than shall not) to describe the intended result.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-140 Log #1882 NEC-P17 **Final Action: Accept in Part**
(680.23(F)(1))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-100
Recommendation: Reject the proposal.
Substantiation: This proposal breaches a raceway requirement that has been consistent for almost 40 years, with very inadequate substantiation to change accepted practice. Type MC cable is not the mechanical equivalent of a raceway. An underwater luminaire is the single most potentially hazardous electrical component of a swimming pool, and the wiring method should be the most restrictive. If this proposal remains accepted, every other Chapter 3 wiring method will line up at the door in the 2008 cycle.
Panel Meeting Action: Accept in Part
The panel rejects the deletion of "MC cable" within buildings. The panel accepts the deletion of "jacketed MC cable".
Panel Statement: The submittter has not provided adequate substantiation for why MC cable should not be used within buildings. See panel action and statement on Comment 17-141.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-141 Log #3058 NEC-P17 **Final Action: Accept**
(680.23(F)(1))

Submitter: Linda J. Little St. Louis, MO
Comment on Proposal No: 17-100
Recommendation: Recommendation: The panel should accept in part by accepting only the addition of MC cable within buildings.
Substantiation: Swimming pools by their very nature create corrosive environments due to water and chemicals. The wiring methods currently in 680.23(F)(1) allow for the retraction of conductors, which is essential. As free conductors corrode or become damaged, repairs must be made. Using non-retractable conductors would encourage repairs that would not meet the free-length requirement in 300.14. When we imply that retract-ability of conductors is unimportant, we do meet the letter of 90.1(B) which states that "compliance herewith and proper maintenance will result in an installation that is essentially free from hazard but not necessarily efficient, convenient, or adequate for good service or future expansion of electrical use." However, safety is compromised if the NEC does not mandate an installation that is practical for present use, maintenance and future use. Because jacketed MC cable is a cable assembly it does not permit the removal and replacement of conductors creating potentially hazardous situations, as repairs would include splices. This change has not been properly substantiated as it is in direct conflict with present requirements for raceways allowing for safe maintenance and repair.
Jacketed MC cable still contains an interlocking metal jacket. If for any reason the outer nonmetallic sheath becomes pierced and moisture contacts the metal, corrosion will occur. This is particularly likely in a construction area such as where a swimming pool is being installed. For this reason, metallic raceways other than rigid metal conduit or intermediate metal conduit have not been permitted in the past. It would compromise the high degree of protection of the conductors in this particularly hazardous environment to allow the use of flexible metallic raceways now.
The panel is correct in allowing MC cable to be installed within buildings for these installations. In a building, the corrosion and possible damage are no longer major issues. Additionally, replacement of conductors can be accomplished by replacing the entire cable.
Panel Meeting Action: Accept
Panel Statement: The panel accepts the submitter's comment. For clarity the panel intends to remove the addition of "jacketed MC cable" in both places and leave the addition of ",MC cable" in the recommendation of Proposal 17-100.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-142 Log #3059 NEC-P17 **Final Action: Accept**
(680.23(F)(1))

Submitter: Linda J. Little St. Louis, MO
Comment on Proposal No: 17-101
Recommendation: Recommendation: The panel should have rejected this proposal.
Substantiation: Swimming pools by their very nature create corrosive environments due to water and chemicals. The wiring methods currently in 680.23(F)(1) allow for the retraction of conductors, which is essential. As free conductors corrode or become damaged, repairs must be made. Using cable assemblies would encourage repairs that would not meet the free-length requirement in 300.14. When we imply that retract-ability of conductors is unimportant, we do meet the letter of 90.1(B) which states that "compliance herewith and proper maintenance will result in an installation that is essentially free from hazard but not necessarily efficient, convenient, or adequate for good service or future expansion of electrical use." However, safety is compromised if the NEC does not mandate an installation that is practical for present use, maintenance and future use. Because jacketed MC cable is a cable assembly it does not permit the removal and replacement of conductors creating potentially hazardous situations, as repairs would include splices. This change has not been properly substantiated as it is in direct conflict with present requirements for raceways allowing for safe maintenance and repair.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-143 Log #3060 NEC-P17 **Final Action: Accept**
(680.23(F)(1))

Submitter: Linda J. Little St. Louis, MO
Comment on Proposal No: 17-102
Recommendation: Recommendation: The panel should have rejected this proposal.
Substantiation: Liquidtight flexible metal conduit contains a metallic raceway. If for any reason the jacket becomes pierced and moisture contacts the metal, corrosion will occur. This corrosion is even more damaging in a swimming pool environment where water and chemicals are present. In an area where a swimming pool is being installed, damage to the liquidtight jacket is highly probable. Because of this, metallic raceways other than rigid metal conduit or intermediate metal conduit have not been permitted in the past. It would compromise the high degree of protection of the conductors in this particularly hazardous environment to allow the use of flexible metallic raceways now.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-144 Log #3187 NEC-P17 **Final Action: Accept**
(680.23(F)(1))

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 17-102
Recommendation: This proposal should have been rejected.
Substantiation: The submitter has not provided any technical substantiation to warrant this proposal. Merely stating that one wiring method is "equivalent" to another, does not make it so. Testing and evaluation is necessary and none has been provided.
Liquidtight flexible metal conduit contains a metallic raceway. If for any reason the jacket becomes pierced and moisture contacts the metal, corrosion will occur. This corrosion is even more damaging in a swimming pool environment where water and chemicals are present. In an area where a swimming pool is being installed, damage to the liquidtight jacket is highly probable. Because of this, metallic raceways other than rigid metal conduit or intermediate metal conduit have not been permitted in the past. It would compromise the high degree of protection of the conductors in this particularly hazardous environment to allow the use of flexible metallic raceways now.
This comment represents the official position of the International Brotherhood of Electrical Workers Codes & Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-145 Log #3188 NEC-P17 **Final Action: Accept**
(680.23(F)(1))

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 17-101
Recommendation: This proposal should have been rejected.
Substantiation: Swimming pools by their very nature create corrosive environments due to water and chemicals. The wiring methods currently in 680.23(F)(1) allow for the retraction of conductors, which is essential. As free conductors corrode or become damaged, repairs must be made. Using non-retractable conductors would encourage repairs that would not meet the free-length requirement in 300.14. When we imply that retract-ability of conductors is unimportant, we do meet the letter of 90.1(B) which states that "compliance herewith and proper maintenance will result in an installation that is essentially free from hazard but not necessarily efficient, convenient, or adequate for good service or future expansion of electrical use." However, we owe it to the user to provide an installation that is efficient and adequate for good service and future use. Because jacketed MC cable does not contain a removable wiring method, its use in this application will create a potentially hazardous situation, not to mention a poor installation.

This comment represents the official position of the International Brotherhood of Electrical Workers Codes & Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-146 Log #3189 NEC-P17 **Final Action: Accept in Part**
(680.23(F)(1))

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 17-100
Recommendation: This proposal should have been rejected.
Substantiation: The submitter has not provided any technical substantiation to warrant this proposal. Merely stating that one wiring method is "equivalent" to another, does not make it so. Testing and evaluation is necessary and none has been provided.

Swimming pools by their very nature create corrosive environments due to water and chemicals. The wiring methods currently in 680.23(F)(1) allow for the retraction of conductors, which is essential. As free conductors corrode or become damaged, repairs must be made. Using non-retractable conductors would encourage repairs that would not meet the free-length requirement in 300.14. When we imply that retract-ability of conductors is unimportant, we do meet the letter of 90.1(B) which states that "compliance herewith and proper maintenance will result in an installation that is essentially free from hazard but not necessarily efficient, convenient, or adequate for good service or future expansion of electrical use." However, we owe it to the user to provide an installation that is efficient and adequate for good service and future use. Because jacketed MC cable does not contain a removable wiring method, its use in this application will create a potentially hazardous situation, not to mention a poor installation.

Jacketed MC cable still contains a metallic raceway. If for any reason the jacket becomes pierced and moisture contacts the metal, corrosion will occur. This is particularly likely in a construction area such as where a swimming pool is being installed. For this reason, metallic raceways other than rigid metal conduit or intermediate metal conduit have not been permitted in the past. It would compromise the high degree of protection of the conductors in this particularly hazardous environment to allow the use of flexible metallic raceways now.

This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.
Panel Meeting Action: Accept in Part
See panel action on Comment 17-140.
Panel Statement: See panel action and statement on Comment 17-140.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-147 Log #3500 NEC-P17 **Final Action: Accept in Part**
(680.23(F)(1))

Submitter: J. Ron Caccamese, Nathan Alterman Electric Company, Ltd. / Rep. IBEW
Comment on Proposal No: 17-100
Recommendation: The proposal should be rejected in its entirety, contrary to the panel action.
Substantiation: See my comment submitted on Proposal 17-64.
Panel Meeting Action: Accept in Part
See panel action on Comment 17-140.
Panel Statement: See panel action and statement on Comment 17-140.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-148 Log #3501 NEC-P17 **Final Action: Accept**
(680.23(F)(1))

Submitter: J. Ron Caccamese, Nathan Alterman Electric Company, Ltd. / Rep. IBEW
Comment on Proposal No: 17-101
Recommendation: The proposal should be rejected in its entirety, contrary to the panel action.
Substantiation: See my comment submitted on Proposal 17-84.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-149 Log #3502 NEC-P17 **Final Action: Accept**
(680.23(F)(1))

Submitter: J. Ron Caccamese, Nathan Alterman Electric Company, Ltd. / Rep. IBEW
Comment on Proposal No: 17-102
Recommendation: The proposal should be rejected in its entirety, contrary to the panel action.
Substantiation: See my comment submitted on Proposal 17-84.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-150 Log #1883 NEC-P17 **Final Action: Reject**
(680.25(A))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-108
Recommendation: The proposal should be accepted in principle, further modified to be worded as follows:
(A) General. Feeders shall be installed in rigid metal conduit, intermediate metal conduit, rigid nonmetallic conduit, liquidtight flexible metal conduit, liquidtight flexible nonmetallic conduit or Type MC cable. Electrical metallic tubing shall be permitted where installed on or within a building. Flexible metal conduit or electrical nonmetallic tubing shall be permitted where installed within a building.
Substantiation: This wording uses the correct reference to Type MC cable; the generic wording "metal-clad cable" will be the subject of endless debate as to whether or not it includes other cables with metal armor such as Type AC. The last sentence has been corrected by adding the missing conjunction "or".
Panel Meeting Action: Reject
Panel Statement: Due to the corrosive nature of the swimming pool environment it is the panel's concern that the metal sheath of Type MC cable would be compromised as well as the metal sheath of flexible metal conduit. The submitter has not provided substantiation for equivalency to existing permissible methods.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-151 Log #3061 NEC-P17 **Final Action: Accept**
(680.25(A))

Submitter: Linda J. Little St. Louis, MO
Comment on Proposal No: 17-108
Recommendation: Recommendation: The panel should have rejected this proposal.
Substantiation: The second sentence of the submitter's substantiation is extremely flawed. It is the submitter that wishes to reduce the physical protection of feeders. All raceways and cable assemblies provide some level of physical protection. However not all are equal. It is here in Chapter six of the NEC that specific requirements for specific applications are outlined for feeders. The present requirements provide a significantly higher degree of physical protection than the text of this proposal. The submitter has provided zero technical substantiation for this proposed change. Therefore the CMP should request a fact finding report before raceways and cable assemblies of lesser strength are accepted.

How is it 'apparent' that the code panel intended to provide feeder conductors with a 'minimum' form of physical protection? None of the wiring methods allowed are listed as providing 'minimum' protection of conductors.

The submitter claims that "many times a feeder has to be fished in and a flexible wiring method is preferred." Although a feeder may occasionally need to be fished, this is not a preferred installation and should be avoided. Branch circuits are more often fished, but even this is not a preferred installation. Therefore, the NEC should not be changed with this type of installation in mind unless substantial technical substantiation is provided.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-152 Log #3186 NEC-P17 **Final Action: Accept**
(680.25(A))

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 17-108
Recommendation: This proposal should have been rejected.
Substantiation: The submitter's substantiation is ridiculous. How is it 'apparent' that the code panel intended to provide feeder conductors with a 'minimum' form of physical protection? None of the wiring methods allowed are listed as providing 'minimum' protection of conductors.

The submitter claims that "many times a feeder has to be fished in and a flexible wiring method is preferred." Although a feeder may occasionally need to be fished, this is not a preferred installation and should be avoided. Branch circuits, not feeders, are often fished, but even this is not a preferred installation. Therefore, the Code should not be developed with this type of installation in mind.

This comment represents the official position of the International Brotherhood of Electrical Workers Codes & Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-153 Log #3503 NEC-P17 **Final Action: Accept**
(680.25(A))

Submitter: J. Ron Caccamese, Nathan Alterman Electric Company, Ltd. / Rep. IBEW
Comment on Proposal No: 17-104
Recommendation: The proposal should be rejected in its entirety, contrary to the panel action.
Substantiation: See my comment submitted on Proposal 17-84.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-154 Log #3504 NEC-P17 **Final Action: Accept**
(680.25(A))

Submitter: J. Ron Caccamese, Nathan Alterman Electric Company, Ltd. / Rep. IBEW
Comment on Proposal No: 17-106
Recommendation: The proposal should be rejected in its entirety, contrary to the panel action.
Substantiation: See my comment submitted on Proposal 17-84.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-155 Log #3505 NEC-P17 **Final Action: Accept**
(680.25(A))

Submitter: J. Ron Caccamese, Nathan Alterman Electric Company, Ltd. / Rep. IBEW
Comment on Proposal No: 17-107
Recommendation: The proposal should be rejected in its entirety, contrary to the panel action.
Substantiation: See my comment submitted on Proposal 17-84.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-156 Log #3506 NEC-P17 **Final Action: Accept**
(680.25(A))

Submitter: J. Ron Caccamese, Nathan Alterman Electric Company, Ltd. / Rep. IBEW
Comment on Proposal No: 17-108
Recommendation: The proposal should be rejected in its entirety, contrary to the panel action.
Substantiation: See my comment submitted on Proposal 17-84.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-157 Log #1884 NEC-P17 **Final Action: Reject**
(680.25(B))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-109
Recommendation: The proposal should be accepted.
Substantiation: The submitter was closely involved with the 2002 rewrite of Article 680, and this is one of a group of comments intended to bring a common editorial perspective to the proposals submitted in this cycle that apply to the various changes that were implemented as part of that process.

The proposal corrects a conflict in the existing language in that the allowance in 680.25(B)(2) is not adequately correlated with the parent language in 680.25(B), and addresses the fact that 250.32(B)(2) allows for the elimination of a separate equipment grounding conductor; once the conductor is eliminated the presence of insulation is academic. The wording in the present NEC reflects this submitter's 2002 Comment 20-10, which intended to convey the concept of an absent equipment grounding conductor which, if installed, would have to be insulated from the grounded conductor in accordance with 250.32(B)(1). On reconsideration, the word "insulated" introduces confusion and is inappropriate for this location.
Panel Meeting Action: Reject
Panel Statement: The proposed text does not add clarity, and the substantiation is not convincing.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 9 Negative: 1
Explanation of Negative:
HUTCHINGS: The submitter is correct. The existing wording is confusing and contradictory. The proposal should be accepted for the reasons specified in the submitter's substantiation.

17-158 Log #1885 NEC-P17 **Final Action: Reject**
(680.25(B)(2))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-112
Recommendation: Reject the proposal.
Substantiation: The submitter was closely involved with the 2002 rewrite of Article 680, and this is one of a group of comments intended to bring a common editorial perspective to the proposals submitted in this cycle that apply to the various changes that were implemented as part of that process.

The proposal flip-flops this code provision two cycles after CMP 20 looked at this issue. The substantiation is unlikely at best, since it assumes that somehow the bonding grid of a pool would become a meaningful path for parallel neutral currents originating at the pool equipment panelboard. As long as that panelboard meets 250.32, even 250.32(B), it will be connected to a local grounding electrode. The genuine safety issue presented by a three-wire distribution occurs when the swimming pool is connected to a panelboard at the end of a three-wire feeder in the same building as the service equipment, and therefore there is no local grounding reference. The result in this case is that as the voltage to ground rises and falls on the neutral as a function of IZ effects, the voltage on the bonding grid rises and falls to the same degree because there is always a connection between the bonding grid and the local equipment grounding system. That system will, in turn, be bonded to the neutral in the local panel.

These arrangements do not meet code, but they do commonly exist on existing systems. This is why 680.25(A) Exception now expressly disallows existing Type SE cable assemblies unless they have a separate equipment grounding conductor. And the converse is why, contrary to the proposal substantiation, CMP 20 revised this rule in 1999 to allow any distribution to a remote building, even per 250.32(B)(2). In fact, the substantiation for 1999 Proposal 20-157, which motivated the change in the first place, cited this exact issue in wiring to a remote building. The submitter recalls debating the merits of this 1999 change in his mind at the time, and finally decided that the panel was correct, and a pool connected to a regrounded neutral at a second building was functionally equivalent in hazard to the same pool wired to a service panel in the first building. Remember that the service panel would be connected to a regrounded neutral in common with other services on the same street fed from the same utility transformer secondary. The 2002 rewrite simply carried the 1999 change forward.
Panel Meeting Action: Reject
Panel Statement: The intent of identifying 250.32(B)(1) as grounding means for a second building does not indicate that pool steel is intended as a grounding electrode system.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-159 Log #1104 NEC-P17 **Final Action: Accept**
(680.26)

Submitter: Neil F. LaBrake, Jr., Niagara Mohawk, a National Grid Company / Rep. Edison Electric Institute
Comment on Proposal No: 17-114
Recommendation: Reject this Proposal.
Substantiation: "Bonded water" and "effectively bonded water" are two new terms that would require definitions for users for consistency and understandability. The requirement would be difficult to enforce for inspectors without the specific terms being defined in Article 100 or Article 680. The current definition in Article 100 states "Bonding (Bonded). The permanent joining of metallic parts to form an electrically conductive path that ensures electrical continuity and the capacity to conduct safely any current likely to be imposed." It is not possible to bond non-metallic elements, such as water, and meet the definition.

The submitter has presented no technical substantiation or supporting data on the design requirements contained within the proposal.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-160 Log #1274 NEC-P17 **Final Action: Reject**
(680.26)

Submitter: Charles W. Williams, Progress Energy Florida, Inc.
Comment on Proposal No: 17-120
Recommendation: Revise text to read as follows:

(B) Bonded Parts. The parts specified in 680.26(B)(1) through ~~(B)(6)~~ B(7) shall be bonded together.

(6) Pool Water - No changes proposed to this item.

Add new text to section (7)

(7) Deck. All poured decks shall have a metal wire mesh of 3 in. maximum grid size imbedded internally to the deck. Paving stone decks shall have a metal wire mesh layer below the paving stones. These metal wire meshes shall be bonded to the grounded electrical system.
Substantiation: The use of poured concrete decking without internal metallic bonding leaves the deck surface at earth potential. A concrete and rebar pool has a large surface area in contact with the earth around the pool. The rebar is electrically bonded per this code. This brings the earth in the immediate vicinity of the pool to neutral potential due to the large surface area contact of the pool walls and earth surrounding the pool. The pool water is at neutral potential due to light niches, ladders and other equipment described in item (6) above being bonded and in contact with the water. When insulating materials such as fiberglass are used for the pool walls and floor, the earth around the pool does not become equal potential with the neutral. A concrete deck resting on the earth is, therefore, at earth potential unless there is an internal conductive mesh which can be bonded to the neutral, thus establishing an equipotential plane bonded to the common grounding grid. When the deck is not bonded, persons in the pool experience shocks from NTE voltages when immersed in the pool and touching the deck. This is a growing problem as more fiberglass and vinyl lined pools are constructed.
Panel Meeting Action: Reject
Panel Statement: Insufficient substantiation is provided to require placement of wire mesh in or under deck material.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-161 Log #1339 NEC-P17 **Final Action: Reject**
(680.26)

Submitter: Cecil Criss, Choptank Electric Coop
Comment on Proposal No: 17-120
Recommendation: None Provided.
Substantiation: At issue with regard to the Report on Proposals 17-120 is that one should not assume that the grounded conductor of an electric system will be at the same potential as local earth despite the numerous grounding electrodes utilized in typical multi-grounded distribution systems. Failure to recognize this leads to the assumption that pool water will be at the same potential as the grounded conductor (and equipment ground) and that no potential will develop between the pool water and anything connected or not connected to the grounding system. However, differing potentials are frequently found to exist (as observed by the authors of 17-114, 116, & 122) and prudence dictates that pool design and the NEC take this into consideration. These voltages are usually small, in the order of two to eight volts; however, they are quite noticeable in a wet environment particularly at the eight volt level. Any transient conditions such as ground faults could elevate these potentials to substantially more physiologically dangerous levels. Consequently a method needs to be in place whereby the pool water is effectively included as part of the Equipotential Bonding Grid.

Two possibilities exist: one in which the pool water is at "earth" potential and the surrounding area is at the grounded conductor (equipment ground) potential or, the pool water is at the grounded conductor (equipment ground) potential and the surrounding area is at "earth" potential. The first instance results when there is no effective electrical connection between the pool water and the grounded conductor (equipment ground) of the electric system. The second instance occurs when there is effective bonding between the pool water through such items as underwater lighting fixtures and ladders but the surrounding area does not have an effective equipotential grid or there are no structures on to which a grid may be bonded.

This aspect was addressed by Gregory Olson (17-122) in his proposed FPN note and is a good point: "Installation of a bonding grid under non-reinforced concrete or other nonconductive decking in direct contact with the earth will provide additional safety." To further expand on Mr. Olson's point, an equipotential bonding grid should be extended beyond the edge of the pool for a few feet regardless of what type of paving, decking or lack thereof exists. It is possible for instance (submitter has experienced it) to have a wooden deck in direct contact with the earth develop a potential between it and the pool water due to moisture saturation providing an electrical connection to the earth below. In this instance the pool water was at the grounded conductor (equipment ground) potential and local "earth" was not.

Therefore, the wording by Committee Chair Mr. Johnson in Comment on Affirmative relative to ROP 17-115 would be desirable with slight modification, to wit: "...shall be installed under the pool deck area <u>or within the soil at a depth of 10 inches if no deck exists</u> parallel...". This would extend an equipotential gradient zone into the soil surrounding a pool if no conductive decking material is utilized.
Panel Meeting Action: Reject
Panel Statement: Refer to panel action and statement for Comment 17-160.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-162 Log #1886 NEC-P17 **Final Action: Accept**
(680.26)

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-115
Recommendation: Continue to accept the proposal.
Substantiation: The submitter was closely involved with the 2002 rewrite of Article 680, and this is one of a group of comments intended to bring a common editorial perspective to the proposals submitted in this cycle that apply to the various changes that were implemented as part of that process. The editorial improvements in this proposal are technically sound.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-163 Log #2193 NEC-P17 **Final Action: Accept**
(680.26)

Submitter: Robert E. Wisenburg, Coates Heater Co., Inc.
Comment on Proposal No: 17-114
Recommendation: This proposal was Accepted in Principle by Panel 17 at the January 2003 Code Making Panel meetings in Hilton Head South Carolina. The Panel 17 Chairman requested a Study Group to determine the efficacy of this Proposal. The Study Group determined and recommends that the Proposal should be Rejected.
Substantiation: After consideration of the Proposal, the Study Group was unable to justify the change. Reports of incidents that would be eliminated by the Proposal did not exist. It was further determined that the technology to implement the proposed changes in a practical manner that would not cause leaks would need to be developed.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-164 Log #1887 NEC-P17 **Final Action: Accept**
(680.26(B)(4))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-117
Recommendation: The proposal should be accepted in principle and in part. Revise the second sentence of the first paragraph to read as follows: "Accessible metal parts of listed equipment incorporating an approved system of double insulation and providing a means for grounding internal nonaccessible, non-current-carrying metal parts shall not be bonded by a direct connection to the equipotential bonding grid. The means for grounding internal nonaccessible, non-current carrying metal parts shall be an equipment grounding conductor run with the power-supply conductors in the case of motors supplied with a flexible cord, or a grounding terminal in the case of motors intended for permanent connection."

Make no change to the second paragraph.

Substantiation: The submitter was closely involved with the 2002 rewrite of Article 680, and this is one of a group of comments intended to bring a common editorial perspective to the proposals submitted in this cycle that apply to the various changes that were implemented as part of that process.

The submitter correctly identifies a conflict over the bonding requirement. The wording in this comment completely separates the two classifications of metal parts, and uses the proposal wording to describe the intended reference to the bonding grid, however, in accordance with the action on Proposal 17-115, "common" is changed to "equipotential." The second sentence of this comment is the language accepted under the action on Proposal 17-153 slightly modified for this location. These changes make changes in the second paragraph unnecessary.

Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-165 Log #769 NEC-P17 **Final Action: Accept**
(680.26(B)(6))

Submitter: Michael J. Johnston Plano, TX
Comment on Proposal No: 17-120
Recommendation: The Panel should reconsider its initial action on this proposal and reject based on insufficient substantiation.
Substantiation: The proposal introduces requirements for "effectively bonding" the body of water. The term "bonded (bonding)" is already defined in Article 100 and the method explained in the new requirement includes this term and words that are used in an inconsistent fashion with the currently defined term. "Bonded water" and "effectively bonded water" are two new terms that would require definitions for users for consistency and understandability. The requirement would be difficult to enforce for inspectors without the specific defined terms Article 100 or Article 680. The submitter has provided no technical substantiation or data (such as injuries) to indicate a need for such a requirement. The proposed requirement introduces test values in ohm-centimeters and minimum sizes of conducting elements (without substantiation) to accomplish the bonding of the water itself. The requirement as accepted also introduces semi-conductive material in contact with the water, but is not specific in the type of semi-conductivity required. The second sentence of the proposed language is redundant as the information is inherent to the requirements contained in 680.26. If the Panel is concerned about the need for such bonding perhaps a Task Group with a specific purpose and direction from the TCC is in order that can assist with specific parameters that are technically based and not based on what may happen.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-166 Log #1105 NEC-P17 **Final Action: Accept**
(680.26(B)(6))

Submitter: Neil F. LaBrake, Jr., Niagara Mohawk, a National Grid Company / Rep. Edison Electric Institute
Comment on Proposal No: 17-120
Recommendation: Reject this Proposal.

Substantiation: "Bonded water" and "effectively bonded water" are two new terms that would require definitions for users for consistency and understandability. The requirement would be difficult to enforce for inspectors without the specific terms being defined in Article 100 or Article 680. The current definition in Article 100 states "Bonding (Bonded). The permanent joining of metallic parts to form an electrically conductive path that ensures electrical continuity and the capacity to conduct safely any current likely to be imposed." It is not possible to bond non-metallic elements, such as water, and meet the definition.

The submitter has presented no technical substantiation or supporting data on the design requirements contained within the proposal.

Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-167 Log #1888 NEC-P17 **Final Action: Accept**
(680.26(B)(6))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-120
Recommendation: The proposal should be rejected.
Substantiation: Water cannot be bonded. Suffice it to say that this proposal produced the highest reading on the laugh meter at the IAEI annual meeting, as a nationally recognized NEC expert described the evident futility of making such connections using hydraulically crimped connectors ("but the water just oozed out") or exothermic welding ("but the water extinguished the fuse") etc. Metal parts can and should be bonded to provide an equipotential plane in order to meet the objectives of this proposal, but requirements already exist to accomplish this.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-168 Log #2399 NEC-P17 **Final Action: Reject**
(680.26(B)(6))

Submitter: James M. Daly, General Cable
Comment on Proposal No: 17-120
Recommendation: The Proposal should be Accepted in Principle with the following revisions:

Change "200 square centimeters" to "20,000 mm2"
Change "0.5 square meters" to "0.5 m2 (3.5 ft2)"
Change "4 meters" to "4 m (16 ft)"

Substantiation: These changes will comply with Annex C of the 2003 National Electrical Code Style Manual.

The Manual states that only millimeters and meters shall be used; centimeters are not acceptable.

Panel Meeting Action: Reject
Panel Statement: The submitter's comments were editorial in nature and are no longer required based on panel action in Comment 17-160.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-169 Log #1889 NEC-P17 **Final Action: Accept in Principle**
(680.26(C))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-122
Recommendation: The proposal should be accepted in principle. Reject the FPN. Insert a mandatory requirement as a new second sentence in 680.26(B)(1) as follows: "Where the deck is constructed of non-reinforced concrete or non-conductive materials in direct contact with earth, a bonding conductor shall be installed under the full length of the decking not more than 75 mm (3 in.) below the decking and not more than 1 m (3 ft) from the inside wall of the pool."
Substantiation: This incorporates the deck ring concept in Proposal 17-124 and uses some of the language developed by CMP 17 in its action on this proposal. The distance increase to 1 m follows from the substantiation in the submitter's comment on that proposal. If there is a safety issue, then it should be addressed in a mandatory provision.
Panel Meeting Action: Accept in Principle
Panel Statement: See panel action and statement on Comment 17-174.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 9 Negative: 1
Explanation of Negative:
HIRSCH: See my Explanation of Negative Vote on Comment 17-174.

17-170 Log #3370 NEC-P17 **Final Action: Accept in Principle**
(680.26(C))

Submitter: Don W. Jhonson, ESP of South Florida, Inc.
Comment on Proposal No: 17-122
Recommendation: Delete the FPN: ~~The installation of a bonding grid under non-reinforced concrete or other nonconductive decking in direct contact with the earth will provide additional safety.~~

Revise the last sentence of 680.26(C) as follows:

680.26(C) Common Bonding Grid.

The common bonding grid shall extend 1.5 m (5 ft) horizontally of the inside walls of the pool and shall be permitted to be any of the following:

Revise 680.26(C)(3) for technical accuracy as follows:

680.26(C)(3) A solid bare copper conductor, ~~insulated, covered or bare~~, not smaller than 8 AWG.

Substantiation: Problems:

1) The boundaries of the pool area where voltage gradients are to be eliminated is not clear in the code.

2) It makes no sense to allow the bonding grid to be an insulated or covered conductor.

Where reinforcing steel is encapsulated or fiber mesh or non-reinforced concrete is used a bonding, grid covering the pool area made of solid bare copper conductor not smaller than 8 AWG arranged in a 30 cm (12 in.) +/ - 10 cm (4 in.) X 30 cm (12 in.) +/ - 10 cm (4 in.) Common Bonding Grid with multiple interconnections should provide an equivalent alternate Common Bonding Grid.

Grid - a network of uniformly spaced horizontal and perpendicular conductors.

Panel Meeting Action: Accept in Principle
Panel Statement: See panel action and statement on Comment 17-174.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 9 Negative: 1
Explanation of Negative:
HIRSCH: See my Explanation of Negative Vote on Comment 17-174.

17-171 Log #1890 NEC-P17 **Final Action: Accept in Principle**
(680.27 (New))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-124
Recommendation: The proposal should be accepted in principle. Instead of creating a new section, revise the last sentence of 680.26(B)(1) to read as follows: "Where reinforcing steel is effectively insulated by an encapsulating nonconductive compound at the time of manufacture, 8 AWG or larger bare solid copper conductors shall be run in the pour around the perimeter of the pool below the normal water line, and through the pour at other locations such that no point in the pour, measured through the pour, is more than 1 m (3 ft) from a bonding conductor. The bonding conductors shall be interconnected at each crossing point in accordance with 680.26(C)." Add a new (C)(5) as follows: "(5) Any bonding conductors required in 680.26(B)(1)".
Substantiation: This is a far simpler approach to this issue, and avoids the difficult style issues involved in framing what is in effect an optional section in the NEC. The proposal substantiation indicates that the actual spacing limitation is 1 m, and the proposal used half that distance in case one of the connections failed. These connections will be embedded in concrete, so that possibility is remote. In addition, the proposal is based on agricultural engineering. Livestock are well known to be more susceptible to stray voltage than a human, which also supports relaxing the distance. CMP 17 may well decide to increase the distance, but this comment provides a simple framework to contain the eventual requirement. The deck bonding requirement is addressed in the submitters comment on Proposal 17-122.
Panel Meeting Action: Accept in Principle
Panel Statement: See panel action and statement on Comment 17-174.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 9 Negative: 1
Explanation of Negative:
HIRSCH: See my Explanation of Negative Vote on Comment 17-174.

17-172 Log #830 NEC-P17 **Final Action: Accept in Principle**
(680.27, 680.26(B)(1) and 680.26(D))

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 17-124
Recommendation: It was the action of the Technical Correlating Committee that further consideration be given to the comments expressed in the voting. This action will be considered by the panel as a Public Comment.
Substantiation: This is a direction from the National Electrical Code Technical Correlating Committee in accordance with 3-4.2 and 3-4.3 of the Regulations Governing Committee Projects.
Panel Meeting Action: Accept in Principle
Panel Statement: See panel action and statement on Comment 17-174.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 9 Negative: 1
Explanation of Negative:
HIRSCH: See my Explanation of Negative Vote on Comment 17-174.

17-173 Log #1106 NEC-P17 **Final Action: Reject**
(680.27, 680.26(B)(1) and 680.26(D))

Submitter: Neil F. LaBrake, Jr., Niagara Mohawk, a National Grid Company / Rep. Edison Electric Institute
Comment on Proposal No: 17-124
Recommendation: Reject this Proposal.
Substantiation: The submitter did not provide adequate technical substantiation that this solution is appropriate. The design of an equipotential plane can present an intricate design challenge in order to ensure safe step and touch potentials. Many design issues need to be considered when designing an equipotential plane such as soil resistivity, through-the-earth line-to-ground fault current, materials used for the grid, reach and step distances, etc. Many of these are particular to the installation. As a result, the proposed design may either not be sufficient or could present greater risk for an individual. Equipotential planes should always be designed and built under engineering supervision.
The Chairman of CMP-20 (2002 Code Cycle) directed that a balanced Task Group be convened to develop requirements for an equipotential plane. This Task Group was never convened. Edison Electric Institute supports the intent of this proposal but does not believe that the appropriate technical and engineering expertise was involved in the proposed solution to ensure a safe installation in all instances.
The proposal contains language that is not acceptable to the NEC Style Manual.
Panel Meeting Action: Reject
Panel Statement: See panel action and statement on Comment 17-174.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 9 Negative: 1
Explanation of Negative:
HIRSCH: See my Explanation of Negative Vote on Comment 17-174.

17-174 Log #3385 NEC-P17 **Final Action: Accept in Principle**
(680.27, 680.27(1) through 680.27(6), 680.26(B)(1), 680.26(B)(6), 680.26(C)(5), 680.26(D))

_Note: The Technical Correlating Committee directs that the Fine Print Note be deleted from the panel action text and moved into the text as the second paragraph of 680.26(A) to read as follows:
"The 8 AWG or larger solid copper bonding conductor shall not be required to be extended or attached to any remote panelboard, service equipment, or any electrode."
The Fine Print Note in the panel action text is not proper because it contains a requirement.
In 680.26(B)(2), of the panel action text, insert the word "metal" between the words "all" and "forming" so that the text reads as follows:
"All metal forming shells...".
The Technical Correlating Committee inserted the word "metal" to make it clear what type of forming shells need to be bonded.
The Technical Correlating Committee directs that the following titles be added to
680.26(C)(1) and (2) as follows:
"(C)(1) Structural Reinforcing Steel".
"(C)(2) Bolted or Welded Metal Pools".
The titles have been added to comply with the NEC Style Manual.
Submitter: Don W. Jhonson, ESP of South Florida, Inc.
Comment on Proposal No: 17-124
Recommendation: Revise text as follows:
680.27 alternate Equipotential Bonding Grid: ~~voltage gradient suppression system.~~ ~~If~~ where nonconductive reinforcing or non-reinforced media is utilized to construct the pool ~~with an electrically conducive~~ containment or pool deck area ~~media~~ an alternative Equipotential Bonding Grid ~~voltage gradient suppression system~~ shall be installed. This system may be constructed as specified in 680.27(1) through 680.27(3) ~~(6)~~.
(1) Material and Connections. The systems shall be constructed of Minimum 8 AWAG bare solid copper conductors. Conductors shall be bonded to each other at all points of crossing. Connection shall be made as required by 680.26(C).
(2) ~~Containment~~ Grid structure ~~Rings~~ An Equipotential Bonding Grid shall cover the pool area, following the contour of the pool shell and pool deck, extending 1.5 m (5 ft) horizontally of the inside walls of the pool. The Equipotential Bonding Grid shall be made of solid bare copper conductor not smaller than 8 AWAG arranged in 30 cm (12 in.) x 30 cm (12 in.) network of uniformly spaced horizontal and perpendicular conductor pattern, with tolerance of +/- 10 cm (4 in.) in either direction. ~~The system shall include horizontal rings starting within 8CM(3 in) of normal waterline. Horizontal rings shall be placed below the waterline ring, and in any walls above at intervals of no more than 45 cm (18 In,.) where an above water well isn't continuous around the structure, the ends of the ring shall be bonded to the next ring below. (3) Deck Rings. Rings shall also be constructed underneath but within 8 cm (3 in) of any deck surrounding the water at intervals of no more than 45 cm (18 In) from the nearest containment ring to a maximum of 130 cm (51 in). (4)Ring Sp.|acing Tolerance. The acceptable installation error from the waterline ring to anyone of the either rings shall be plus or minus 8 cm (3 in). (5) Ring Spacing Conductors. The rings of 680.27(2) and (3) shall be bonded to two ring bond conductors which cross at the center of the lowest ring and continue out and up to the water level ring. They shall take a path which brings them to points which divide the length of the waterline ring into four parts equal within 1 percent of the ring's overall length. They shall continue up vertically to any higher level rings. the ring bond wires shall then continue away from the water line to any deck rings.~~
(~~6~~)(3) Securing. The below grade system shall be secured ~~Attached to adjacent reinforcing framework to ensure embedment~~ within or under the containment or deck media. And as a result of its adoption:
~~(2) delete the last sentence of 280.26(b)(1): where reinforcing steel is encapsulated with~~
(3)Add: 680.26(B)(6) ~~The system of 680.27, if installed;~~ Alternate Equipotential Bonding Grid
(4) ~~Add 680.26(C)(5) the system of 680.27.~~ 680.26(C)(3): A solid Copper Conductor ~~insulated severed~~ or bare not smaller than 8 AWAG installed per 680.27 ~~680.26(C)(4) Rigid metal conduit or intermediate metal conduit of Brass or other identified corrosion resistant metal conduit~~
(5) Add into 680.26 (D): Where structural reinforcing steel or the system of 680.27 or the walls of bolted or welded...as an alternative, the new section 680.26(B)(6) above could be numbered as 2, with the existing 2 through 5 being changed to 3 through 6. ~~and the new section 280.26(C)(5) above could be numbered as 2, with the existing 2 through 4 being changed to 3 through 5.~~
Substantiation: The oringial proposal as submitted provided technically sound methods that could be followed by an engineer. For the electrician, it would have been difficult. A field installation based on the revised verbiage will accomplish the same result of eliminating voltage gradients and can be installed by the field electrician.
Panel Meeting Action: Accept in Principle
The following panel action replaces the panel action on Proposal 17-124. Revise 680.26 to read as follows:

680.26 Equipotential Bonding.

(A) Performance. The equipotential bonding required by this section shall be installed to eliminate voltage gradients in the pool area as prescribed.

FPN: This section does not require that the 8 AWG or larger solid copper bonding conductor be extended or attached to any remote panelboard, service equipment, or any electrode.

(B) Bonded Parts. The parts specified in 680.26(B)(1) through (B)(5) shall be bonded together.

(1) Metallic Structural Components. All metallic parts of the pool structure, including the reinforcing metal of the pool shell, coping stones, and deck, shall be bonded. The usual steel tie wires shall be considered suitable for bonding the reinforcing steel together, and welding or special clamping shall not be required. These tie wires shall be made tight. If reinforcing steel is effectively insulated by an encapsulating nonconductive compound at the time of manufacture and installation, it shall not be required to be bonded. Where reinforcing steel of the pool shell or the reinforcing steel of coping stones and deck are encapsulated with a nonconductive compound or another conductive material is not available, provisions shall be made for an alternate means to eliminate voltage gradients that would otherwise be provided by unencapsulated, bonded reinforcing steel.

(2) Underwater Lighting. All forming shells and mounting brackets of no-niche luminaires (fixtures) shall be bonded unless a listed low-voltage lighting system with nonmetallic forming shells not requiring bonding is used.

(3) Metal Fittings. All metal fittings within or attached to the pool structure shall be bonded. Isolated parts that are not over 100 mm (4 in.) in any dimension and do not penetrate into the pool structure more than 25 mm (1 in.) shall not require bonding.

(4) Electrical Equipment. Metal parts of electrical equipment associated with the pool water circulating system, including pump motors and metal parts of equipment associated with pool covers, including electric motors, shall be bonded. Metal parts of listed equipment incorporating an approved system of double insulation and providing a means for grounding internal nonaccessible, non–current-carrying metal parts shall not be bonded.

Where a double-insulated water-pump motor is installed under the provisions of this rule, a solid 8 AWG copper conductor that is of sufficient length to make a bonding connection to a replacement motor shall be extended from the bonding grid to an accessible point in the motor vicinity. Where there is no connection between the swimming pool bonding grid and the equipment grounding system for the premises, this bonding conductor shall be connected to the equipment grounding conductor of the motor circuit.

(5) Metal Wiring Methods and Equipment. Metal-sheathed cables and raceways, metal piping, and all fixed metal parts that are within the following distances of the pool, except those separated from the pool by a permanent barrier, shall be bonded ~~that are within the following distances of the pool~~:

(1) Within 1.5 m (5 ft) horizontally of the inside walls of the pool

(2) Within 3.7 m (12 ft) measured vertically above the maximum water level of the pool, or any observation stands, towers, or platforms, or any diving structures

(C) Equipotential ~~Common~~ Bonding Grid. The parts specified in 680.26(B) shall be connected to an equipotential ~~a common~~ bonding grid with a solid copper conductor, insulated, covered, or bare, not smaller than 8 AWG or rigid metal conduit or intermediate metal conduit of brass or other identified corrosion-resistant metal conduit. Connection shall be made by exothermic welding or by pressure connectors or clamps that are labeled as being suitable for the purpose and are of stainless steel, brass, copper, or copper alloy. The equipotential ~~common~~ bonding grid shall extend under paved walking surfaces for 1 m (3 ft) horizontally beyond the inside walls of the pool and shall be permitted to be any of the following:

(1) The structural reinforcing steel of a concrete pool where the reinforcing rods are bonded together by the usual steel tie wires or the equivalent

(2) The wall of a bolted or welded metal pool

(3) Alternate Means. This system shall be permitted to be constructed as specified in (a) through (c) below.

(a) Materials and Connections. The grid shall be constructed of minimum 8 AWG bare solid copper conductors. Conductors shall be bonded to each other at all points of crossing. Connections shall be made as required by 680.26 (D).

(b) Grid structure. The equipotential bonding grid shall cover the contour of the pool and the pool deck extending 1m (3 ft.) horizontally from the inside walls of the pool. The equipotential bonding grid shall be arranged in a 300 mm (12 in.) by 300 mm (12 in.) network of conductors in a uniformly spaced perpendicular grid pattern with tolerance of 100 mm (4 in.).

(c) Securing. The below grade grid shall be secured within or under the pool and deck media.

(D) Connections. Where structural reinforcing steel or the walls of bolted or welded metal pool structures are used as an equipotential ~~a common~~ bonding grid for nonelectrical parts, the connections shall be made in accordance with 250.8.

(E) Pool Water Heaters. For pool water heaters rated at more than 50 amperes that have specific instructions regarding bonding and grounding, only those parts designated to be bonded shall be bonded, and only those parts designated to be grounded shall be grounded.

Panel Statement: This rewrite is intended to meet the concerns of the submitters of Comments 17-169, 17-170, 17-171, 17-172, and17 -174. The actions on Comments 17-164 through 17-168 are separate and unaffected by the action on this comment. The changes made by the panel action text incorporate the changes accepted by the action on Proposal 17-115.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 9 Negative: 1
Explanation of Negative:
HIRSCH: The Panel did not include adequate technical expertise in the development of the installation requirements set forth in this proposed Code change to ensure that this solution is appropriate. The installation of an equipotential plane can present an intricate design challenge in order to ensure safe step and touch potentials. Many design issues need to be considered when designing an equipotential plane such as soil resistivity, through-the-earth line-to-ground fault current, materials used for the grid, reach and step distances, etc. Many of these are particular and specific to the installation. As a result, the proposed installation requirements may either not be sufficient or could present greater risk for an individual. Equipotential planes should always be designed and built under engineering supervision.
Per 90.1(C) of the NEC, "This Code is not intended as a design specification...". This proposal and related comments appear to specify design requirements.

17-175 Log #1891 NEC-P17 **Final Action: Accept**
(680.27(A)(2))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-126
Recommendation: Continue to accept the proposal.
Substantiation: The submitter was closely involved with the 2002 rewrite of Article 680, and this is one of a group of comments intended to bring a common editorial perspective to the proposals submitted in this cycle that apply to the various changes that were implemented as part of that process.
The substantiation for this proposal, part of a global reexamination of the distinctions between bonding and grounding, is correct.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-176 Log #3507 NEC-P17 **Final Action: Accept**
(680.27(A)(2))

Submitter: J. Ron Caccamese, Nathan Alterman Electric Company, Ltd. / Rep. IBEW
Comment on Proposal No: 17-130
Recommendation: The proposal should be rejected in its entirety, contrary to the panel action.
Substantiation: See my comment submitted on Proposal 17-84.
Panel Meeting Action: Accept
Panel Statement: The panel notes that rejecting the proposal is not contrary to panel action on the proposal.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-177 Log #1892 NEC-P17 **Final Action: Reject**
(680.32)

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-132a
Recommendation: The proposal should be accepted in principle. Use the approach in the submitter's companion comment on Proposal 17-132b. Do not change 680.32.
Substantiation: Please refer to the companion comment for the full substantiation.

Panel Meeting Action: Reject
Panel Statement: The panel does not agree to not change 680.32. The approach taken in Proposal 17-132b is addressed in the action on Comment 17-178.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10
Comment on Affirmative:
ROCK: Installation instructions are directed to the installer but not the pool user. Users of storable pools must be afforded the same degree of safety via GFCI protection as users of permanent pools, as provided in the 1999 NEC prior to the editorial division of requirements for permanent and storable pools.

17-177a Log #CC1700 NEC-P17 **Final Action: Accept in Part**
(680.32)

Note: The Technical Correlating Committee directs that this comment be reported as "Accept in Part."
The Technical Correlating Committee directs that the portion of the Comment pertaining to GFCIs as an integral part of the attachment plug or cord for storable pools be reported as "Hold" since it introduces new material.
The remainder of the Comment continues to be "Accepted".
Submitter: Code-Making Panel 17
Comment on Proposal No: 17-132a
Recommendation: Add a new second sentence to 680.32 to read as follows:
"The ground-fault-circuit-interrupter shall be an integral part of the attachment plug or located in the power supply cord within 300 mm (12 in.) of the attachment plug."
Modify the recommendation of Proposal 17-132a and place, in addition to the above, a second paragraph as follows:
"All 125-volt receptacles located within 6.0 m (20 ft) of the inside walls of a storable pool shall be protected by a ground-fault circuit interrupter. In determining the above dimensions, the distance to be measured shall be the shortest path the supply cord of an appliance connected to the receptacle would follow without piercing a floor, wall, ceiling, doorway with hinged or sliding door, window opening, or other effective permanent barrier."
Substantiation: The requirement to have the GFCI integral to the cord provides protection for situations when storable pool pumps are connected to non-GFCI protected receptacles. Thus the panel is requiring that the GFCI be integral with the cord.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 9 Negative: 1
Explanation of Negative:
HIRSCH: It is the Edison Electric Institute's position that the requirements for end-use electrical devices that are not installed as part of the permanent premises wiring system are best covered by appropriate product standards. It is not the National Electrical Code's intent or scope to set requirements for end-use electrical devices that would typically be purchased by the after market consumer.
The Edison Electric Institute supports the entire electrical safety system that integrates product standards, installation standards, product testing and evaluation, electrical inspection, manufacturer's products, qualified electrical installation and maintenance, electric supply system characteristics, and the owner's use and operation. Covering product standards in the National Electrical Code installation standard could negate the responsibility of the appropriate product standard and adversely impact the entire process.
The integrity of the electrical safety system is anchored in the systematic integration of the National Electrical Code, installation inspection, product safety standards and product testing. If non-premises end-use product safety issues are usurped by the National Electrical Code, the product safety standard process will be weakened resulting in the entire process being weakened. In addition, since non-premises end-use products are not normally in place during the inspection process, enforcement of such a requirement under the NEC would be impossible.
In addition, this comment was prepared by Panel 17 during the Comment meeting. Thus, the requirement for a GFCI, integral to the cord or plug, is new material and was not available for public comment. This requirement was not included in any of the Proposals submitted.**Comment on Affirmative:**
ROCK: See my Explanation of Affirmative Vote on Comment 17-177.

17-178 Log #1893 NEC-P17 **Final Action: Reject**
(680.32)

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-132b
Recommendation: The proposal should be accepted in principle. Do not add the language in the proposal. Instead insert a new Section 34 as follows:
680.34 Listing. Electrical equipment designed for use with storable pools shall include clearly stated installation instructions suitable for untrained persons that prohibit the use of the equipment with any associated storable pool placed closer than 3 m (10 ft) to any receptacle and within 6 m (20 ft) to a receptacle rated 15 or 20 amperes, 125 volts through 250 volts that does not have GFCI protection. These dimensions shall be measured in accordance with 680.22(A)(6).
Substantiation: The submitter was closely involved with the 2002 rewrite of Article 680, and this is one of a group of comments intended to bring a common editorial perspective to the proposals submitted in this cycle that apply to the various changes that were implemented as part of that process.
This proposal originated as part of a TIA process, and is based on the erroneous assumption that the omission of this requirement in Part III was inadvertent. It was not. A storable pool is, in effect, an appliance. It is set in place by its owner without benefit of permits and inspections. It might be set near a receptacle and it might not, and the location is likely to vary from season to season. This submitter owns a storable pool and does move it from place to place to allow the grass to grow back. The panel proposes an installation requirement that cannot be applied to a cord- and plug-connected appliance.
The only practical way to get a handle on what CMP 17 hopes to achieve is to address the installation instructions, remembering that storable pool electrical equipment is listed but the pools are not. The wording of this comment achieves all of the panel objectives. If, for some reason, the pool is inspected, then the requirements are directly enforceable to the same extent as the language developed in the panel proposals. If not, then the language in this comment does the most possible. Since the minimum distance in the panel proposals for circulation and sanitation receptacles is the same for the minimum distance to receptacles generally, this comment simply refers to the single minimum distance in the interest of simplicity.
Panel Meeting Action: Reject
Panel Statement: With changes made in Comment 17-177a to have the GFCI integral to the cord, the instruction approach is not needed.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10
Comment on Affirmative:
ROCK: See my Explanation of Affirmative Vote on Comment 17-177.

17-178a Log #CC1701 NEC-P17 **Final Action: Accept**
(680.34)

Submitter: Code-Making Panel 17
Comment on Proposal No: 17-132b
Recommendation: Add a new Section 680.34 to read as follows:
680.34 Receptacle Locations. Receptacles shall not be less than 3.0 m (10 ft) from the inside walls of a pool. In determining the above dimensions, the distance to be measured shall be the shortest path the supply cord of an appliance connected to the receptacle would follow without piercing a floor, wall, ceiling, doorway with hinged or sliding door, window opening, or other effective permanent barrier.
Substantiation: The panel deleted the first sentence of the recommendation of Proposal 17-132b because it is redundant to the next sentence in the context of storable pools.
This panel action addresses and replaces NEC TIA 02-2.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-179 Log #3508 NEC-P17 **Final Action: Accept**
(680.43(D)(3))

Submitter: J. Ron Caccamese, Nathan Alterman Electric Company, Ltd. / Rep. IBEW
Comment on Proposal No: 17-142
Recommendation: The proposal should be rejected in its entirety, contrary to the panel action.
Substantiation: See my comment submitted on Proposal 17-84.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-180 Log #3184 NEC-P17 **Final Action: Accept**
(680-43(D)(3)(e))

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 17-142
Recommendation: This proposal should have been rejected.
Substantiation: With the highly corrosive nature of swimming pool, spa, and similar waters, the likelihood of the conductors becoming corroded is eminent. Due to the construction method of MC cable, it is impossible to replace the conductors. While the argument has been presented that the NEC presently allows Rigid as a wiring method, and some areas of the country experience additional corrosive environments that would cause the interior of the conduit to rust and cause seizing of the conductors, this should be addressed by the local AHJ body for more stringent evaluation. By allowing the use of MC cable, CMP-17 is stating that the remove-ability of conductors is unimportant. 90.1(A) states that, "the purpose of the NEC is to provide the practical safeguarding of persons and property from the hazards arising from the use of electricity." 90.1(B) further states, "compliance herewith and proper maintenance will result in an installation that is essentially free from hazard but not necessarily efficient, convenient, or adequate for good service or future expansion of electrical use." Initially, it may seem that any concern regarding the

ability to replace damaged or corroded conductors is not the concern of the NEC. However, upon further consideration, it demonstrates a direct concern with safety and not necessarily good work practices or proper design. As stated in 90.1(C), "This Code is not intended as a design specification...". It should be the requirement of the NEC to ensure the application of the above requirements when considering changes to Article 680. As such, it would create a hazardous condition to allow a wiring method to be employed that would encourage repairs on damaged conductors that would not meet the free-length requirement indicated under 300.14. Without a removable method the conductors associated with MC cable will recreate a potentially hazardous condition. CMP-17 should NOT consider the NEC requirements being limited to new or remodel conditions, but to cover maintenance concerns as well. In closing, it is important to also note that the 1999 NEC, 680-25(C) was revised to make the exception a part of the general rule. Then, the 2002 NEC, 680-25(A) relocated the requirement to part A and eliminated the liquidtight flexible metal conduit and the MC cable. It should also be our concern as an industry to consider the safety aspects of any flexible metal media of the wound tape type that could corrode and in lieu of a "parallel grounding path" become a "ground choke" during a fault condition.

This comment represents the official position of the International Brotherhood of Electrical Workers Codes & Standards Committee.

Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-181 Log #1894 NEC-P17 **Final Action: Accept**
(680-52(B)(2)(b))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-145
Recommendation: Continue to accept only in part.
Substantiation: The submitter is under the erroneous opinion that copper water tubing is conduit within the meaning of the NEC. It plainly is not.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-182 Log #1895 NEC-P17 **Final Action: Accept**
(680.62(B)(5))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-151
Recommendation: The proposal should be accepted.
Substantiation: The submitter was closely involved with the 2002 rewrite of Article 680, and this is one of a group of comments intended to bring a common editorial perspective to the proposals submitted in this cycle that apply to the various changes that were implemented as part of that process. The language in this proposal more closely agrees with the Final Action on Comment 20-10 in the 2002 cycle, which should have been the language of the erratum issued on this section. It is far superior to the double negative composition in the wording cited in the panel statement.
Panel Meeting Action: Accept
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-183 Log #732 NEC-P17 **Final Action: Accept in Principle**
(680.74)

Submitter: Gary Siggins, Underwriters Laboratories Inc.
Comment on Proposal No: 17-152
Recommendation: The Panel Statement regarding the rejection of proposal 17-152 indicated they believed a double insulated whirlpool bath pump provided an increased level of safety. Although this is the case for above ground storable and non-storable swimming pool pumps, I believe it is not the case with whirlpool baths utilizing double insulated pumps. The pump designs and their installations are different.

Whirlpool bath pumps are not accessible by the bathtub occupants and are required by UL 1795 to have their live parts above the mounting service in the event of a leak. They are also required to have their internal metal parts that might become energized in a failure (the motor shaft in particular) isolated from the water. An internal failure of the motor would not produce the same hazards as an outdoor storable pool unit that is accessible and may have wet surfaces. The grounding of internal dead metal parts, therefore, is not needed.

Due to the requirements on the double insulated bathtub pumps and their mounting in UL 1795, the text from 680.74, "and providing a means for grounding internal nonaccessible, non-current carrying metal parts" should, therefore, be deleted.
Substantiation: Present text requires substantial modification of the pump motor without an overall increase in the safety of the complete whirlpool bath.
Panel Meeting Action: Accept in Principle

Revise 680.74 to read as follows:

680.74 Bonding. All metal piping systems and all grounded metal parts in contact with the circulating water shall be bonded together using a copper bonding jumper, insulated, covered, or bare, not smaller than 8 AWG solid.
Panel Statement: The need for bonding in a bathroom differs from the need for bonding in a pool area. Electrical equipment of a hydromassage bathtub is not accessible to users of the tub. Only parts that can cause a voltage gradient in the bathtub need to be bonded. Section 680.74 has been concisely reworded to require the bonding of only the parts that present a risk of creating voltage gradients in the hydromassage bathtub. The panel's action on 17-183 supersedes the panel's action on ROP 17-153.
Number Eligible to Vote: 10
Ballot Results: Affirmative: 10

17-184 Log #829 NEC-P17 **Final Action: Accept**
(682 (New))

Note: The Technical Correlating Committee directs that the definition for "Electrical Datum Plane" remain in new Article 682 as this term was not added to Article 100 by CMP 1.
Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 17-154
Recommendation: The Technical Correlating Committee directs that the new article be numbered as Article 682. The Technical Correlating Committee advises that assignment of new Articles and Article Scope statements are the responsibility of the Technical Correlating Committee and the Technical Correlating Committee "Accepts" the Panel Action. It was the action of the Technical Correlating Committee that further consideration be given to the comments expressed in the voting. This action will be considered by the panel as a Public Comment. It was the action of the Technical Correlating Committee that this Proposal be referred to Code-Making Panel 19 for information.
Substantiation: This is a direction from the National Electrical Code Technical Correlating Committee in accordance with 3-4.2 and 3-4.3 of the Regulations Governing Committee Projects.
Panel Meeting Action: Accept

The panel accepts the recommendation of the TCC. Revise new Article 682, and add a new definition to Article 100 to read as follows:

Place in Article 100 the definition for "Electrical Datum Plane" to read as follows (and also remove it from Article 555):

Electrical Datum Plane. The electric datum plane as used in this Article is defined as follows:

(1) In land areas subject to tidal fluctuation, the electrical datum plane is a horizontal plane 600mm (2 ft.) above the highest tide level for the area occurring under normal circumstances.

(2) In land areas not subject to tidal fluctuation, the electrical datum plane is a horizontal plane 600mm (2 ft.) above the highest water level for the area occurring under normal circumstances.

(3) In land areas subject to flooding, the electrical datum plane based on (1) or (2) above is a horizontal plane 600mm (2 ft.) above the point identified as the prevailing high water mark or an equivalent benchmark based on seasonal or storm driven flooding from the authority having jurisdiction.

(4) The electrical datum plane for floating structures and landing stages that are (1) installed to permit rise and fall response to water level without lateral movement, and (2) that are so equipped that they can rise to the datum plane established for (1) or (2) above, is a horizontal plane 750mm (30 in.) above the water level at the floating structure or landing stage and a minimum of 300mm (12 in.) above the level of the deck.

Article 682
Natural and Artificially Made Bodies of Water
General

682.1 Scope. This article applies to the installation of electrical wiring for and equipment in and adjacent to natural or artificially made bodies of water not covered by other articles in this Code, such as but not limited to Aeration Ponds, Fish Farm Ponds, Storm Retention Basins, Treatment ponds, Irrigation (Channels) Facilities.

682.2 Definitions

Natural Bodies of Water. Bodies of water such as lakes, streams, ponds, rivers, and other naturally occurring bodies of water and which may vary in depth throughout the year.

Artificially Made Bodies of Water. Bodies of water that have been constructed or modified to fit some decorative or commercial purpose such as, but not limited to Aeration Ponds, Fish Farm Ponds, Storm Retention Basins, Treatment ponds, Irrigation (Channels) Facilities. Water depths may vary seasonally or be controlled.

Equipotential Plane. An area where wire mesh or other conductive elements are on, embedded in, or placed under the walk surface within 75mm (3 in.), bonded to all metal structures and fixed nonelectrical equipment that may become energized, and connected to the electrical grounding system to prevent a difference in voltage from developing within the plane.

Shoreline. The farthest extent of standing water under the applicable conditions that determine the electrical datum plane for the specified body of water.

682.3 Other Articles. Wiring and equipment in or adjacent to natural or artificially made bodies of water shall comply with the applicable provisions of other articles of this Code, except as modified by this article. If the water is

subject to boat traffic, the wiring shall comply with 555.13(B).

II. Installations

682.10 Electrical Equipment and Transformers. Electrical Equipment and Transformers including their enclosures shall be specifically approved for the intended location. No portion of an enclosure for electrical equipment not identified for operation while submerged shall be located below the electrical datum plane.

682.11 Location of Service Equipment. On land, the service equipment for floating structures and submersible electrical equipment shall be located no closer than 1.5 m (5 ft.) horizontally from the shoreline and live parts elevated a minimum of 300 mm (12 in.) above the electrical datum plane. Service equipment shall disconnect when the water level reaches the height of the established electrical datum plane.

682.12 Electrical Connections. All electrical connections not intended for operation while submerged shall be located at least 300 mm (12 in.) above the deck of a floating or fixed structure, but not below the electrical datum plane.

682.13 Wiring Methods and Installation. Wiring methods and installations of Chapter 3 and Articles 527, 553 and 555 shall be permitted where identified for use in wet locations.

682.14 Disconnection Means for Floating Structures or Submersible Electrical Equipment.

(A) Type. The disconnecting means shall be permitted to consist of a circuit breaker, switch, or both and shall be properly identified as to which structure or equipment it controls.

(B) Location. The disconnecting means shall be readily accessible on land and shall be located in the supply circuit ahead of the structure or the equipment connection. The disconnecting means shall be located not more than 750 mm (30 in.) from the structure or equipment connection. The disconnecting means shall be within sight not closer than 1.5 m (5 ft.) horizontally from the edge of the shoreline and live parts and elevated a minimum of 300 mm (12 in.) above the electrical datum plane.

682.15 Ground Fault Circuit Interrupter (GFCI) Protection. Fifteen and 20 ampere single phase 125-volt through 250-volt receptacles installed outdoors and in or on floating buildings or structures within the electrical datum plane area that are used for storage, maintenance or repair where portable electric hand tools, electrical diagnostic equipment, or portable lighting equipment are to be used shall be provided with GFCI protection. The GFCI protection device shall be located not less than 300 mm (12 in) above the established electrical datum plane.

Grounding and Bonding.

682.30 Grounding. Wiring and equipment within the scope of this article shall be grounded as specified in Article 250, 553, and 555 and with the requirements in this Part III.

682.31 Equipment Grounding Conductors.

(A) Type Equipment grounding conductors shall be insulated copper conductors sized in accordance with 250.122 but not smaller than 12 AWG.

(B) Feeders. Where a feeder supplies a remote panel board, an insulated equipment grounded conductor shall extend from a grounding terminal in the service to a grounding terminal and busbar in the remote panel board.

(C) Branch Circuits. The insulated equipment grounding conductor for branch circuits shall terminate at a grounding terminal in a remote panel board or the grounding terminal in the main service equipment.

(D) Cord- and Plug-Connected Appliances. Where required to be grounded, cord- and plug-connected appliances shall be grounded by means of an equipment grounding conductor in the cord and a grounding-type attachment plug.

682.32 Bonding of Noncurrent-Carrying Metal Parts. All metal parts in contact with the water, all metal piping, tanks, and all noncurrent-carrying metal parts that may become energized, shall be bonded to the grounding bus in the panel board,

682.33 Equipotential Planes and Bonding of Equipment Planes. An equipotential plane shall be installed where required in this section to mitigate step and touch voltages at electrical equipment.

(A) Areas Requiring Equipotential Planes. Equipotential planes shall be installed adjacent to all outdoor service equipment or disconnecting means that control equipment in or on the water that have a metallic enclosure and controls accessible to personnel and likely to become energized. The equipotential plane shall encompass the area around the equipment and shall extend from the area directly below the equipment out not less than 900 mm (36 in.) in all directions from which a person would be able to stand and come in contact with the equipment.

(B) Areas Not Requiring Equipotential Planes. Equipotential planes shall not be required for the controlled equipment supplied by the service equipment or disconnecting means. All circuits rated not more than 60 amperes at 120 through 250 volts, single phase, shall have GFCI protection.

(C) Bonding. Equipotential planes shall be bonded to the electrical grounding system. The bonding conductor shall be solid copper, insulated, covered or bare, and not smaller than 8 AWG. Connections shall be made by exothermic welding or by listed pressure connectors or clamps that are labeled as being suitable for the purpose and are of stainless steel, brass, copper, or copper alloy.

Panel Statement: It is recommended that the TCC correlate the location of the definition of "Electrical Datum Plane" by moving it into Article 100 since it is also used in Article 555.

Number Eligible to Vote: 9
Ballot Results: Affirmative: 9

17-185 Log #1896 NEC-P17 **Final Action: Accept in Principle**
(682 (New))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-154
Recommendation: The proposal should be accepted in principle. Modify the text for clarification and to comply with 90.9 and the NEC Style Manual, as follows:

1. In the definition of Electrical Datum Plane, use a hard metric conversion (600 mm for 2 ft each of three occurrences, 750 mm for 30 in., and 300 mm for 12 in.) Insert this definition (as amended by this comment) in Article 100 because it will be used in two articles (also 555). Note that the definition in 555.2 also violates 90.9. Contingent on action by the TCC to this end, remove this definition from both Articles 555 and 682.
2. In 682.3, add the following sentence at the end: "If the water is subject to boat traffic, the wiring shall comply with 555.13(B).
3. In 682.10, revise the second sentence to read as follows: "No portion of an enclosure for electrical equipment not identified for operation while submerged shall be located below the electrical datum plane."
4. In 682.11, revise as follows: "On land, the service equipment for floating structures and submersible electrical equipment shall be located no closer than 1.5 m (5 ft) horizontally from the shoreline." In the definitions (682.2), add a definition of shoreline as follows: "Shoreline. The furthest extent of standing water under the applicable conditions that determines the electrical datum plane for the specified body of water."
5. In 682.12, revise as follows: "All electrical connections not intended for operation while submerged shall be located at least 300 mm (12 in.) above the deck …"
6. In 682.13, revise as follows: "Liquidtight flexible metal conduit or liquidtight flexible nonmetallic conduit with approved fittings shall be permitted for feeders and where flexible connections are required for services. Extra-hard usage portable power cable listed for both wet locations and sunlight resistance shall be permitted for a feeder or a branch circuit where flexibility is required. Other wiring methods, suitable for the location shall be permitted to be installed where flexibility is not required. Temporary wiring in accordance with 527.4 shall be permitted."
7. In 682.14, revise as follows:

Submersible or Floating Equipment Power Connection(s). Submersible or floating equipment shall be cord- and plug-connected, using extra hard usage cord, as designated in Table 400.4 and listed with a "W" suffix. The plug and receptacle combination shall be arranged to be suitable for the location while in use. Disconnecting means shall be provided to isolate each submersible or floating electrical equipment from its supply connection(s) without requiring the plug to be removed from the receptacle.

(A) Type. The disconnecting means shall be permitted to consist of a circuit breaker, switch, or both, and shall be specifically identified as to which receptacle it controls.

(B) Location. The disconnecting means shall be readily accessible on land, located not more than 750 mm (30 in.) from the receptacle it controls, and shall be located in the supply circuit ahead of the receptacle. The disconnecting means shall be located within sight but not closer than 1.5 m (5 ft) from the shoreline.

8. In 682.30, revise as follows:

680.30 System Grounding. The grounded circuit conductor (neutral) shall be an insulated conductor identified in conformance with 200.6. The neutral conductor shall be connected to the equipment grounding terminal in the service equipment, and, except for that connection, it shall be insulated from the equipment grounding conductors, equipment enclosures, and all other grounded parts.

9. In 682.31, revise as follows:

682.31 Equipment Grounding Conductors. Equipment grounding

(A) Type. Equipment grounding conductors shall be insulated copper conductors sized in accordance with 250.122 but not smaller than 12 AWG.

(A) Feeders. Where a feeder supplies a remote panelboard, an insulated equipment grounding conductor shall extend from a grounding terminal in the service to a grounding terminal and busbar in the remote panelboard.

(B) Branch Circuits. The insulated equipment grounding conductor for branch circuits shall terminate at a grounding terminal in a remote panelboard or the grounding terminal in the main service equipment.

(C) Cord-Connected Appliances. Where required to be grounded, cord-connected appliances shall be grounded by means of an equipment grounding conductor in the cord and a grounding-type attachment plug.

Substantiation: 1. The dimensions in this definition cannot be so precise (as when measuring the height of a water surface) as to invoke one of the justifications in 90.9 for retaining soft metric conversions. The submitter is aware that this wording came from Article 555, which in turn was written to correlate with NFPA 303, and that standard uses soft conversions. However, it appears certain that all NFPA standards will be using hard conversions soon, so the NEC might

as well use them here where it is definitely appropriate. Since this definition will now appear in two articles, the TCC should move it to Article 100.

2. This section is so broadly written as to be meaningless. After reviewing Articles 553 and 555, the most important cross reference appears to be to the rules regarding navigable water, covered in 555.13(B).

3. This is one of several changes to recognize that some equipment is designed to be operated submerged, either inherently or because of a NEMA 6P enclosure. There is no reason to raise this equipment above the datum plane.

4. This represents the submitter's best guess as to what is intended by this rule. The datum plane (as defined, begins 2 ft above maximum normal water level) would appear to extend an indefinite distance inland from the shoreline, until it intersects grade. In low-contour areas, that might be hundreds of yards. It is unlikely that this proposal intends the service to be so far away. The simplest way out was, in effect, to define the shoreline as the waterline where it would end up if mapped two feet below the datum plane. With this concept defined, the service location limitation becomes easy to find.

5. Here again, some electrical equipment can and will function properly even if submerged.

6. This section as proposed has to be the most blatant violation of the whole-article reference prohibition in the entire ROP. After reviewing the referenced articles and considering 90.3, the reference to Chapter 3 is unnecessary, and the relevant requirements in Articles 553 and 555 have been incorporated into this comment. Here, the proposed language in this comment comes from 553.7, but the last sentence was broadened to include cable assemblies. The whole article reference to Article 527 has been limited to 527.4, which should include the necessary requirements.

7. This section needs to begin with language governing cords and cord- and plug-connections, because the rest of the section discusses disconnects for receptacles without ever requiring receptacles to begin with. The cord designation comes from equivalent requirements for fountains. The end of last sentence is truncated because the term "shoreline" is defined by this comment.

8. This language corrects another blatant whole-article reference violation. The relevant requirements in Articles 553 and 555 have been suitably adapted and incorporated into this section and the next.

9. This language incorporates the other relevant grounding requirements from Articles 553 and 555, but simplified as appropriate for the subject material covered by this article. In cases where those articles merely duplicate requirements in Article 250, that information is not repeated.

Panel Meeting Action: Accept in Principle
Panel Statement: See panel action and statement on Comment 17-184.
Number Eligible to Vote: 9
Ballot Results: Affirmative: 9

17-186 Log #1897 NEC-P17 **Final Action: Accept in Principle**
(682.2 (New))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 17-155
Recommendation: The proposal should be accepted in principle. Make the following changes:

1. In the definition, correct the metric reference to 75 mm.

2. In 682.33, revise to read: "An equipotential plane shall be installed where required in this section to mitigate step and touch voltages at electrical equipment."

3. In 682.33(A), change "which" to "that". Revise the last sentence to read: "The equipotential plane shall encompass the area around the equipment and shall extend from the area directly below the equipment out not less than 900 mm (36 in.) in all directions from which a person would be able to stand and come in contact with the equipment."

4. In 682.33(B), revise the last sentence to read as follows: "All circuits rated not more than 30 amperes at 120 volts, single phase, and all circuits rated not more than 60 amperes at 208 or 240 volts, single phase, shall have GFCI protection.

5. In 682.33(C), add the word "solid" ahead of the word "copper" in the second sentence. Replace the third sentence with the following: "Connection shall be made by exothermic welding or by listed pressure connectors or clamps that are labeled as being suitable for the purpose and are of stainless steel, brass, copper, or copper alloy."

Substantiation: 1. This is the proper metric equivalent for a hard conversion in the Style Manual.

2. This appropriately states a requirement. It does not change the intended meaning or practical effect.

3. Editorial; and the proposed text is unclear as to exactly what area to what distance requires the plane. This comment clarifies the requirement.

4. Not all circuits are amenable to GFCI protection. This wording supplies a reasonable limitation that CMP 17 may wish to refine. However, the final wording cannot apply to 480V or 3-phase circuits, for example.

5. This wording recognizes exothermic welding and stainless steel connections. It is taken form 680.26(C) and includes material omitted from the original proposal.

Panel Meeting Action: Accept in Principle
Panel Statement: See panel action and statement on Comment 17-184.
Number Eligible to Vote: 9
Ballot Results: Affirmative: 9

ARTICLE 685 — INTEGRATED ELECTRICAL SYSTEMS

12-48 Log #927 NEC-P12 **Final Action: Accept in Principle**
(685.1(2))

Submitter: Dorothy Kellogg, American Chemistry Council
Comment on Proposal No: 12-89
Recommendation: The Final Action should be to continue to reject.
Substantiation: The submitter has not provided that a problem exists with the existing language. This language is in the code in several places and a task force should be developed by the Technical Correlating Committee to address this issue. "Qualified" is defined in 70E and by OSHA.
Panel Meeting Action: Accept in Principle
Panel Statement: The panel has retained the wording "qualified persons" and expanded the wording to include more prescriptive language.
See panel action and statement on Comment 12-49.
Number Eligible to Vote: 12
Ballot Results: Affirmative: 12

12-49 Log #1252 NEC-P12 **Final Action: Accept in Part**
(685.1(2))

Submitter: Charles M. Trout, Maron Electric Co. Inc.
Comment on Proposal No: 12-89
Recommendation: This proposal should be Accepted in Principle. Do not delete as the proposal suggests but rather add a second and third paragraph to the 685-1(2) to read:

The name(s) of the qualified person(s) shall be kept in a permanent record at the office of the establishment in charge of the completed installation and at the office of the Authority Having Jurisdiction. Notification of any changes in the employment of the designated qualified person(s) shall be made to the office of the Authority Having Jurisdiction.

A person designated as a qualified person shall possess the skills and knowledge related to the construction and operation of the electrical equipment and installation and shall have received documented safety training on the hazards involved. Documentation of their qualifications shall be on file with the office of the Authority Having Jurisdiction and the office of the establishment in charge of the completed installation.

Substantiation: It was not necessarily my desire to have the wording in 685.1(2) deleted, if the wording could be changed to include prescriptive requirements that could ensure that qualified persons are actually performing the maintenance and supervision as required by 685.1(2). The National Electrical Code is a prescriptive code and it is the technical committees' responsibility to ensure that prescriptive requirements are present for the Authority Having Jurisdiction to use.

It is difficult to understand how it is possible to relax requirements for safety in a Code that tells us in 90.1(B), "this Code contains provisions that are considered NECESSARY for safety." This section further states that "Compliance therewith and proper maintenance will result in an installation that is ESSENTIALLY free from hazard but NOT NECESSARILY efficient, convenient, or ADEQUATE for good service or future expansion of electrical use." It appears to me that this tells us that these requirements are the MINIMUM requirements for safety and anything less will result in an installation that is NOT FREE FROM HAZARD.

Proponents of this travesty, knowing the truth in this, attempt to circumvent the obvious degradation of safety by using phraseology such as "the installation is under engineering supervision" or "a qualified person will monitor the system." What is monitoring the installation? What does engineering supervision mean?

I have submitted several proposals to delete these exceptions to requirements for safety but they were all rejected. Perhaps in the comment stage, enough persons will comment in favor of accepting these proposals or at least accepting them in a manner where some prescriptive requirements will be added to accurately describe what "engineering supervision" entails. What does "monitoring" the installation mean, what type of record keeping is necessary to assure compliance, what is a "monitor" or what is a "qualified person?" How is documentation of the qualifications and presence of a "qualified person" accomplished by the Authority Having Jurisdiction?

Without these prescriptive requirements, these exceptions to the requirements for safety appear to be "just another subterfuge to avoid compliance with the safety requirements of the National Electrical Code without regard to putting persons and equipment at risk."

Panel Meeting Action: Accept in Part

The panel does not accept the underlined portion of the recommended text as shown below, and accepts the remainder of the text.

"The name(s) of the qualified person(s) shall be kept in a permanent record at the office of the establishment in charge of the completed installation. ~~and at the office of the Authority Having Jurisdiction. Notification of any changes in the employment of the designated qualified person(s) shall be made to the office of the Authority Having Jurisdiction.~~

A person designated as a qualified person shall possess the skills and knowledge related to the construction and operation of the electrical equipment and

installation and shall have received documented safety training on the hazards involved. Documentation of their qualifications shall be on file with ~~the office of the Authority Having Jurisdiction and~~ the office of the establishment in charge of the completed installation."
Panel Statement: The panel does not believe it would be practical for the documentation to be maintained at the office of the authority having jurisdiction.
Number Eligible to Vote: 12
Ballot Results: Affirmative: 9 Negative: 3
Explanation of Negative:
JOHNSON: My Negative vote would be changed to an Affirmative vote with the following changes:
Modify the first sentence to add: "...qualified person(s) or entity(s) shall..." and modify the second sentence: "A person or entity designated as a qualified person(s) shall possess...".
The term was discussed during the meeting and seemed supported, but a call for vote prevented amendment of the wording. The maintenance of the process is often part of equipment supported by alarm companies, sprinkler companies, UPS manufacturers, or similar service organizations. The intent was not to designate or track the names of service persons employed by these companies.
PRICHARD: This comment should be rejected.
The definition of a qualified person presently exists in Article 100, Definitions. It is not necessary to repeat that definition here and there is no substantiation provided that a problem exists that will be corrected by requiring documentation to be on file with the office of the establishment in charge of the completed installation.
Training is accomplished in multiple steps for people to be considered qualified to perform a task. It consists of procedural training, tasks training such as hazards involved in switchgear and training for specific installations prior to performing the tasks. This is in addition to on-the-job -training and training received by journeyman electricians in training classes and schools prior to being classified as an electrician. Supervisory personnel are responsible to ensure people are qualified and have received adequate and necessary training prior to performing any work. Training records are kept based on interactive training modules, training received in classes, and for a specific job as part of the permitting process. Requiring documentation for all such training in the office of the person in charge of the installation is impractical and will not improve the training and safety of personnel.
WHITE: The ACC is recommending that the proposal be Rejected for the following reasons:
Although the NEC's purpose is the "practical safeguarding of persons and property from the hazards arising from the use of electricity", its intent is to address installation safety. The establishment of specific content and documentation requirements for safety training should remain with work practice requirements such as NFPA 70E and OSHA 1910, Electrical Safety-Related Work Practices. Establishing safety training and documentation requirements in both the installation and work practice standards sets up a potential conflict between these standards.
It also is the owner's responsibility to respond to the AHJ in a manner that is acceptable and provides the confidence that the conditions of supervision are appropriate to permit the use of this exception to the main requirement of 685.1(2). If the response is not adequate, the AHJ has the responsibility to not permit the use of the exception.

ARTICLE 690 — SOLAR PHOTOVOLTAIC SYSTEMS

13-8 Log #637 NEC-P13 **Final Action: Accept**
(690.2.Building Integrated Photovoltaics)

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 13-23
Recommendation: The Technical Correlating Committee directs that the Panel clarify the Panel Action on this proposal and consider the comments expressed in the voting. This action will be considered by the Panel as a public comment.
Substantiation: This is a direction from the National Electrical Code Technical Correlating Committee in accordance with 3-4.2 and 3-4.3 of the Regulations Governing Committee Projects.
Panel Meeting Action: Accept
Panel Statement: See the panel action on Comment 13-9.
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

13-9 Log #1047 NEC-P13 **Final Action: Accept**
(690.2.Building Integrated Photovoltaics)

Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-23
Recommendation: Mr. Kovacik's comment on the Affirmative is an acceptable rewording of this proposal and is (with a minor grammatical change) proposed as follows:
Building Integrated Photovoltaics. Photovoltaic cells, devices, modules or modular materials that are integrated into the outer surface or structure of a building and serve as the outer protective surface of that building.
Substantiation: This revision addresses Mr. Stafford's concerns in Comments on Affirmative.
Panel Meeting Action: Accept
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

13-10 Log #1046 NEC-P13 **Final Action: Reject**
(690.2.Inverter Output Circuit)

Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-22
Recommendation: The Photovoltaics Industry Forum prefers to retain the use of the more commonly used term "load center" if this is consistent with NFPA guidance.
Substantiation: The term "load center" should also be used instead of "panelboard" in proposals for 690.64(B)(5) [13-54], if accepted.
Panel Meeting Action: Reject
Panel Statement: "Panelboard"is an Article 110 defined piece of equipment, whereas "Load Center" is not defined. The panel disagrees that load center is a more commonly used NEC Code term. Panelboard is used 124 times to the one time of "Load Center"; therefore the panel prefers the term "Panelboard".
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

13-11 Log #1098 NEC-P13 **Final Action: Reject**
(690.2.Inverter Output Circuit)

Submitter: Neil F. LaBrake, Jr., Niagara Mohawk, a National Grid Company / Rep. Edison Electric Institute
Comment on Proposal No: 13-22
Recommendation: Reject the Proposal.
Substantiation: The proposed definition of inverter output circuit establishes a requirement that the inverter output be connected to an AC panelboard. Other output configurations should be allowed.
While "load center" is not listed in the NEC style manual, it is a less restrictive terminology than panelboard. In IEEE 100: the Authoritative Dictionary of IEEE Standards Terms, load center is defined as "a point in which the load for a given area is concentrated." This more general terminology should be retained so that equipment other than panelboards can be connected to the inverter output.
Panel Meeting Action: Reject
Panel Statement: See panel action on 13-10. The panel recommends the originator submit for the next code cycle to Panel 1 a definition for "Load Center".
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

13-12 Log #1048 NEC-P13 **Final Action: Accept in Principle**
(690.5(B))

Note: The Technical Correlating Committee directs that the Panel Action on Comment 13-12 be reported as "Hold" consistent with Section 4-4.6.2.2(a) of the NFPA Regulations Governing Committee Projects.
Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-26
Recommendation: Revise the proposal as follows:
690.5(B) Disabling the Faulted System. The ground-fault device or system shall automatically disconnect the ungrounded faulted conductors and/or shut off the utility-interactive inverter or charge controller for that portion of the faulted array. If the grounded conductor of the faulted source or output circuit is disconnected to comply with 690.5(A), all conductors of the faulted source or output circuit shall be opened automatically and simultaneously. Opening the grounded conductor of the faulted source or output circuit shall be permitted to interrupt the ground-fault currents.
Substantiation: The words "Shutting Down" in the Section Title were replaced with the less awkward term "Disabling."
While the current 690.5(A) and 690.5(B) ensure adequate language to safely disable the PV array and remove faults as mentioned in the Panel Statement, it is becoming increasingly difficult to provide automatic disconnect equipment that can operate at the higher voltages (up to 600) and/or currents (more than 100 amps) that are occurring more frequently in modern residential PV systems. While such disconnect equipment is available (i.e. industrial motor-driven safety switches), the cost and size of this equipment precludes using it in residential PV systems. Electronic shutdown of the inverters or charge controllers provides equivalent system protection since it provides the same alerting feature as disconnected conductors - no power/current is allowed through the faulted system. Underwriters Standard for Safety 1741 (Inverters and Charge Controllers) allows such electronic shutdown and UL-listed equipment is being sold and installed throughout the country.
This proposal adds an optional method of disabling the faulted circuits (i.e. shutting down the electronic equipment). It does not necessarily increase the complexity of meeting the requirement and many low-voltage, low-power PV

systems mounted on the roofs of dwellings will continue to meet the requirements of this section by using ground-fault systems that disconnect ungrounded conductors.

Panel Meeting Action: Accept in Principle

Revise 690.5(B) to read as follows:

690.5(B) Disabling the Faulted System. The ground-fault device or system shall automatically disconnect the ungrounded faulted conductors and~~/or~~ shut off the utility-interactive inverter or charge controller for that portion of the faulted array. If the grounded conductor of the faulted source or output circuit is disconnected to comply with 690.5(A), all conductors of the faulted source or output circuit shall be opened automatically and simultaneously. Opening the grounded conductor of the faulted source or output circuit shall be permitted to interrupt the ground-fault currents.

Panel Statement: The panel has removed the word "or" to require both disconnection of the faulted conductors and shutting off of the inverter.

Number Eligible to Vote: 17

Ballot Results: Affirmative: 14 Negative: 3

Explanation of Negative:

BOWER: The panel should not have removed the term "or" from the proposal/public comment. This action ignores areas such as safety requirements for listed inverters or charge controllers that were substantiated in the proposal, and the public comment, and it contradicts what is allowed for listed equipment per the UL1741 Standard for Safety. Removing the "or" makes this a product requirement issue not an installation issue. The NEC should not be calling for inspectors to verify an operation (a fault test that generally cannot be conducted in the field) that is already verified through approve listing procedures by recognized listing agencies. Removing the term "or" also requires inordinate expense for the inverter or charge controller manufacturer, is not safer and may even result in failures with high voltage systems where the requirement for interrupting high dc voltages at substantial current levels results in inductive kicks in voltage that may cause the device to fail. Turning the inverter off is a soft operation because it does not interrupt the dc current suddenly and thus avoids indicative kicks on the dc voltage.

The listing agency verifies that "Listed" inverters will not supply dc current or voltage to the dc-side of the system when the inverter has been shut off. The requirement for an additional disconnect in all systems is excessive. A NEC requirement that an additional discconnect reside within the inverter is a product requirement. The word "or" should remain in the language of the code. The language should read:

"690.5(B) Disabling the Faulted System. The ground-fault device or system shall automatically disconnect the ungrounded faulted conductors and/or shut off the utility-interactive inverter or charge controller for that portion of the faulted array. If the grounded conductor of the faulted source or output circuit is disconnected to comply with 690.5(A), all conductors of the faulted source or output circuit shall be opened automatically and simultaneously. Opening the grounded conductor of the faulted source or output circuit shall be permitted to interrupt the ground-fault currents."

Note: It is recognized that the term and/or should be avoided according to the NEC Style Manual but appears appropriate and necessary for this application.

ELKINS: The panel changed the "and/or" between the existing "disconnect" requirement for PV systems during a ground fault and the comment's "shut off" alternate. The effect of the panel action was to add a new requirement to shut off the inverter in response to a ground fault.

KOVACIK: I do not agree with the panel action to remove the word "or". This modification appears to change the requirement such that it is more appropriate for a product standard, not the Code. Currently, Listed products are not required to comply with this modified recommended text.

13-13 Log #1049 NEC-P13 **Final Action: Reject**
(690.7(A))

Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-29
Recommendation: Request that the Proposal be accepted as originally submitted.

After the 3rd sentence ending in "Table 690.7", add the following sentence:

Data from the manufacturer of the photovoltaic module shall be permitted to be used in lieu of Table 690.7 where that data applies to photovoltaic modules that have substantially different voltage/temperature characteristics than crystalline and polycrystalline silicon.

Substantiation: The information in the NEC is generally clearly presented in a form that applies to the most widely used materials and techniques. Currently, b690.7 and Table 690.7 accomplish that goal for nearly all current silicon and non-silicon PV modules and PV module technologies.

However, there are two circumstances that the existing section and the table do not address. One is where minor modifications to the production of an existing silicon PV cell result in voltage vs. temperature coefficients that are slightly different than the numbers and averages used to produce the table. Changing the values in the Table 690.7 to cover these small changes would cause the voltage calculations for the majority of other silicon PV modules to be incorrect and possibly unsafe. The second area would apply to newer technology silicon cells that are just coming to market. These silicon cells have voltage temperature coefficients that are significantly (>5%) different than those characteristics used in the development of Table 690.7. Again, it would be improper to modify Table 690.7 to address these newer coefficients. While Table 690.7 could be made more complex to address these newer and modified silicon technologies, they will be constantly changing and with newer products, it would be difficult to keep the NEC current. The substantial majority of PV systems will continue to be installed using silicon technology that is covered by the existing Table 690.7.

The statement allowing the use of manufacturer's data for other than crystalline and multi-crystalline silicon technologies would not apply to these newer technologies since they are considered to be crystalline and multi-crystalline silicon technologies.

Panel Meeting Action: Reject

Panel Statement: The panel desires to continue to use the table and the associated language in 690.7. Table 690.7 applies only to crystalline silicon materials.

Number Eligible to Vote: 17

Ballot Results: Affirmative: 16 Negative: 1

Explanation of Negative:

KOVACIK: This comment should have been Accepted. As stated in my Comment on Affirmative for Proposal 13-29, the table does not take into account the characteristics of amorphous silicon. However, manufacturers of these products may find it diffucult to provide conclusive, reliable temperature characteristics on their products. Further, there are upcoming new technologies that will not be addressed by the present NEC wording. A revision is needed. I believe the Code should be proactive as the current text is not sufficient to address new technologies available today.

13-14 Log #638 NEC-P13 **Final Action: Accept**
(690.13)

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 13-34
Recommendation: The Technical Correlating Committee directs the panel to clarify their action with regard to the term "pole". This action will be considered by the panel as a public comment.
Substantiation: This is a direction from the National Electrical Code Technical Correlating Committee in accordance with 3-4.2 and 3-4.3 of the Regulations Governing Committee Projects.
Panel Meeting Action: Accept
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

13-15 Log #1050 NEC-P13 **Final Action: Accept**
(690.13)

Note: The Technical Correlating Committee directs that 690.13 read as follows:

"A switch or circuit breaker shall not be installed in a grounded conductor unless that switch or circuit breaker is part of a ground-fault detection system required by 690.5 and that switch or circuit breaker is automatically opened and indicated as a normal function of the device in responding to ground faults."

Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-34
Recommendation: Revise Text to read as follows:

An appropriate revision, in light of the Technical Correlating Committee direction, would be to delete the word "pole" throughout the proposal. The proposal has exactly the same meaning and would be interpreted the same way.

The last sentence of 690.13 would now read (as modified by Panel Meeting Action).

A switch or circuit breaker shall not be installed in a grounded conductor unless that switch or circuit breaker is part of a ground-fault detection system required by 690.5 and that switch or circuit breaker is automatically opened and indicated as a normal function of the device in responding to ground faults.

Substantiation: None provided.
Panel Meeting Action: Accept
Number Eligible to Vote: 17
Ballot Results: Affirmative: 16 Negative: 1
Explanation of Negative:

FLACH: I prefer the solution suggested by Fred Hartwell.

13-16 Log #1945 NEC-P13 **Final Action: Reject**
(690.13)

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 13-34
Recommendation: The proposal as accepted in principle should be further modified. Delete the words "and indicated" from the last sentence, and add the following sentence at the end: "The switch or circuit breaker shall be indicating."
Substantiation: Editorial. Expressing the indication requirement as a complete sentence is much more understandable.
Panel Meeting Action: Reject
Panel Statement: The panel action on Proposal 13-34 succinctly addresses the issue in the recommendation.

Number Eligible to Vote: 17
Ballot Results: Affirmative: 17
Comment on Affirmative:
FLACH: See my Explanation of Negative Vote on Comment 13-15.

13-17 Log #1051 NEC-P13 **Final Action: Accept in Principle**
(690.14(C)(1))

Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-35
Recommendation: The Photovoltaics Industry Forum agrees with the Panel Action.
Substantiation: None provided.
Panel Meeting Action: Accept in Principle
Panel Statement: See the panel action and statement on Comment 13-18.
Number Eligible to Vote: 17
Ballot Results: Affirmative: 16 Negative: 1
Explanation of Negative:
STAFFORD: See my explanation of negative vote on Comment 13-18.

13-18 Log #1946 NEC-P13 **Final Action: Accept in Principle**
(690.14(C)(1))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 13-35
Recommendation: The proposal should be accepted in principle. Express the new exception as a complete sentence to comply with the Style Manual, as follows: "Installations that comply with 690.31(F) shall be permitted to have the disconnecting means located remote from the point of entry of the system conductors.
In addition, place the exception after the first paragraph of 690.14(C)(1), which is the only portion of the rule under exception.
Substantiation: To comply with the NEC Style Manual, 3.1.4.1 and 2.6.1.
Panel Meeting Action: Accept in Principle
Revise the text proposed in the comment to read:
"Installations that comply with 690.31(E) shall be permitted to have the disconnecting means located remote from the point of entry of the system conductors.
Relocate the exception as indicated in the recommendation."
Panel Statement: The panel action notes that the reference in the original proposal (13-35) should have been 690.31(E), not 690.31(F).
Number Eligible to Vote: 17
Ballot Results: Affirmative: 16 Negative: 1
Explanation of Negative:
STAFFORD: This panel member feels that allowing multiple connections and disconnecting means for multiple power sources creates more of a hazard for emergency personnel and those who are performing maintenance on photovoltaic systems. The present requirement of a disconnecting means located "... at a readily accessible location either outside of a building or structure or inside nearest the point of entrance of the system conductors" is crucial for standardizing the photovoltaic industry to provide a safe workplace as well as for emergency personnel.

13-19 Log #639 NEC-P13 **Final Action: Accept**
(690.14(D) (New))

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 13-36
Recommendation: It was the action of the Technical Correlating Committee that further consideration be given to the comments expressed in the voting. This action will be considered by the Panel as a Public Comment.
Substantiation: This is a direction from the National Electrical Code Technical Correlating Committee in accordance with 3-4.2 and 3-4.3 of the Regulations Governing Committee Projects.
Panel Meeting Action: Accept
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

13-20 Log #1052 NEC-P13 **Final Action: Accept in Principle**
(690.14(D) (New))

Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-36
Recommendation: The PV Industry Forum agrees with the Panel Statement and the Comments of Mr. Hornberger and Mr. Kovacik. The revised proposal is:

690.14(D) Utility-Interactive Inverters Mounted in Not-Readily-Accessible Locations. Utility-interactive inverters shall be permitted to be mounted on roofs or other exterior areas that are not readily accessible. These installations shall comply with (1)-(4).
(1) A direct current photovoltaic disconnecting means shall be mounted within sight of the inverter and readily accessible from the inverter or in the inverter.
(2) An alternating current disconnecting means shall be mounted near or in the inverter.
(3) The alternating current output conductors from the inverter and an additional alternating-current disconnecting means for the inverter shall comply with 690.14(C)(1).
(4) A plaque shall be installed in accordance with 225.37.
Substantiation: In the revised item (1), the disconnecting means was required to be readily accessible from the inverter. This is generally required for such disconnects for safety and ease of service.
705.10 was not referenced since 690.54 already requires the appropriate marking.
Panel Meeting Action: Accept in Principle
Panel Statement: See the panel action on Comment 13-21.
Number Eligible to Vote: 17
Ballot Results: Affirmative: 16 Negative: 1
Explanation of Negative:
STAFFORD: See my explanation of negative vote on Comment 13-21.

13-21 Log #1099 NEC-P13 **Final Action: Accept**
(690.14(D) (New))

Submitter: Neil F. LaBrake, Jr., Niagara Mohawk, a National Grid Company / Rep. Edison Electric Institute
Comment on Proposal No: 13-36
Recommendation: Accept the Proposal in Principle and in Part as edited by the Panel to be modified as follows:
Add the following new Section:
690.14(D) Utility-Interactive Inverters Mounted in Not-Readily-Accessible Locations. Utility-interactive inverters shall be permitted to be mounted on roofs or other exterior areas that are not readily accessible. These installations shall comply with (1) through ~~(3)~~ (4).
(1) A direct current photovoltaic disconnecting means shall be mounted ~~near~~ within sight of or in the inverter.
(2) An alternating current disconnecting means shall be mounted ~~near~~ within sight of or in the inverter.
(3) The alternating current output conductors from the inverter and an additional alternating-current disconnecting means for the inverter shall comply with 690.14(C)(1).
(4) A plaque shall be installed in accordance with ~~Section 225.37~~ Section 705.10.
Substantiation: Edison Electric Institute provides this comment based on:
1. Since four requirements are presented, the installations should be required to comply with all four.
2. The term "near" is not defined. The term "within sight" is defined, requiring the disconnect to be visible from the inverter and within 50 feet (15m).
3. Since a PV system is an "Interconnected Electric Power Production Source", the plaque requirement in item (4) should meet the requirements of section 705.10. This will provide a consistent location for the plaque, at the service entrance equipment.
Panel Meeting Action: Accept
Number Eligible to Vote: 17
Ballot Results: Affirmative: 16 Negative: 1
Explanation of Negative:
STAFFORD: The action of the panel does not create a standardized method or the location of disconnecting means. The exception allowed in 13-18 (690.14(C)1) will allow multiple locations for disconnecting means. The present requirement of a disconnecting means located "... at a readily accessible location either outside of a building or structure or inside nearest the point of entrance of the system conductors" is crucial for standardizing the photovoltaic industry to provide a safe workplace as well as for emergency personnel.

13-22 Log #1934 NEC-P13 **Final Action: Reject**
(690.14(D))

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 13-37
Recommendation: The Panel should have accepted this proposal in principle to read as follows:
Photovoltaic disconnecting means shall comply with 690.14(A) through (D). (Paragraphs A-C remain unchanged).
(D) Requirements for Disconnecting Means of Inverter Output Circuit.

Means shall be provided to disconnect all conductors of the Inverter Output Circuit from the AC Electrical Production and Distribution Network. A single disconnecting means in accordance with 690.17 shall be permitted for the combined AC output of one or more inverters of AC modules in an interactive system. Disconnect shall be adjacent to or grouped with the utility disconnecting means. Such Disconnecting Means shall be in accordance with 690.54, 690.56(B) and 690.64.

Substantiation: A standard should be set for utility and fire personnel to disconnect manually all types of energy production systems that may be located on the premises. The acceptance of a new paragraph to 690.14(C)(1) and associated new 690.31(F) does not specify the location as being a "standard" location for disconnecting means. This proposal is attempting to provide the same safety requirements as Proposal 13-69 which was accepted at CMP-13's ROP meeting. This sets a standard for utility and fire personnel that all types of energy production that might be on the premises can be disconnected at the same location. This comment would not be necessary if CMP-13 would have accepted the panel proposal that was placed before the panel on the last day of the ROP meeting which stated:

(1) Revise Table 705.3 Other Articles to read as follows:

Table 705.3 Other Articles	
Equipment/System	Article
Generators	445
Solar photovoltaic systems	690
Fuel cell systems	692
Emergency systems	700
Legally required standby systems	701
Optional standby systems	702

(2) Delete Exception No. 1 and Exception No. 2 of Table 705.3 Other Articles

The scope of Article 705 covers installation of one or more power production sources operating in parallel with a primary source(s) of electricity. This recommendation brings into alignment interconnected solar photovoltaic systems and fuel cell systems installed today and that utilities in some states already require the provisions of Article 705, it is important to recognize these systems as being Interconnected Electric Power Production Sources and have them fall under the same code article to provide standardization.

This would allow 705.12 to set a standard to ensure all disconnects for all electrical generating systems to be installed in the same location.

Panel Meeting Action: Reject

Panel Statement: The provisions of 690.15, which require a disconnecting means to disconnect the photovoltaic equipment, are the standard for this equipment and are adequate for these types of installations.

Number Eligible to Vote: 17

Ballot Results: Affirmative: 16 Negative: 1

Explanation of Negative:

STAFFORD: The action of the panel does not create a standardized method for the location of disconnecting means. The exception allowed in 13-18 (690.14(C)1) will allow multiple locations for disconnecting means. The present requirement of a disconnecting means located "... at a readily accessible location either outside of a building or structure or inside nearest the point of entrance of the system conductors" is crucial for standardizing the photovoltaic industry to provide a safe workplace as well as for emergency personnel. The panel statement of "... are the standard for this equipment and are adequate for these types of installations," does not satisfy any standardization of locating disconnecting means. The panel rejected this comment without defining what "adequate" is to include. A failure analysis was not available for review as well as there were no studies available to determine how inverters perform when multiple inverters are connected in parallel with the utility

.**Comment on Affirmative:**

HORNBERGER: I agree with the panel action to reject this proposal. However, NEC requirements for "Interconnected Electric Production Sources" should be uniform, despite the technology generating the power. Comment 13-45 on proposal 13-69 raises the same disconnect location issue for fuel cells. A task group should be formed to study this issue for the next code cycle, taking into account first responder safety during emergency conditions. Proper marking of a service or location of disconnects for interconnected electric production systems within a premise must be uniform. The requirement should be in Article 705, and should apply to all forms of interconnected electric production sources, photovoltaic, wind, water power, fuel cell, or whatever technology develops in the future. This requirement should not be within the articles covering the specific needs of an electrical power source technology.

13-23 Log #1053 NEC-P13 **Final Action: Accept**
(690.17)

Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-38
Recommendation: The Photovoltaics Industry Forum agrees with the Panel Action.

In response to the comment by Mr. Elkins, the following is offered as an addition to the substantiation.

UL Standard 1741 (Inverters and Charge Controllers) and UL Standard 98 (Enclosed and Dead Front Switches) are used to evaluate disconnecting devices for use in photovoltaic power systems. The current-limited characteristics of PV sources and the unique load characteristics of inverters have necessitated that parts of both of these standards be used to evaluate PV disconnecting devices.

Substantiation: None provided.
Panel Meeting Action: Accept
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

13-24 Log #1054 NEC-P13 **Final Action: Accept in Principle**
(690.31, FPN)

Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-39
Recommendation: The Photovoltaics Industry Forum agrees with the Panel Action.
Substantiation: None provided.
Panel Meeting Action: Accept in Principle
Panel Statement: See the panel action on Comment 13-25.
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

13-25 Log #1949 NEC-P13 **Final Action: Accept**
(690.31, FPN (New))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 13-39
Recommendation: Accept the proposal in principle; specify the location for the FPN as after (A) and before (B).
Substantiation: The FPN explains considerations and conductor temperature limitations for PV wiring systems. The draft shows it falling after (D) on small conductor cables. Since the draft didn't pick up the new 690.31(F), it could even fall after this rule that has nothing to do with the subject of the FPN.
Panel Meeting Action: Accept
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

13-26 Log #1055 NEC-P13 **Final Action: Accept**
(690.31(B))

Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-40
Recommendation: Revise text to read as follows:

In accordance with the direction of the Technical Correlating Committee, 690.31(B) is revised to read:

(B) Single Conductor Cable. Types SE, UF, USE and USE-2 single-conductor cable shall be permitted in photovoltaic source circuits where installed in the same manner as a Type UF multi-conductor cable in accordance with Part II of Article 340.

Substantiation: None provided.
Panel Meeting Action: Accept
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

13-27 Log #1056 NEC-P13 **Final Action: Accept in Principle in Part**
(690.31(F) (New))

Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-41
Recommendation: The Photovoltaics Industry Forum requests that the proposal be adopted as originally submitted complete with metallic raceways and also addressing the ac outputs of utility-interactive inverters.

690.31(F) Direct Current Photovoltaic Source and Output Circuits Inside Building.

Where direct current photovoltaic source or output circuits or the alternating current outputs of a utility-interactive inverter from building integrated or other photovoltaic system are run inside a building or structure, they shall be contained in metallic raceways or metallic enclosures from the point of penetration of the surface of the building or structure to the first readily accessible disconnecting means. The disconnecting means shall comply with 690.14(A)-(C).

Substantiation: Roof-top residential PV systems are going mainstream in California, New York, New Jersey and other states. PV modules and installation methods have been developed for the rooftop installations that have become visually acceptable to homeowners, architects, and homeowners associations. There is a very real need to get the PV source and output circuits from the roof to the readily accessible PV disconnect (690.14) (usually at ground level) in a manner that does not detract from the outside appearance of the residence. Permitting the source and output circuits to be run inside the house achieves this objective.

The comments of Mr. Hornberger and Mr. Elkins with reference to the need to use metallic raceways are correct. PV systems are indeed current limited

sources and ground faults in the dc source and output circuit wiring will not cause overcurrent devices associated with the PV sources to trip. These source-circuit overcurrent devices are rated to pass full output current without activating and are used to prevent overcurrents from other sources. Metallic raceways are needed to cause 690.5 ground-fault protection devices to activate, which will not only disable the faulted portion of the PV system, but will also interrupt the fault currents (for single ground faults).

Although the PV dc sources are current limited, arcing, line-to-line faults are possible. Metallic conduit has a better demonstrated fire resistance under such fault conditions and increases the likelihood that the line-to-line fault will involve the grounded conduit and trip the ground-fault protection device.

Metallic raceways offer superior physical resistance to accidental penetration by fire response personnel and the residents.

The same comments apply to the ac outputs of utility-interactive inverters although the response to ground and line-to-line faults is mainly accomplished by activation of the overcurrent devices at the point of connection with the utility system.

Panel Meeting Action: Accept in Principle in Part

Panel Statement: The panel rejects the inclusion of the phrase "or the alternating current outputs". See the panel action and statement on Comment 13-28.

Number Eligible to Vote: 17

Ballot Results: Affirmative: 16 Negative: 1

Explanation of Negative:

STAFFORD: The panel action to require metallic conduit for photovoltaic source circuits is correct but the panel removed the requirement of the "alternating current outputs," which removes additional protecting means for the system as well as for the utility provided power source. A fault in the inverter output circuits (ac) needs to be protected in ground fault conditions. A fault in the ac portion of the inverter output circuits will be provided fault current from both the inverter and from the utility provided ac power source. By not including the inverter output circuits in metallic raceway, a potential fault could be present without any interrupting from ground fault detecting devices.

13-28 Log #1100 NEC-P13 **Final Action: Accept**
(690.31(F) (New))

Submitter: Neil F. LaBrake, Jr., Niagara Mohawk, a National Grid Company / Rep. Edison Electric Institute

Comment on Proposal No: 13-41

Recommendation: Accept this Proposal in Part and Principle. The proposal reworded by the Panel should be revised as follows:

690.31(F) Direct Current Photovoltaic Source and Output Circuits Inside Building. Where direct current photovoltaic source or output circuits ~~or the alternating current outputs~~ of a utility-interactive inverter from building integrated or other photovoltaic system are run inside a building or structure, they shall be contained in <u>metallic</u> raceways or enclosures from the point of penetration of the surface of the building or structure to the first readily accessible disconnecting means. The disconnecting means shall comply with 690.14(A) through (C).

Substantiation: Direct Current Photovoltaic Source and Output Circuits do not include AC inverter output conductors. Reference to AC inverter output conductors should be removed.

Modifying the submitted proposal to permit use of nonmetallic raceways may increase electrical shock and fire hazard of the installation. Cutting through the conductors and nonmetallic raceway would not produce a return current path for the DC output current, resulting in unexpected and dangerous open circuit output voltages to emergency response or maintenance personnel.

Panel Meeting Action: Accept

Panel Statement: The panel notes that the correct reference is 690.31(E).

Number Eligible to Vote: 17

Ballot Results: Affirmative: 16 Negative: 1

Explanation of Negative:

STAFFORD: The panel action to require metallic conduit for photovoltaic source circuits is correct but the panel removed the requirement of the "alternating current outputs," which removes additional protecting means for the system as well as for the utility provided power source. A fault in the inverter output circuits (ac) needs to be protected in ground fault conditions. A fault in the ac portion of the inverter output circuits will be provided fault current from both the inverter and from the utility provided ac power source. By not including the inverter output circuits in metallic raceway, a potential fault could be present without any interrupting from ground fault detecting devices.

13-29 Log #1057 NEC-P13 **Final Action: Accept in Principle**
(690.35 (New))

Submitter: John C. Wiles, Southwest Technology Development Institute

Comment on Proposal No: 13-42

Recommendation: Please consider the revised Proposal that has been modified along the lines suggested by the Panel Statements and Comments.

690.35 Ungrounded Photovoltaic Power Systems. Photovoltaic power systems shall be permitted to operate with ungrounded PV source and output circuits where the system complies with (A) through (F).

(A) All photovoltaic source and output circuit conductors shall have disconnects complying with 690, Part III.

(B) All photovoltaic source and output circuit conductors shall have overcurrent protection complying with 690.9.

(C) All photovoltaic source and output circuits shall be provided with a ground-fault protection device or system that will comply with (1) through (3).

(1) Detect a ground fault.

(2) Indicated that a ground fault has occurred.

(3) Automatically disconnect the conductors and/or shut off the utility-interactive inverter or charge controller for that portion of the faulted array.

(D) The photovoltaic source and output conductors shall consist of sheathed (jacketed) multi-conductor cables or shall be installed in a raceway.

(E) The photovoltaic power system direct-current circuits shall be permitted to be used with ungrounded battery systems complying with 690.71(G).

(F) The photovoltaic power source shall be labeled with the following warning at each junction box, combiner box, disconnect and device where the ungrounded circuits may be exposed during service.

"Warning! Electric Shock Hazard. The direct current circuit conductors of this photovoltaic power system are ungrounded, but may be energized with respect to ground due to leakage paths and/or ground faults."

Substantiation: The following revisions and clarifications were made to the proposal to address Panel Comments.

1. The word ''conductors" was replaced with the word "circuits" where appropriate because nearly all circuits have some ungrounded conductors, but the intent here is to allow ungrounded circuits.

2. The specification of any particular fault current level was removed completely. The PV Industry and Underwriters Laboratories will determine how to best meet the requirement.

3. The requirement to interrupt the fault current was removed since this is not feasible with current technology on ungrounded systems as Mr. Stafford pointed out.

4. Although it is agreed that metallic raceways would increase system safety as suggested by Mr. Elkins, they are not necessary unless the circuits are inside a building as proposed in the 690.31(F). The ground-fault detection circuit operation would be enhanced somewhat, (as mentioned in 690.31(F) for line-to-line faults) but would still function if and when there were ground faults in the ungrounded circuits.

5. It should be noted that the ground-fault detection equipment required by his proposal will continue to monitor the safety of the system over the decades of operation in a manner not presently required in grounded, nondwelling PV installations.

Panel Meeting Action: Accept in Principle

Revise text proposed in the comment to read:

690.35 Ungrounded Photovoltaic Power Systems. Photovoltaic power systems shall be permitted to operate with ungrounded photovoltaic source and output circuits where the system complies with (A) through (F).

(A) All photovoltaic source and output circuit conductors shall have disconnects complying with 690, Part III.

(B) All photovoltaic source and output circuit conductors shall have overcurrent protection complying with 690.9.

(C) All photovoltaic source and output circuits shall be provided with a ground-fault protection device or system that complies with (1) through (3):

(1) Detects a ground fault.

(2) Indicates that a ground fault has occurred

(3) Automatically disconnects the conductors and/or shuts off the utility-interactive inverter or charge controller for that portion of the faulted array

(D) The photovoltaic source and output conductors shall consist of sheathed (jacketed) multi-conductor cables or shall be installed in a raceway

(E) The photovoltaic power system direct-current circuits shall be permitted to be used with ungrounded battery systems complying with 690.71(G).

(F) The photovoltaic power source shall be labeled with the following warning at each junction box, combiner box, disconnect and device where the ungrounded circuits may be exposed during service:

"Warning! Electric Shock Hazard. The direct current circuit conductors of this photovoltaic power system are ungrounded, but may be energized with respect to ground due to leakage paths and/or ground faults."

(G) The inverters or charge controllers used in systems with ungrounded photovoltaic source and output circuits shall be listed for the purpose.

Panel Statement: Section 690.35(G) was added to ensure inverters and charge controllers used in ungrounded photovoltaic systems are listed for the purpose. Failure to add this could result in existing and new systems, not capable of operating with an ungrounded photovoltaic array, being installed or converted. The term "PV" was changed to "photovoltaic" for consistency in the Code.

Number Eligible to Vote: 17

Ballot Results: Affirmative: 16 Negative: 1

Explanation of Negative:

STAFFORD: Allowing ungrounded photovoltaic systems should require the following:

1. A ground fault trip setting for all photovoltaic conductors for the portion of the ungrounded photovoltaic system. This function should be left up to the PV industry and Underwriters Laboratories as the submitter stated, but there is no "setting" available today. Passing this comment would allow ungrounded systems to be installed without any study from Underwriters Laboratories or input from the PV industry.

2. A means of indicating and isolating any grounded portion of the array and conductors for the portion of the ungrounded system. Anyone who will have to repair/maintain such systems need a visual reference to any faulted portions of the array.

3. Grounded portions of a photovoltaic system should not be allowed to be intermixed with ungrounded portions of a photovoltaic system. This could happen if multiple inverters are used, some to operate on ungrounded systems and some to operate on grounded systems. This would in effect present anyone who is working on or maintaining the photovoltaic system with necessary concerns for identifying ungrounded portions of the photovoltaic system(s) as grounded or ungrounded.

In addition, the submitter states in the substantiation that "3. The requirement to interrupt the fault current was removed since this is not feasible with current technology on ungrounded systems...", yet the proposed revision submitted contains language in 690.35(c)(1), (2), (3) all contain functions such inverter is to perform.

Comment on Affirmative:

BOWER: The proposal/public comment along with the most recent panel action provides a very safe installation requirement for ungrounded photovoltaic rays. The requirements as shown in the proposed language below keep all ungrounded conductors safely contained and away from the customer. The requirement for ground-fault detection on all dc circuits is an additional safety requirement since it applies to all systems and not just residential roof top systems. The application of photovoltaic systems with ungrounded batteries is a good match to the existing grounding requirements for batteries. The warnings being placed at each junction box, combiner box, and disconnect assures adequate and proper warnings to service personnel. The requirement for the use of inverters and charge controllers listed for the application assures the proper match of equipment and system configuration.

690.35 Ungrounded Photovoltaic Power Systems. Photovoltaic power systems shall be permitted to operate with ungrounded photovoltaic source and output circuits where the system complies with (A) through (F).

(A) All photovoltaic source and output circuit conductors shall have disconnects complying with 690, Part II.

(B) All photovoltaic source and output circuit conductors shall have overcurrent protection complying with 690.

(C) All photovoltaic source and output circuit conductors shall be provided a ground-fault protection device or system complying with (1) through (3).

(1) Detects a ground fault current.

(2) Indicates that a ground fault has occurred.

(4) Automatically disconnects the conductors and/or shuts off the utility-interactive inverter or charge controller for that portion of the faulted array.

(D) The photovoltaic source and output conductors shall consist of sheathed (jacketed) multi-conductor cables or shall be installed in a raceway.

(E) The photovoltaic power system direct-current circuits shall be permitted to be used with ungrounded battery systems complying with 690.71(G).

(F) The photovoltaic power source shall be labeled with the following warning at each junction box, combiner box, disconnect and device where the ungrounded circuits may be exposed during service.

"WARNING! ELECTRIC SHOCK HAZARD. THE DIRECT CURRENT CIRCUIT CONDUCTORS OF THIS PHOTOVOLTAIC POWER SYSTEM ARE UNGROUNDED, BUT MAY BE ENERGIZED WITH RESPECT TO GROUND DUE TO LEAKAGE PATHS AND/OR GROUND FAULTS.

(G) The inverters or charge controllers used in systems with ungrounded photovoltaic source and output circuits shall be listed for the purpose.

13-30 Log #1059 NEC-P13 **Final Action: Accept**
(690.41 and 690.2)

Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-43
Recommendation: The Photovoltaic Industry Forum feels that the original definition of Photovoltaic Systems Voltage in 690.2 was inadvertently entered incorrectly with an "s" on the word "system" in the title and in the definition. The proposal below is made to correct this mistake.

690.2 Photovoltaic System Voltage. The direct current (dc) voltage of any photovoltaic source or photovoltaic output circuit. For multi-wire installations, the photovoltaic system voltage is the highest voltage between any two dc conductors.

Substantiation: Each photovoltaic system has a single system voltage. Adding s or (s) to the word "system" when referring to system voltage would not only be incorrect, but confusing. There should be no plural word "systems" associated with the definition. Changing the definition in 690.2 will clarify the use of the term in 690.7, 690.41, 690.51, 690.53, 690.80, and 690.85 without necessitating a change in each of those sections.
Panel Meeting Action: Accept
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

13-31 Log #1058 NEC-P13 **Final Action: Accept**
(690.41 Exception (New))

Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-42
Recommendation: This is a new Proposal for an Exception to 690.41 based on the assumption that the commented and revised proposal for 690.35 (new) (13-42) is accepted.

690.41 Exception: Systems complying with 690.35
Substantiation: This Exception is needed in 690.41 (which requires grounded systems) if ungrounded PV systems are allowed in 690.35.
Panel Meeting Action: Accept
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

13-32 Log #1061 NEC-P13 **Final Action: Reject**
(690.42)

Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-45
Recommendation: The Photovoltaics Industry Forum agrees with the panel action to reject this proposal. An alternate proposal to address this issue has been suggested in the form of a Fine Print Note in 13-44.

Additionally, it would not be a good requirement to ground the PV system "at" the inverter for two reasons. (1) Many systems do not have inverters, and (2) grounding "at" the inverter may be interpreted as an external grounding requirement, rather than the intent to have wiring inside the equipment make the bonding connection.
Substantiation: None provided.
Panel Meeting Action: Reject
Panel Statement: The fine print note as proposed in the comment does not comply with the NEC Style Manual requiring that fine print notes not contain mandatory text.
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

13-33 Log #1060 NEC-P13 **Final Action: Reject**
(690.42, FPN)

Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-44
Recommendation: The Photovoltaics Industry Forum agrees with the Panel decision to reject the proposal as submitted. An alternate proposal is presented below to require this important information to be in the NEC in addition to any markings on the equipment required by UL Standards.

690.42

FPN: Equipment containing ground-fault protection devices as required by 690.5 will have the single-point for dc grounding included as a part of the equipment. Any grounding point installed externally to the equipment would bypass any internal ground-fault protection device.
Substantiation: This Fine Print Note should be added to 690.42 since it directs the installer to consider a significant installation issue, which if ignored, will result in bypassing any 690.5 required ground-fault protection device.

The Photovoltaics Industry Forum is also represented on the Standards Technical Panel for UL Standard 1741 (Inverters and Charge Controllers) and will see that an appropriate label is also added to the equipment and that the installation manuals reflect the appropriate guidance. However, numerous labels on the product are forcing them to be very small and with the complex instructions associated with this equipment, it is easy to overlook a single instruction.

Furthermore, electrical inspectors do not usually have access to the detailed instruction manuals for these products and need Fine Print Notes such as this to guide them in ensuring safe installations.
Panel Meeting Action: Reject
Panel Statement: The fine print note as proposed in the comment does not comply with the NEC Style Manual requiring that fine print notes not contain mandatory text.
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

13-34 Log #1062 NEC-P13 **Final Action: Reject**
(690.45)

Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-46
Recommendation: The Photovoltaics Industry Forum agrees with the panel action. However, recent advances in technology and the appearance of new, listed PV equipment dictates that this Section should be revised at this time to provide requirements that will allow the new products to be installed safely.

Please consider the following revised wording for 690.45.

690.45 Size of the Equipment Grounding Conductor. Photovoltaic source and output circuits shall have equipment-grounding conductors sized to carry currents at 125 percent of the photovoltaic-originated short-circuit currents in that circuit, but not less than 14 AWG. Where the circuit conductors are oversized for voltage drop, the equipment-grounding conductor shall be proportionately oversized in accordance with 250.122(B) except where there are no overcurrent devices protecting the circuit as allowed by 690.9 Exception.

Substantiation: There are now two distinct types of dc PV source output circuits that may be connected to various types of PV equipment like inverters and charge controllers. Each type of circuit (identified to some extent by the connected equipment) has different requirements for the size of the equipment-grounding conductors. They are:

1. Normal PV circuits with overcurrent devices protecting the conductors. These circuits require equipment-grounding conductors sized at a minimum to carry PV sourced ground-fault currents of 1.25 times the short-circuit currents because overcurrent devices don't trip these faults and the equipment-grounding conductor may have to carry the fault currents until the fault is discovered and corrected. They should also be oversized if the circuit conductors are oversized per 250.122(B) to allow proper tripping of overcurrent devices from fault currents from other sources (batteries, parallel source circuits, etc.).
2. PV source and output circuits that require no overcurrent protection per 690.9 Exception. PV systems with single strings of modules, no energy storage (batteries) and no grid connection are frequently installed without overcurrent devices as allowed by 690.9 Exception. Some of the newer utility-interactive inverters also do not require overcurrent devices in the dc PV circuits.

The equipment-grounding conductors are needed to maintain equipment grounding and should be sized at least to carry 125% of the short-circuit current (Isc) for the circumstances where PV sourced ground-fault currents can flow for indefinite periods of time. No over sizing per 250.122(B) is necessary because no overcurrent devices are involved. See explanatory diagrams provided. (No explanatory diagrams were received at NFPA).

Panel Meeting Action: Reject

Panel Statement: The original proposal dealt with changing grounding to bonding. This comment deals with a different issue and is requesting a change that should go through the complete proposal and comment process. It is recommended that the originator submit a proposal at the next Code cycle. The panel understands that the action on this comment does not affect the panel action on Proposal 13-46.

Number Eligible to Vote: 17

Ballot Results: Affirmative: 17

13-35 Log #1063 NEC-P13 **Final Action: Accept**
(690.48 (New))

Submitter: John C. Wiles, Southwest Technology Development Institute

Comment on Proposal No: 13-48

Recommendation: While the Photovoltaics Industry Form agrees with the negative comment by Mr. Kovacik, we offer the following revision to the proposal to meet the intent of the Panel Statement.

690.48 Continuity of Equipment-Ground Systems. Where the removal of equipment disconnects the bonding connection between the grounding electrode conductor and exposed conducting surfaces in the photovoltaic source or output circuit equipment, a bonding jumper shall be installed while the equipment is removed.

Substantiation: The last sentence, "Temporary bonding jumpers are permitted," has been removed from the proposal. This change addresses the Panel Statement and allows the installer to use choose the appropriate code-compliant method to meet the requirement to maintain the equipment grounding for the always (in sunlight) energized PV source and output circuits.

As addressed in the proposal substantiation, the continuity of the equipment-grounding system is the first line of defense against personnel shocks. It is particularly important in PV systems where the energy sources are energized any time they are illuminated.

Panel Meeting Action: Accept

Number Eligible to Vote: 17

Ballot Results: Affirmative: 17

13-36 Log #1064 NEC-P13 **Final Action: Accept**
(690.49 (New))

Submitter: John C. Wiles, Southwest Technology Development Institute

Comment on Proposal No: 13-49

Recommendation: To address the Panel Statement, The Photovoltaics Industry Forum offers a minor revision to the Proposal as follows:

690.49 Continuity of Photovoltaic Source and Output Circuit Grounded Conductors. Where the removal of the utility-interactive inverter or other equipment disconnects the bonding connection between the grounding electrode conductor and the photovoltaic source and/or photovoltaic output circuit grounded conductor, a bonding jumper shall be installed to maintain the system grounding while the inverter or other equipment is removed.

Substantiation: The word "temporary" was removed from the proposal and the last few words were revised for consistency and clarity.

Panel Meeting Action: Accept

Number Eligible to Vote: 17

Ballot Results: Affirmative: 17

13-37 Log #1961 NEC-P13 **Final Action: Hold**
(690.57)

Note: The Technical Correlating Committee directs that the Panel Action on Comment 13-37 be reported as "Hold" and additional consideration be given to the negative votes in the 2004 NEC Report on Comments.

Submitter: Michael I. Callanan, IBEW

Comment on Proposal No: 13-52

Recommendation: The Panel should have accepted this proposal in principle to read as follows:

690.57 Where Interactive Systems operate as a Stand-Alone System through bypassing of the inverter, disconnecting means shall indicate both normal and bypass positions.

Substantiation: We recognize that the bypass function performed by the inverter is performed with internal circuitry as stated by the panel, but this does not alleviate the potential for hazards to personnel working on the system branch circuits. Inverters may operate in a "Bypass" mode where AC power is routed through the inverter to critical loads. Presently some disconnecting means on inverters indicate an "off" position but allow AC Utility Power to supply loads driven by the inverter. The intent here is not to prevent inverters from operating in the bypass mode but rather to have marking indicate when an inverter is operating in a bypass mode. Someone performing work upon the system could come into contact with energized branch circuits that are indicated "off" at its source, i.e., the inverter. The branch circuits supplied by an interactive inverter operating in the stand-alone mode are not internal to the inverter, they are accessible.

We also recognize the panel's attempt to alleviate the same hazard identified by proposal 13-77. The panel action taken on proposal 13-77 removes the same hazard identified for fuel cell systems which is identical to the one stated above. The new Section 690-57 attempts to alleviate the same hazard for photovoltaic systems and it is desired for the same level of system safety to be present for both power sources, fuel cells and photovoltaics. This Comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.

Panel Meeting Action: Accept

Number Eligible to Vote: 17

Ballot Results: Affirmative: 14 Negative: 3

Explanation of Negative:

BOWER: I see many problems with this proposed addition to Article 690. First and foremost, this is an area that is covered by the listing process for the inverter since the transfer device is nearly always internal to the inverter housing and always controlled by the inverter control system (a product requirement). I do agree that external indicators should allow the various modes of operation, but this again is a product requirement. issue not an installation issue. Nowhere else in the code is there an "indication" requirement for devices internal to hardware and out of reach to the unqualified persons. Further, if you carefully read the language in the proposal, it is complete nonsense as discussed in the next paragraph. Another point to consider is if the proposed language were technically correct, it would not belong in the "Marking" section of Article 690. Finally, as stated, this proposed new section will thoroughly confuse designers, installers and the authority having jurisdiction. The proposed new language is reproduced below in order to facilitate further discussion.

690.57 Where Interactive Systems operate as a Stand-alone System through bypassing of the inverter, disconnecting means shall indicate both normal and bypass positions.

This sentence is complete nonsense since a photovoltaic system that operates as an interactive system and can be manually or automatically switched to a stand-alone mode does not operate as a stand-alone system by bypassing the inverter! Conversely, the inverter is supplying all the power via an energy storage devise such as a battery in this stand-alone mode. The only time the inverter may be fully bypassed is when the inverter has been turned off or removed from the circuit, but that again is not a stand-alone operation. In all cases, the terminals of the disconnecting means are already required to be "not accessible" to unqualified personnel. Cautionary marking on the listed hardware state "Both ac and dc voltage sources are terminated inside this equipment. Each circuit must be disconnected before servicing." Additonally, 690.56 requires plaques providing the location of service disconnecting means and the fact that the building contains a stand alone system. Additionally, Article 690.57 is technically incorrect, misleading, confusing and potentially a flawed product requirement and should not be included in the NEC.

KOVACIK: Most multi-mode products do not have a manual transfer means to allow switching between normal and bypass modes as described in the recommendation. This situation could be addressed by the utility worker opening the utility interactive product disconnect as required by the local utility. Further, the recommended text is technically incorrect in that interactive systems are not considered stand-alone systems when bypassing the inverter.

KRASTINS: Since the bypass function of the inverter is performed within the inverter, the information on the state of the inverter would have to be brought out and indicated externally. This additional, proposed clause, therefore, would also affect the internal design and not just the installation of the inverter. This change should be proposed to Underwriters Laboratories (UL) Standards Technical Panel (STP) 1741 and incorporated in the inverter product safety standard (UL 1741) prior to inclusion in the NEC. Otherwise, PV inverters

listed to UL 1741 will not necessarily be in compliance with the NEC.
Comment on Affirmative:
STAFFORD: The panel action to accept this proposal was correct. The necessary means to identify a circuit as Off or On is critical for those working on the branch circuits supplied.

13-38 Log #1065 NEC-P13 **Final Action: Accept in Principle**
(690.64(B)(5))

Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-54
Recommendation: Per the comment by Mr. Elkins, the proposal is modified and revised as follows:
690.64(B)(5) Circuit breakers, if backfed, shall be identified (not marked "Line" and "Load") for such operation. Dedicated circuit breakers backfed from listed utility-interactive inverters meeting 690.60 shall not be required to be individually clamped to the load center/panelboard bus bars. A front panel shall clamp all circuit breakers to the load center or panel board bus bars. Main circuit breakers connected directly to energized feeders shall also be individually clamped.
Substantiation: The revised proposal eliminates the Fine Print Note and moves the FPN information for the required absence of "Line" and "Load" markings into the text of the section. To ensure that the connected circuit will be dead when the circuit breaker is pulled, the inverter must shut down when the connection is broken. To ensure that the inverter will safely shut down immediately (32 milliseconds per UL 1741), the word "listed" (identified as suitable for the purpose) has been added and 690.60 is called out to further substantiate the requirement. The requirement is added that a front panel shall be used to clamp all circuit breakers in place and that individual circuit breakers need not be clamped unless they are connected to utility-energized feeders.
Utility-interactive inverters listed to UL Standard 1741 have been exhaustively tested to ensure that they do shut down promptly upon loss of utility power on their outputs. These UL tests have been extensively verified by testing at other organizations like Sanida National Laboratories and the Southwest Technology Development Institute at New Mexico State University. These inverters are accepted as being safe by all PV systems installers, electrical inspectors, and utilities.
Panel Meeting Action: Accept in Principle
Revise 690.64(B)(5) to read:
690.64(B)(5) Circuit breakers, if backfed, shall be identified ~~(not marked "Line" and "Load")~~ for such operation. Dedicated circuit breakers backfed from listed utility-interactive inverters meeting 690.60 shall not be required to be individually clamped to the ~~load center/~~panelboard bus bars. A front panel shall clamp all circuit breakers to the ~~load center or~~ panelboard bus bars. Main circuit breakers connected directly to energized feeders shall also be individually clamped.
Panel Statement: The parenthetical phrase "not marked for line and load" has been deleted, since that is a listing issue. The term "loadcenter" has been removed because it is not defined in the Code.
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

13-39 Log #1066 NEC-P13 **Final Action: Reject**
(690.65 (New))

Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-55
Recommendation: The Photovoltaic Industry Forum agrees with the Panel Statement and submits the following revised proposal addressing the Panel's concerns.
690.65 Utility-Interactive Source Centers. Multiple utility-interactive inverters shall be permitted to be connected to an ac load/source center or panelboard without complying with 690.64(B)(2) where the installation complies with (1) and (2).
(1) The sum of the ratings of the overcurrent devices supplying current from the utility-interactive inverters shall be not more than the rating of the load/source center or panelboard.
(2) The sum of the ratings of the overcurrent devices supplying current to loads (if any) shall be not more than the rating of the load/source center or panelboard.
(3) The load/source center shall be placarded as follows:
"Warning: Utility-Interactive Photovoltaic Load/Source Center".
"The number or ratings of overcurrent devices in this load/source center shall not be changed unless the requirements of 690.65 of the National Electrical Code are met."
Substantiation: The wording of 690.64(B)(2) in the 2002 NEC requires that a load center or panelboard used as a source panel for utility-interactive inverters have a rating of twice the sum of the circuit breakers supplying current from utility-interactive inverters. This is because the rating of the main circuit breaker (supplying current from the grid) plus the sum of all circuit breakers supplying current from utility-interactive photovoltaic inverters can be no greater than the current rating of the bus bars in the panelboard. For example: given a 100 amp circuit breaker supplying current from a utility-interactive inverter, the main circuit breaker must be rated at least 100 amps to handle the operating current from the inverters and the panelboard must be rated at 200 amps to meet 690.64(B)(2) requirements. With no load circuits connected, the maximum current that the bus bars in the load center or panelboard will ever see is 100 amps (the maximum possible currents from the PV inverters).
If the sum of any load breakers were restricted to 100 amps or less, then even without a main breaker or limitation of current from the utility, the maximum currents that the load center or panel board would see would still be limited to 100 amps from any source (inverters or utility).
In this new proposal, if the sum of the ratings of the circuit breakers supplying any loads in this new load center or panelboard were restricted (placarded) to 100 amps or less and the sum of the ratings for the inverter breakers were also limited to 100 amps or less, then under all conditions or load currents, source currents, and fault currents, the load center or panelboard bus bars would never see more than 100 amps and it would be unnecessary to install a 200-amp panelboard, a 100-amp load center/panel board would suffice.
The warning placard alerts any future user that the load center or panelboard should not be modified without consulting NEC Section 690.65
Note: Supporting material is available for review at NFPA Headquarters.
Panel Meeting Action: Reject
Panel Statement: The ampacity of the busbar is still the limiting factor. Since the main overcurrent protection no longer monitors the total bus load, the restriction limiting the sum of the sources to the bus ampacity is the only requirement that is enforceable. Equipment sized for the available current is preferred over a placard.
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

13-40 Log #1067 NEC-P13 **Final Action: Accept in Principle**
(690.71(B)(1))

Note: The Technical Correlating Committee directs that the Exception indicated in Proposal 13-57 is to be retained.
Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-57
Recommendation: To meet the requirements stated in the Panel Statement, the Proposal is revised as follows. There is no change to the Fine Print Note:
690.71(B)(1) Operating Voltage. Lead-acid storage batteries for dwellings shall have no more than twenty-four 2-volt cells connected in series (48-volts nominal).
Substantiation: The words "Lead-acid" were added to the proposal to ensure that the intent of the requirement was clear.
Panel Meeting Action: Accept in Principle
Revise text proposed in the comment to read:
"690.71(B)(1) Operating Voltage. Storage batteries for dwellings shall have the cells connected so as to operate at less than 50 volts nominal. Lead-acid storage batteries for dwellings shall have no more than twenty-four 2-volt cells connected in series (48-volts nominal)".
Retain the fine print note as indicated in the recommendation.
Panel Statement: As submitted, the comment changes the proposal to remove all restrictions for batteries other than lead acid or to restrict batteries in dwellings to those that of the lead acid type.
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17
Comment on Affirmative:
BOWER: The original proposal called for no change in the exception. The public comment called for no change in the FPN. Article 690.71(B)(1) contains only an exception. This is just an editorial comment regarding the panel action and panel statement. The panel action sentence should say "Retain the exception as indicated in the proposal.

13-41 Log #1068 NEC-P13 **Final Action: Accept**
(690-72(B)(2)(1))

Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-60
Recommendation: The Photovoltaics Industry Forum agrees with the Panel Action.
Substantiation: None provided.
Panel Meeting Action: Accept
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

13-42 Log #1069 NEC-P13 **Final Action: Accept**
(690.74)

Submitter: John C. Wiles, Southwest Technology Development Institute
Comment on Proposal No: 13-62
Recommendation: The Photovoltaics Industry Forum agrees with the Panel Action and offers the following additional substantiation for the rejection.
NEC Chapter 3-compliant, fine stranded, flexible conductors suitable for use as battery cables are available from multiple manufacturers in both thermoplas-

tic (THW) and thermoset (RHW< XHHW) varieties. Furthermore, normally stranded cables (not super flexible) are perfectly suitable for these applications and are widely used by PV installers who have experience as electricians working with these types of cables.
Substantiation: None provided.
Panel Meeting Action: Accept
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

13-43 Log #3651 NEC-P13 **Final Action: Accept in Principle**
(690.90)

Submitter: Nicholas P. Ludlam, FM Approvals
Comment on Proposal No: 13-65
Recommendation: Although the panel statement is correct, Section 690.3 also states "690.3 Other Articles. Wherever the requirements of other articles of this Code and Article 690 differ, the requirements of Article 690 shall apply and, if the system is operated in parallel with a primary source(s) of electricity, the requirements in 705.14, 705.16, 705.32, and 705.43 shall apply."
Because of 690.3 the additional requirements of Article 500 are not required to be applied when equipment is installed in a hazardous (classified) location. To resolve this potential conflict, add new text as follows:
"690.90 Hazardous (classified) Locations."
Solar Photovotaic systems, equipment or wiring installed in a hazardous (classified) location, shall also comply with the requirements of Articles 500 through 516."
Substantiation: The panel should have accepted the original proposal to prevent the conflict that has existed in the NEC for a number of years. With the added text as proposed,any conflict between Article 690 and Article 500 will be required to additionally meet the requirements of Article 500, rather than "only" those of Article 690.
Panel Meeting Action: Accept in Principle
Add a new exception to 690.3 to read:
Solar Photovoltaic systems, equipment or wiring installed in a hazardous (classified) location, shall also comply with 500.1, 505.1, and 510.1.
Panel Statement: The panel concurs with the submitter, but has relocated the proposed text to 690.3 to cover all solar photovoltaic systems.
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

ARTICLE 692 — FUEL CELL SYSTEMS

13-44 Log #729 NEC-P13 **Final Action: Accept**
(692.15 (New))

Submitter: John Donahue, UTC Fuel Cells
Comment on Proposal No: 13-69
Recommendation: The Us Fuel Cell Council recommends that the proposed wording contained in the NEC ROP Proposal 13-69 be deleted and not incorporated in the 2005 NEC. The wording contained in that proposal is identical to wording contained in proposal 13-37, which was rejected by Code-Making Panel 13, for Photovotaic Article 690. If the panel deems the rejection of proposal 13-37 to be safe and appropriate, then adoption of proposal 13-69 serves to unfairly disadvantage fuel cells as a viable source of distributed generation.
Substantiation: This issue concerns the interconnection of fuel cells with electrical utility grids. However, the IEEE 1547 Standard for Interconnecting Distributed Resources with Distributed Resources with Electric Power Systems does not mandate the use of this switch. Instead, it recognizes the variations in regulations and requirements that exist between utilities throughout the country. This is reflected in the wording of clause 4.1.7 of that standard, which states that "When required by the Area EPS operating practices, a readily accessible, lockable, visible-break isolation device shall be located between the Area EPS and the DR unit." The standard does not itself require the switch, and, as regards to location, states only that it needs to be located between the Area EPS and the DR unit, permitting the flexibility of differing utility practices. Neither does the standard single out fuel cells as a distributed technology with utility interface requirements above and beyond all other forms of distributed generation.
Note: Supporting material is available for review at NFPA Headquarters.
Panel Meeting Action: Accept
Number Eligible to Vote: 17
Ballot Results: Affirmative: 16 Negative: 1
Explanation of Negative:
STAFFORD: The panel's original action was to accept Proposal 13-69 which would require the standardization of disconnecting means for emergency personnel as well as for those who are to work on such systems. The submitter states that the IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems does not address the need for this switch is correct. There is no standard addressing this concern which is what the original proposal was attempting to do. The submitter also states that utilities are allowed to determine their own respective requirements, but the utilities are not the first to arrive during emergency situations nor are they usually present when work is needed upon fuel cell distributed resources. This proposal is not trying to restrict the applications of fuel cell power systems but is trying to standardize all distributed power sources. The attempt in original proposal 13-37 (photovoltaic) and 13-69 (fuel cells) was to standardize all distributed power resources of all types.
Comment on Affirmative:
HORNBERGER: I
agree with the panel action to accept this proposal. However, NEC requirements for "Interconnected Electric Production Sources" should be uniform, despite the technology generating the power. Comment 13-22 on proposal 13-37 raises the same disconnect location issue for photovoltaic systems. A task group should be formed to study this issue for the next code cycle, taking into account first responder safety during emergency conditions. Proper marking of a service or location of disconnects for interconnected electric production systems within a premise must be uniform. The requirement should be in Article 705, and should apply to all forms of interconnected electric production sources, photovoltaic, wind, water power, fuel cell, or whatever technology develops in the future. This requirement should not be within the articles covering the specific needs or an electrical power source technology.

13-45 Log #1101 NEC-P13 **Final Action: Reject**
(692.15 (New))

Submitter: Neil F. LaBrake, Jr., Niagara Mohawk, a National Grid Company / Rep. Edison Electric Institute
Comment on Proposal No: 13-69
Recommendation: Accept this Proposal in Principal and Part. Reword the proposal as follows:
Add a new Section 692.15 to read as follows:
692.15 Requirements for Disconnecting Means of Inverter Output Circuit. Means shall be provided to disconnect all conductors of the fuel cell system inverter output circuit from the point of common coupling. A single disconnecting means in accordance with 692.17 shall be permitted for the combined AC output of one or more inverters. ~~Disconnect shall be adjacent to or grouped with the utility disconnecting means at the point of common coupling.~~ The disconnect shall be located to satisfy the requirements of section 705.12 and 705.20.
Substantiation: Section 705.12 requires the output of Interconnected Electric Power Production Systems to interconnect with the premise wiring at the service disconnecting means. This will require a disconnect and overcurrent device located in or adjacent to the premise's normal service equipment. Section 705.20 clarifies that this disconnect is a means to isolate supply conductors, and does not provide isolation for equipment. Inserting the word "inverter" limits the requirement to the title of the section.
Panel Meeting Action: Reject
Panel Statement: See panel action on Comment 13-44 trejecting the text proposed for a new section 692.15.
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17
Comment on Affirmative:
HORNBERGER: I agree with the panel action to reject this proposal. However, NEC requirements for "Interconnected Electric Production Sources" should be uniform, despite the technology generating the power. Comment 13-22 on proposal 13-37 raises the same disconnect location issue for photovoltaic systems. A task group should be formed to study this issue for the next code cycle, taking into account first responder safety during emergency conditions. Proper marking of a service or location of disconnects for interconnected electric production systems within a premise must be uniform. The requirement should be in Article 705, and should apply to all forms of interconnected electric production sources, photovoltaic, wind, water power, fuel cell, or whatever technology develops in the future. This requirement should not be within the articles covering the specific needs of an electrical power source technology.

13-46 Log #935 NEC-P13 **Final Action: Reject**
(692.15 Exception (New))

Submitter: Dorothy Kellogg, American Chemistry Council
Comment on Proposal No: 13-69
Recommendation: The proposal requirement that the disconnect be located "adjacent to or grouped with the utility disconnect" is not possible in many large industrial facilities. Add:
"Exception: Disconnect shall not be required to be adjacent or grouped with the utility disconnecting means in industrial facilities where conditions of maintenance and supervision ensure that only qualified persons service the installation."
Substantiation: At large industrial facilities, the installation of long feeders and disconnects extremely remote from the fuel cell systems to a central utility supply point is impractical and increases the risk of injury to the site's craftsmen and maintenance personnel rather than lowers it.
Panel Meeting Action: Reject
Panel Statement: The panel action on 13-44 rejects the proposed text for a new section 692.15.
Number Eligible to Vote: 17
Ballot Results: Affirmative: 17

ARTICLE 695 —FIRE PUMPS

13-47 Log #482 NEC-P13 **Final Action: Reject**
(695.1(A)(1))

Submitter: Richard Schneider, Richard Schneider, P.E.
Comment on Proposal No: 13-78
Recommendation: Please reconsider the panel action on Log 1343, Proposal 13-78, P13, 695-1(A)(1).
Substantiation: NEC Article 695 and NFPA 20 promotes service conductors (supply conductors) to be terminated directly in the electric fire pump controller (see 9.2.5.4, NFPA 20 (2003)). NEC 695-6(A) refers to NEC 230.61 for installation of service conductors to be buried under 2 in. of concrete in order to be considered "outside of the building". Article 695 extends that requirements to feeders (aka supply conductors). Service conductors so protected in Article 230 are assumed to be of very limited length since service equipment is located "as close as practical" to where the service conductors enter the premises.

In the case of fire pumps, these buried cables are usually substantially longer and are routed through occupied areas since the fire pump controllers are generally located in pump rooms.

At present, Listed/Approved fire pumps exist to 7.2KV max. and none at high voltages. This Proposal suggests limiting the supply voltage to 7.2 KV for safety reasons to limit fault energy in case the 2 in. concrete cover ever gets accidentally breached. Supply conductors carrying more than 7.2KV will require additional protection and considerations.

In answer to the panel statement that "no supporting documentation exists", it is suggested that good standards writing should not be based on body count.
Panel Meeting Action: Reject
Panel Statement: No substantiation or good reason has been given to limit the supply voltage to 7.2 KV. Good standards writing should be based on evidence and substantiation, and in this case none has been provided. The author's reference to body count is inappropriate and unsupported, since voltages higher than 7.2 KV are feasible and can and have been safely installed for other systems.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-48 Log #2400 NEC-P13 **Final Action: Accept**
(695.2)

Submitter: James M. Daly, General Cable
Comment on Proposal No: 13-79
Recommendation: In the first sentence, add the word "either" and delete "and/" so it reads as follows:

"Those control circuits either entering ~~and~~/or leaving the fire pump enclosure,…"

Substantiation: Annex B of the 2003 National Electrical Code Style Manual states that in writing Code text. you should "try to avoid" using "and/or".

Deleting the word "and" should not change the requirement since the requirement would still apply to any control circuits entering or leaving the enclosure.

Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-49 Log #735 NEC-P13 **Final Action: Accept**
(695.3(A))

Submitter: David Nelson, Interstate Utility Service
Comment on Proposal No: 13-83
Recommendation: Re-number existing 695.3(A)(2) as 695.3(A)(3) and add the following:

(2) Electric Utility Connection for Services Over 600 Volts. Where a building has a service operating above 600 volts, a fire pump shall be permitted to be connected at the secondary terminals of a transformer, ahead of any secondary disconnects for the building provided the over 600 volt service disconnect, transformer disconnect and transformer are located outside the building.
Substantiation: This fire pump connection would be permitted by 695.3(A)(1) for low voltage services where the utility is responsible for the high voltage supply and the transformer. Addition of a high voltage service switch ahead of the transformer will not affect the reliability of the fire pump supply, as long as the switch and transformer are outside the building, and the feed to the building is installed as a service. Many utilities offer high voltage services. Requiring a separate high voltage switch and transformer for the fire pump is not consistent with the reliability provided by an outdoor utility owned and operated transformer.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 13 Negative: 1
Explanation of Negative:
NASBY: Until NFPA 20 Accepts language covering this issue, it should not be added to the NEC.

13-50 Log #1102 NEC-P13 **Final Action: Accept**
(695.3(A)(2) (New))

Submitter: Neil F. LaBrake, Jr., Niagara Mohawk, a National Grid Company / Rep. Edison Electric Institute
Comment on Proposal No: 13-83
Recommendation: Accept the Proposal.

Substantiation: The Panel has missed the submitter's point by misinterpreting the building disconnect as a service disconnect for a service >600 Volts. The NEC presently permits a fire pump to be supplied from a disconnect connected on the supply side of a service of 600 Volts or less as in Fig #1 of the attached illustration. If this same service is converted to a service greater than 600 Volts, the switch and fuse or circuit breaker on the primary side of the transformer becomes the service disconnect. The former service entrance equipment at or on the building is now considered a Feeder building disconnect and overcurrent device. This forces the premise to install an additional medium-voltage switch and separate transformer, for the fire pump, connected on the supply side of the >600 Volt service equipment, as shown in Fig #2.

The proposal would permit the fire pump to remain connected to the supply side of the building disconnect for services over 600 Volts, where the service disconnect and transformer are outside the building, as in Fig #3. The only difference between Fig #1 and Fig #3 is the presence of an additional disconnect and overcurrent device on the supply side of the transformer, both of which are owned and under control of the premise. The building may still be isolated from the service via the building disconnect, without affecting the supply to the fire pump. This is no different than Fig #1. The building transformer and overcurrent device would have to meet the requirements of 695.5. In most cases, this will not be a concern since the building loads are usually orders of magnitudes greater than the locked rotor KVA of the fire pump.

Despite the Panel's statement, many authorities having jurisdiction interpret NEC section 695.3(A)(2), as described in Fig #2 and force the premise to install a separate >600 Volt disconnect, overcurrent device and transformer for the fire pump.

Note: Supporting material is available for review at NFPA Headquarters.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 13 Negative: 1
Explanation of Negative:
NASBY: See my Explanation of Negative Vote on Comment 13-49.

13-51 Log #894 NEC-P13 **Final Action: Accept**
(695.4(B)(1))

Submitter: Noel Williams, Noel Williams Consulting
Comment on Proposal No: 13-85
Recommendation: This proposal should continue to be accepted with the following correction; replace "and any other devices" with "or devices other than overcurrent devices...".
Substantiation: I agree with the comment on affirmative by Mr. Flach. This should not be confused as applying to overcurrent devices, but also should not apply to items such as controllers as they are covered under other requirements. For example, a horsepower rating on a disconnect or controller implies the ability to carry locked-rotor current. This section is often misapplied, and it is not clear to many users of this article that the rules for conductors are different and covered elsewhere.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-52 Log #936 NEC-P13 **Final Action: Reject**
(695.4(B)(2))

Submitter: Dorothy Kellogg, American Chemistry Council
Comment on Proposal No: 13-86
Recommendation: This proposal should be rejected.
Substantiation: The proposed language adds equipment, bus, conductors and connections on the circuit supplying the fire pump which lowers the circuits reliability. This decrease in reliability is probably equal to any benefit derived from adding this additional panel board. Existing NEC language requiring a

"sufficiently remote" location provides flexibility to minimize unneeded equipment and provides a disconnect which is unlikely to be mistaken for another.
Panel Meeting Action: Reject
Panel Statement: The original substantiation was correct when it stated that "adding item (3) will clarify that a fire pump disconnect is not permitted in a panelboard or switchboard that feeds other loads and will clear up the stated problem of understanding and interpreting the vague term 'sufficiently remote'."
Number Eligible to Vote: 14
Ballot Results: Affirmative: 13 Negative: 1
Explanation of Negative:
ELKINS: The proposed language adds equipment, bus, conductors and connections on the circuit supplying the fire pump which lowers the circuit reliability. Existing NEC language requiring a "sufficiently remote" location provides flexibility to minimize unneeded equipment and provides a disconnect which is unlikely to be mistaken for another.

13-52a Log #CC1301 NEC-P13 **Final Action: Accept**
(695.5(B))

Submitter: Code-Making Panel 13
Comment on Proposal No: 13-88
Recommendation: Revise the new sentence added to the end of 695.5(B) by replacing "and any other devices" with "or devices other than overcurrent devices..."
Substantiation: The panel action correlates with the panel action on Comment 13-51, which revised panel action on Proposal 13-85 which is similar to Proposal 13-88.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-52b Log #CC1302 NEC-P13 **Final Action: Accept**
(695.5(C)(2))

Submitter: Code-Making Panel 13
Comment on Proposal No: 13-89
Recommendation: Revise the new sentence added to the end of 695.5(C)(2) by replacing "and any other devices" with "or devices other than overcurrent devices..."
Substantiation: The panel action correlates with panel action on Comment 13-51, which revised the panel action on Proposal 13-85 which is similar to Proposal 13-89.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-53 Log #1259 NEC-P13 **Final Action: Reject**
(695.6(B))

Submitter: Barry F. O'Connell, Tyco Thermal Controls
Comment on Proposal No: 13-95
Recommendation: I urge the Panel to reconsider the decision to allow these cables in critical circuits.
Substantiation: The panel statement suggests that 110.3(A) and 110.3(B) (which require installation of the wiring in accordance with listing, labeling, and manufacturer's instructions) adequately address the issues of loss of tensile strength and generation and propagation of combustible gases.
If the listing of fire-rated electrical cable took into account the performance characteristics of these types of cables, and if the manufacturers uniformly required appropriate safety precautions to be taken, these requirements would be adequate. However, this is not the case:
a). Manufacturers are not consistent in attempting to deal with the problems; one may have made changes, another has not.
b). A proposal for change has been made to UL2196 STP, the Fire Test Standard Committee, to test for strength and declare the presence of flammable gases in the listing. Even if accepted, this will take years to implement.
In the interim, I would, therefore, urge the committee to reconsider my original proposal for (1) an intermediate box, and (2) increased support in vertical runs on the following grounds:
- The performance issues have since been confirmed by independent testing
- One manufacturer already uses an intermediate box
- The conductor tensile strength issue has apparently been addressed by only one manufacturer.

Since the January meeting, a formal study by Exponent Failure Analysis Associates (FAAA) of the claims made in the substantiation was completed. The study concludes that the evidence is borne out, and that indeed "Because these fire rated cables are used for critical life safety systems required for safe egress and fire suppression efforts, failure of the cable presents a significant health and safety risk to building occupants and emergency crews". An outline is appended. A summary report is available.
Note: Supporting material is available for review at NFPA Headquarters.
Panel Meeting Action: Reject
Panel Statement: As long as these types of cables meet the requirements of Standard UL 2196 they are adequate. It is up to the listing organization to determine the requirements for fire- rated cables. Listing requirements may vary as determined by the listing organization and if installed as specified by code—110.3(A) and 110.3(B)—they should be acceptable. It is beyond the scope of this panel to challenge the listing organization. The submitter has not provided any substantiation or statistics that these cables are not being installed according to the listing requirements or that the listing requirements are inadequate and have caused life safety issues. The proposed text introduces unenforcable requirements.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-54 Log #1260 NEC-P13 **Final Action: Reject**
(695.6(B))

Submitter: Barry F. O'Connell, Tyco Thermal Controls
Comment on Proposal No: 13-93
Recommendation: I think this proposal should be accepted.
Substantiation: Enclosing electrical cables in a gypsum board box does not "...provide the same protection as the requirement for the room housing the fire pump equipment" in my opinion.
Even if the walls of the room housing the fire pump were commonly gypsum board, not concrete, the effect of a breach in the wall of the room would hardly have the immediate impact of a similar breach in a small enclosure dedicated to electrical cable, where the exposure to heat would quickly attack the conductor insulation.
The panel states: "Gypsum enclosures not being listed by UL is not an issue for the NEC but an issue for those responsible for determining what qualifies as a 1-hour fire resistive rating". I respectfully disagree; it is precisely because the NEC explicitly recognizes these enclosures for fire protection of fire-pump conductors, they are accepted, despite not being listed. The only way of qualifying for a fire resistant rating is being tested to UL2196 and listed in the UL Fire Resistance Directory as an "Electrical Circuit Protective Systems". Gypsum enclosures are not listed, and have not been qualified as suitable for protection of electrical conductors.
Panel Meeting Action: Reject
Panel Statement: The provision to allow fire pump supply conductors to be routed "within an enclosed construction dedicated to the fire pump circuit(s) and having a minimum of a 1 hour fire resistive rating" provides the same protection as the requirement for the room housing the fire pump equipment. The panel is satisfied with a 1-hour fire resistive rating. The submitter has not provided any substantiation that a 1-hour fire rating is inadequate or any documentation of life safety issues as a result of this provision. UL 2196 is a standard for fire-rated cables and not a standard for a 1-hour fire resistive rating of a building, room, and so forth.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-55 Log #1261 NEC-P13 **Final Action: Reject**
(695.6(B))

Submitter: Barry F. O'Connell, Tyco Thermal Controls
Comment on Proposal No: 13-94
Recommendation: I think this proposal should be accepted.
Substantiation: Enclosing electrical cables in a gypsum board box does not "...provide the same protection as the requirement for the room housing the fire pump equipment" in my opinion.
I have no argument with concrete or brick enclosures; this has for ages been the standard for Service Entrance cables, and is a high degree of protection.
Gypsum enclosures, however, are not accepted for Service Entrance, nor should they be for fire protection of fire pumps, for the reasons given in the substantiation.
Even if the walls of the room housing the fire pump were commonly gypsum board, not concrete, the effect of a breach in the wall of a large room would not likely have the immediate impact of a similar breach in a small enclosure dedicated to electrical cable, where the exposure to heat would quickly attack the conductor insulation.
The panel states: "Gypsum enclosures not being listed by UL is not an issue for the NEC but an issue for those responsible for determining what qualifies as a 1-hour fire resistive rating". Because the NEC, in this clause, allows enclosures, they are deemed acceptable; but they are not listed, whereas all other systems must be listed as Electrical Circuit Protective Systems.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 13-54.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-56 Log #3009 NEC-P13 **Final Action: Accept**
(695.6(B))

Submitter: James Conrad, Rockbestors-Surprenant Cable Corp.
Comment on Proposal No: 13-95
Recommendation: Reject Proposal 13-95.
Substantiation: As a manufacturer of these types of cable we have addressed all of the submitter's concerns in an installation manual and agree with the panel statement.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 13 Abstain: 1
Explanation of Abstention:
HATTAWAY: I am not sure what the intention of this comment is and since I was not at the meeting, I did not hear the panel's discussions concerning this comment. Therefore, I wish to Abstain.

13-57 Log #3010 NEC-P13 **Final Action: Accept**
(695.6(B))

Submitter: James Conrad, Rockbestors-Surprenant Cable Corp.
Comment on Proposal No: 13-97
Recommendation: Reject Proosal 13-97.
Substantiation: As a manufacturer of these types of cable we have addressed all of the submitters concerns in an installation manual and agree with the panel statement.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-58 Log #3011 NEC-P13 **Final Action: Accept**
(695.6(B))

Submitter: James Conrad, Rockbestors-Surprenant Cable Corp.
Comment on Proposal No: 13-98
Recommendation: Reject Proposal 13-98.
I would like to make suggested editorial correction. The panel statement does not belong to this proposal. Proposal 13-95 talks about vertical supports. I believe these comments (about the vertical testing and requirements) should be part of the panel statement for ROP 13-95.
Substantiation: As a manufacture of these types of cable we have addressed all of the submitter's concerns in an installation manual and agree with the panel statement on Proposal 13-95.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-59 Log #1262 NEC-P13 **Final Action: Reject**
(695.6(B)(3))

Submitter: Barry F. O'Connell, Tyco Thermal Controls
Comment on Proposal No: 13-97
Recommendation: This proposal offers a flexible alternative, and should be accepted.
Substantiation: As stated in the Comment on the Affirmative, this proposal is more flexible and less prescriptive than the other two proposals on this issue.
The Panel response is that the listing requirements (for electrical circuit protective systems), and manufacturer's instructions, can be relied upon to deal with the safety issues. However, the listing test (UL2196) deals only with electrical characteristics of the cable, not flammable gases or conductor weakening, and manufacturer's instructions may or may not cover either issue.
This proposal requires that the system "shall be designed to isolate flammable gases from sources of ignition", and that "conductors installed in a vertical raceway shall be supported at intervals sufficient to protect cable as affected by the fire".
The difficulty with being less prescriptive is that inspectors don't know what to look for; however, given this wording the inspector would have to see some evidence of isolation, and the breaking strength issue would at least raise a question which a manufacturer would have to address.
Reliance on UL2196 and manufacturers to deal with these issues is insufficient; this proposal offers a flexible alternative, and should be accepted.
Panel Meeting Action: Reject
Panel Statement: As long as these types of cables meet the requirements of Standard UL 2196 they are adequate. It is up to the listing organization to determine the requirements for fire- rated cables. Listing requirements may vary as determined by the listing organization and if installed as specified by code—110.3(A) and 110.3(B)—they should be acceptable. It is beyond the scope of this panel to challenge the listing organization. The submitter has not provided any substantiation or statistics that these cables are not being installed according to the listing requirements or that the listing requirements are inadequate and have caused life safety issues. The proposed text introduces unenforceable requirements.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-60 Log #1263 NEC-P13 **Final Action: Reject**
(695.6(B)(3))

Submitter: Barry F. O'Connell, Tyco Thermal Controls
Comment on Proposal No: 13-98
Recommendation: This proposal should be accepted as a minimum requirement.
Substantiation: The panel statement suggests that a listed protective system would take into consideration all the requirements necessary for a complete listed system, including breaking strength during fire conditions.
In actual fact however, it does not; the listing test is strictly limited to electrical characteristics during a fire, and does not in any manner attempt to deal with hazards associated with smoke.
Requiring that "...Systems that under fire condition, produce smoke through the raceway or cable, shall be isolated from all arcing and sparking parts" as proposed here, is an attempt to deal with a problem that is not covered by the listing requirement, and should be accepted as a minimum.
(This Panel Statement relates more to Proposal 13-95 than Proposal 13-98, in regard to breaking strength.)
Panel Meeting Action: Reject
Panel Statement: As long as these types of cables meet the requirements of Standard UL 2196, they are adequate. It is up to the listing organization to determine the requirements for fire- rated cables. Listing requirements may vary as determined by the listing organization and if installed as specified by code—110.3(A) and 110.3(B)—they should be acceptable. It is beyond the scope of this panel to challenge the listing organization. The submitter has not provided any substantiation or statistics that these cables are not being installed according to the listing requirements or that the listing requirements are inadequate and have caused life safety issues. The proposed text introduces unenforceable requirements.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-61 Log #1264 NEC-P13 **Final Action: Accept**
(695.6(C)(1))

Submitter: Barry F. O'Connell, Tyco Thermal Controls
Comment on Proposal No: 13-99
Recommendation: I support the panel action.
Substantiation: MI cable is designed to meet the requirements of 250.122, by the construction standard used by UL.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-62 Log #3012 NEC-P13
Final Action: Reject
(695.6(C)(1))

Submitter: James Conrad, Rockbestors-Surprenant Cable Corp.
Comment on Proposal No: 13-99
Recommendation: Accept Proposal 13-99.
Substantiation: The NEMA Standards Publications ICS 14-2001 (Application Guide for Electric Fire Pump Controllers, the manufacturer's drawing that come with the controller and the NEC Handbok all suggest sizing the wire from 310.16 75 degree C column. This is done to assure the controller will function the way it was designed and tested. Sizing conductors any other way would not only invalidate the testing or listing on the controller but more importantly it could create a failure of the fire pump system.
Panel Meeting Action: Reject
Panel Statement: There are many types of cables and adequate methods of sizing the cables. Limiting the cable selection to the 75 degree C column of Table 310.16 is too restrictive and unnecessary. The submitter did not supply any substantiation of any safety problems resulting from the existing language or provisions. NEMA standards may recommend using the table but that does not preclude other methods of determining adequate conductors.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-63 Log #1951 NEC-P13 **Final Action: Accept in Principle**
(695.6(C)(2))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 13-100
Recommendation: The proposal should be accepted in principle. Revise as follows:

Conductors supplying a fire pump motor and no other load shall have their minimum ampacity determined in accordance with 430.22.

FPN: Larger conductors may be required to correct for voltage drop. See 695.7.

Substantiation: Editorial. Conductors in this context do not have "ratings"; they have ampacities, because that is what 430.22 determines. The phrase "no other load" more clearly states the principle than "only." Finally, the second sentence of the proposal is explanatory information and not mandatory text. It needs to be restated as a fine print note to meet Style Manual requirements.

Panel Meeting Action: Accept in Principle

Revise text proposed in Proposal 13-100 to read:

"Conductors supplying only a fire pump motor shall have a minimum ampacity in accordance with 430.22 and shall comply with the voltage drop requirements in 695.7."

Panel Statement: The panel agrees with the submitter on changing rating to ampacity. The panel has revised the reference to 695.7 to make it mandatory text.

Number Eligible to Vote: 14

Ballot Results: Affirmative: 14

13-64 Log #23 NEC-P13 **Final Action: Accept**
(695.6(D))

Submitter: James W. Wilson, Consulting Electrical Engineer

Comment on Proposal No: 13-102

Recommendation: Delete existing and new wording in the first part of the second sentence as follows:

695.6(D) Overload protection. Power circuits shall not have automatic protection against overloads. ~~Except for protection of transformer primaries provided in 695.5(C)(2),~~ Branch-circuit and feeder conductors shall be protected against short circuit only.

Substantiation: I agree that the wording in 695.6(D) needs to be changed. The 2002 edition wording, "Except as provided in 695.5(C)(2)", implies there is an exception to the "protection against short circuit only" rule for conductors in pump circuits, which there is not. 695.5(C)(2) refers to 215.3 and then to 240 Part I, which in 240.4(A) already covers "short circuit protection" only for "fire pump circuits". So, the current wording is misleading and improper.

The proposed change, however, does not make this part of the article "user friendly", but actually introduces a point of confusion. The proposed wording implies that transformers are to be protected against "overloads" in the same manner and degree as conductors, which they are not. 695.6(C)(2) and its reference to 450.3 and Table 450.3(A) provide for primary protection that is only adequate for extreme overcurrent (10 times rated current) or short circuit conditions.

Finally, the reference to 695.5(C)(2) and transformer overload protection will only add to and prolong the confusion already caused by 695.5(C)(2), which applies additional requirements on the transformer size not called for in 695.5(A) and (B) for "individual" sources, or 695.5(C)(1) for multiple sources. 695.5(C)(2) requires the size, in some cases when supplying minor "other loads", to be increased beyond that required by 695.5(C)(1) to a rating that is protected, per 450.3, by the significantly oversized fuses.

See the following protection curves for an example of a transformer sized per 695.5(C)(1) and (2). It can be seen that only "short circuit" protection is provided.

Note: Supporting material is available for review at NFPA Headquarters.

Panel Meeting Action: Accept

Number Eligible to Vote: 14

Ballot Results: Affirmative: 14

13-65 Log #1953 NEC-P13 **Final Action: Accept**
(695.6(D))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.

Comment on Proposal No: 13-102

Recommendation: Accept the proposal in principle. Revise as follows:

1. Restore the wording at the end of Exception No. 2 to that of the 2002 NEC, as follows: "… shall be installed in accordance with 695.6(B) or protected in accordance with 430.52."

2. Restore the second paragraph of Exception No. 2 to that of the 2002 NEC.

3. Reject the last sentence/paragraph of Exception No. 2 in the submitter's proposal.

Substantiation: 1. The submitter has confused 695.6(B), which has nothing to do with supervised connections, with 695.4(B) that does. Supervised connections have nothing to do with a requirement that addresses how to protect a building from conductors. Either apply the standard short-circuit and ground-fault protection rules of 430.52, or isolate the conductors per 695.6(B). The submitter provided no substantiation as to why this principle should be discarded.

2. The submitter presented no substantiation as to why the requirement to observe the short-circuit current rating of the equipment should be removed.

3. Section 240-12 (selective coordination) does not "require" anything; it is a permissive allowance that provides an alternative to conventional protection. There was no substantiation in the proposal as to why selective coordination should be required, and the chosen wording does not accomplish this. It is difficult to understand why a selective coordination requirement should appear at the end of an obscure exception in the middle of material governing overload protection for conductors.

CMP 13 should thoroughly reconsider all technical aspects of this proposal, which purports to be editorial. The litany of technical and reference errors cited in this comment raise serious questions as to whether any of the original proposal should remain accepted. The existing language is straightforward.

Panel Meeting Action: Accept

Number Eligible to Vote: 14

Ballot Results: Affirmative: 14

13-65a Log #CC1300 NEC-P13 **Final Action: Accept**
(695.12(C))

Submitter: Code-Making Panel 13

Comment on Proposal No: 13-106

Recommendation: Revise the text proposed in Proposal 13-106 for 695.12(C) to read:

Storage batteries for fire pump engine drives shall be supported...(remainder unchanged).

Substantiation: This section applies to engine driven fire pumps and the modification accepted in Proposal 13-106 is not appropriate to the application of this section.

Panel Meeting Action: Accept

Number Eligible to Vote: 14

Ballot Results: Affirmative: 14

ARTICLE 700 — EMERGENCY SYSTEMS

13-66 Log #649 NEC-P13 **Final Action: Accept**
(700.6(A))

Submitter: Technical Correlating Committee on National Electrical Code®

Comment on Proposal No: 13-110

Recommendation: It was the action of the Technical Correlating Committee that further consideration be given to the comments expressed in the voting. This action will be considered by the Panel as a Public Comment.

Substantiation: This is a direction from the National Electrical Code Technical Correlating Committee in accordance with 3-4.2 and 3-4.3 of the Regulations Governing Committee Projects.

Panel Meeting Action: Accept

Number Eligible to Vote: 14

Ballot Results: Affirmative: 14

13-67 Log #928 NEC-P13 **Final Action: Accept**
(700.6(A))

Submitter: Dorothy Kellogg, American Chemistry Council

Comment on Proposal No: 13-110

Recommendation: This proposal should be rejected.

Substantiation: The submitter did not provide substantiation that requiring the increased cost of "listed" transfer equipment was justified nor made substantive improvement to reliability. No examples, failures, or misapplication risks were cited in the substantiation.

Panel Meeting Action: Accept

Number Eligible to Vote: 14

Ballot Results: Affirmative: 14

13-68 Log #1376 NEC-P13 **Final Action: Accept**
(700.6(A))

Submitter: Jack V. Ivers, IRJ Engineers Inc.

Comment on Proposal No: 13-110

Recommendation: Delete proposed revision that suggests replacing "identified" with "listed".

Substantiation: Requiring listing for emergency use gives AHJs the impression that they don't have to consider all of the requirements in Article 110, Section 110-3. Too many AHJs rely on the listing alone to determine the adequacy of an installation. Switchgear above 600V is commonly used for transfer, paralleling bus-tie and other switching schemes. Requiring listing for emergency use will result in unnecessary loss to the public, with no discernible benefit.

Panel Meeting Action: Accept

Number Eligible to Vote: 14

Ballot Results: Affirmative: 14

13-69 Log #1598 NEC-P13 **Final Action: Accept**
(700.6(A))

Submitter: Alan Manche, Schneider Electric/Square D Co.
Comment on Proposal No: 13-110
Recommendation: Reconsider and reject this proposal.
Substantiation: The proposal provides no substantiation that a safety issue exists or that requiring listing in place of identification would resolve a safety issue. The substantiation by the submitter is asking "to require that this equipment be subject to periodic follow-up inspection of production equipment to ensure suitability for emergency purposes." There has been no substantiation presented that indicates follow-up inspection will address the concern of the submitter since there has been no substantiation presented that would convey an equipment safety issue exists.
Mr. Glenn's comments are valid. Specifically, there is no transfer equipment standard for equipment over 600V. These systems may use listed components or equipment rated to ANSI standards such as circuit breakers, switchgear, and starters to transfer power, however they are not listed for emergency use. Accepting this change will eliminate over 600V transfer schemes until a standard could be developed and would tie the hands of engineers, contractors and inspectors from using systems in the future that are currently installed and being utilized safely and reliably.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-70 Log #1265 NEC-P13 **Final Action: Accept**
(700.9)

Submitter: Barry F. O'Connell, Tyco Thermal Controls
Comment on Proposal No: 13-114
Recommendation: I support the panel action.
Substantiation: MI cable is designed to meet the requirements of 250.122, by the construction standard used by UL.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-71 Log #3103 NEC-P13 **Final Action: Accept**
(700.9(B))

Note: The Technical Correlating Committee has been advised by the Chairs of NFPA 99 and NFPA 110 that those committees agree with the panel action, but do not agree with the substantiation submitted. The Technical Correlating Committee agrees with those positions.
The Technical Correlating Committee notes that CMP 15 stated the following in the 1996 NEC ROP on the same issue: "The feeders from the emergency generators to the first overcurrent device of any load, even nonessential ones, must be considered as part of the emergency system to protect system integrity."
The Technical Correlating Committee is directing that a Task Group consisting of members from CMP 13, NFPA 110 and NFPA 99 be formed to further discuss this issue for the 2008 NEC cycle.
Submitter: Kenneth E. Vannice, Leviton/NSI-Colortran / Rep. United States Institute for Theatre Technology Engineering Comm.
Comment on Proposal No: 13-115
Recommendation: This proposal should continue to be rejected.
Substantiation: The emergency wiring must go clear back to the generator terminals. Non emergency wiring, where permitted, must also go clear back to the generator terminals. The old Panel 15 increased the size requirements of the generator terminal box to allow for this.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 13 Negative: 1
Explanation of Negative:
WHITTALL: See my explanation of negative vote on Comment 13-6.**Comment on Affirmative:**
WOOD: I agree with the panel's action on this comment. I disagree with the submitter's substantiation. It is not the panel's intent that emergency wiring go back to the generator terminals as it would prevent paralleling of generators or connecting non-emergency wiring to the generator system.

13-72 Log #1266 NEC-P13 **Final Action: Reject**
(700.9(D)(1))

Submitter: Barry F. O'Connell, Tyco Thermal Controls
Comment on Proposal No: 13-119
Recommendation: This proposal should be accepted as a minimum requirement.
Substantiation: The panel statement suggests that a listed protective system would take into consideration all the requirements necessary for a complete listed system, including breaking strength during fire conditions.
In actual fact however, it does not; the listing test is strictly limited to electrical characteristics during a fire, and does not in any manner attempt to deal with hazards associated with smoke.
Requiring that "...Systems that under fire condition, produce smoke through the raceway or cable, shall be isolated from all arcing and sparking parts" as proposed here, is an attempt to deal with a problem that is not covered by the listing requirement, and should be accepted as a minimum.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 13-53.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-73 Log #1269 NEC-P13 **Final Action: Reject**
(700.9(D)(1))

Submitter: Barry F. O'Connell, Tyco Thermal Controls
Comment on Proposal No: 13-117
Recommendation: I urge the Panel to reconsider the decision to allow these cables in critical circuits.
Substantiation: The panel statement suggests that 110.3(A) and 110.3(B) (which require installation of the wiring in accordance with listing, labeling, and manufacturer's instructions) adequately address the issues of loss of tensile strength and generation and propagation of combustible gases.
If the listing of fire-rated electrical cable took into account the performance characteristics of these types of cables, and if the manufacturers uniformly required appropriate safety precautions to be taken, these requirements would be adequate. However, this is not the case:
a). Manufacturers are not consistent in attempting to deal with the problems; one may have made changes, another has not.
b). A proposal for change has been made to UL2196 STP, the Fire Test Standard Committee, to test for strength and declare the presence of flammable gases in the listing. Even if accepted, this will take years to implement.
In the interim, I would therefore urge the committee to reconsider my original proposal for (1) an intermediate box, and (2) increased support in vertical runs on the following grounds:
- The performance issues have since been confirmed by independent testing
- One manufacturer already uses an intermediate box
- The conductor tensile strength issue has apparently been addressed by only one manufacturer.
[Note: Panel Statement on Proposal 13-98 relates to this proposal - see comment on Proposal 13-98].
Note: Supporting material is available for review at NFPA Headquarters.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 13-53. In addition, the submitter's statement about independent testing is not disputed. However, the independent testing report did not address the product listing requirements that stipulate proper installation and use of that product. One manufacturer may require a box as part of the installation requirements but this does not necessarily stipulate that another manufacturer's product requires that type of installation. Testimony during the proposal phase from one of the manufacturers disputed the need for the additional box. The submitter states that a proposal has been submitted to change the listing standard UL 2196 as a result of his independent testing. The panel feels that if the submitter truly believes there are deficiencies in the standard and the installation requirements of the manufacturers for this type of cable are inadequate, his request for an investigation by the listing organization is the proper and the correct action.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-74 Log #1967 NEC-P13 **Final Action: Accept**
(700.9(D)(1))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 13-118
Recommendation: Reject the proposal.
Substantiation: The proposal would require every branch circuit to observe the fire separation rules in this section. That result is nothing short of grotesque, reaching every exit directional sign wherever located, elevator cab lighting, etc. Emergency system loads frequently occur in locations where compliance with this requirement would border on the impossible, certainly in terms of compliance using conventional building materials assembled in accordance with 700.9(D)(4). Such a requirement does not appear in NFPA 5000. If this proposal remains accepted, the impact on construction will be enormous. Protection for feeders (as in the present NEC) is justified because they run in less arcane locations, being therefore easier to arrange protection, and a feeder failure would have a much more catastrophic impact if it were to occur.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-75 Log #3112 NEC-P13 **Final Action: Accept**
(700.9(D)(1))

Submitter: Kenneth E. Vannice, Leviton/NSI-Colortran / Rep. United States Instiute for Theatre Technology
Comment on Proposal No: 13-118

Recommendation: Reject this proposal.
Substantiation: This proposal sounds like a good idea, but we believe it is problematic and requires further study. By changing the words "feeder-circuit wiring" to "emergency-circuit wiring" all emergency branch-circuit wiring is now included. Thought should be given to all the places branch circuits may be located and how they will have to be run to comply with these requirements. We believe that feeders only were specified because they are common to many circuits and have a greater impact if they fail. This proposal carries with a huge impact without any technical justification other than it is a good idea.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-76 Log #1267 NEC-P13 **Final Action: Reject**
(700-9-(D)(1)(6))

Submitter: Barry F. O'Connell, Tyco Thermal Controls
Comment on Proposal No: 13-121
Recommendation: This proposal offers a flexible alternative, and should be accepted.
Substantiation: As stated in the Comment on the Affirmative, this proposal is more flexible and less prescriptive than the other two proposals on this issue.

The Panel response is that the listing requirements (for electrical circuit protective systems), and manufacturer's instructions, can be relied upon to deal with the safety issues. However, the listing test (UL2196) deals only with electrical characteristics of the cable, not flammable gases or conductor weakening, and manufacturer's instructions may or may not cover either issue.

This proposal requires that the system "shall be designed to isolate flammable gases from sources of ignition", and that "conductors installed in a vertical raceway shall be supported at intervals sufficient to protect cable as affected by the fire".

The difficulty with being less prescriptive is that inspectors don't know what to look for; however, given this wording the inspector would have to see some evidence of isolation, and the breaking strength issue would at least raise a question which a manufacturer would have to address.

Reliance on UL2196 and manufacturers to deal with these issues is insufficient; this proposal offers a flexible alternative, and should be accepted.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 13-53.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-77 Log #3013 NEC-P13 **Final Action: Reject**
(700.9(E) (New))

Submitter: James Conrad, Rockbestors-Surprenant Cable Corp.
Comment on Proposal No: 13-114
Recommendation: Accept Proposal 13-114.
Substantiation: 700.9 requires emergency wiring circuits to function during a fire and other adverse conditions. During a true emergency condition, such as a fire, the conductors that pass through the area of the fire will see a substantial increase in DC resistance. The less copper you have, or small conductor size, the more dramatic this increase becomes. By requiring sizing from 310.16 you are minimizing this effect and creating a safer system. This proposal does not create a hardship for any wire manufacturer and is in compliance with 110.14(C)(1).
Panel Meeting Action: Reject
Panel Statement: See the panel and statement on Comment 13-62.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-78 Log #640 NEC-P13 **Final Action: Accept**
(700.12(B)(6))

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 13-124
Recommendation: It was the action of the Technical Correlating Committee that this proposal be reconsidered and correlated with the Action on Proposal 4-26a. This action will be considered by the Panel as a public comment.
Substantiation: This is a direction from the National Electrical Code Technical Correlating Committee in accordance with 3-4.2 and 3-4.3 of the Regulations Governing Committee Projects.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-79 Log #641 NEC-P13 **Final Action: Accept**
(700.12(B)(6))

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 13-125
Recommendation: It was the action of the Technical Correlating Committee that this proposal be reconsidered and correlated with the Action on Proposal 4-26a. This action will be considered by the Panel as a public comment.
Substantiation: This is a direction from the National Electrical Code Technical Correlating Committee in accordance with 3-4.2 and 3-4.3 of the Regulations Governing Committee Projects.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-80 Log #642 NEC-P13 **Final Action: Accept**
(700.12(B)(6))

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 13-126
Recommendation: It was the action of the Technical Correlating Committee that this proposal be reconsidered and correlated with the Action on Proposal 4-26a. This action will be considered by the Panel as a public comment.
Substantiation: This is a direction from the National Electrical Code Technical Correlating Committee in accordance with 3-4.2 and 3-4.3 of the Regulations Governing Committee Projects.
Panel Meeting Action: Accept
Panel Statement: See the panel action and statement on Comment 13-82.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-81 Log #1968 NEC-P13 **Final Action: Reject**
(700.12(B)(6))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 13-124
Recommendation: Accept the proposal in principle. Replace "within sight" with "on or immediately adjacent to."
Substantiation: The within sight definition would allow the generator disconnect to be up to 50 ft away. That is far too great in an emergency. In addition, since the generator is a separately derived system, and since 250.30 requires a grounding electrode connection at the system disconnect, and since all system grounding electrodes must be interconnected, the arrangement described in the proposal will result in a problematic extension of the grounding electrode system to the generator location. These are just some of the reasons that led to a comparable rule addressed in the 4-26a proposal going down to defeat at the Annual Meeting, and the current result in CMP 4 with the panel split 5-5. It is now fairly clear that what comes out of CMP 4 will involved a much shorter distance than 50 ft. The wording in this comment avoids a specific distance limitation, but if the panel chooses to add a prescriptive requirement, a 10-ft limitation would be a good place to start.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 13-82.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-82 Log #3360 NEC-P13 **Final Action: Reject**
(700.12(B)(6))

Submitter: Mark R. Hilbert Wolfeboro, NH
Comment on Proposal No: 13-123
Recommendation: Where an outdoor housed generator set is located within site from the building or structure supplied and is equipped with a readily accessible disconnecting means that is located in accordance with (1) or (2), an additional disconnecting means shall not be required where the ungrounded conductors supply or pass through the building or structure:

(1) The disconnecting means is located outside of the housing; or

(2) The housing is equipped with accessory covers and the disconnecting means is visible through the accessory cover or the accessory cover has been clearly identified by a permanently attached sign or marking stating "Disconnecting Means Located Here."

Substantiation: This section should recognize a disconnecting means that is visible through a readily accessible accessory cover or located behind a cover that has been properly identified when the unit is within site from the structure or building. There is merit to not requiring a second disconnecting means at the structure or building as the conductors being considered are feeder conduc-

tors as opposed to service conductors. However, in many cases the generator's disconnect located behind the access cover is the one being used as the structure disconnecting means. Article 700 contains requirements for separation of emergency system conductors from other conductors in an effort to increase the reliability of the overall system. This revised text would also enhance the integrity of the emergency system by allowing the disconnecting means to be located behind the accessory panel cover making it less accessible to unqualified individuals. A generator set may be located in an area that is accessible to the general public and, therefore, a disconnecting means located outside of the housing increases the possibility of vandalism or inadvertent shutdown during an emergency condition. The majority of those involved in life safety I have contacted would prefer the option to allow the disconnecting means to be located behind an accessory cover.
Panel Meeting Action: Reject
Panel Statement: In light of the CMP 4 actions on the comments submitted on Proposal 4-26a and the panel's action to revert to the 2002 text for 225.31 and 225.32, CMP 13 concludes that there is no need to modify this section. The panel intends that the disconnecting means be within sight of the building or structure supplied to ensure safety for those who need to have ready access to it.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-83 Log #3513 NEC-P13 **Final Action: Accept**
(700.12(B)(6))

Submitter: Henry A. Jenkins, Wake County, Inspections Development
Comment on Proposal No: 13-125
Recommendation: I support the action of the committee.
Substantiation: None.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-84 Log #1599 NEC-P13 **Final Action: Accept**
(700.27)

Submitter: Alan Manche, Schneider Electric/Square D Co.
Comment on Proposal No: 13-134
Recommendation: Reconsider and reject this proposal.
Substantiation: Series ratings are a recognized and tested method of providing overcurrent protection. Application of series ratings does not necessarily mean that both the downstream circuit breaker and the upstream overcurrent protective device will open when a fault occurs. On the contrary, the only time the upstream device would be expected to open is when a massive fault occurs on a system. In that case the fault current is near or above the rating of the downstream circuit breaker and the upstream device opens to protect the circuit breaker as well as the rest of the system. A massive fault generally only occurs when a mistake is made in the circuit connections and is discovered when the system is first energized after installation or maintenance.

The system design can analyze selective coordination for the series rating just as it would for any other combination of devices. Selective coordination will be present through much of the range of overcurrent conditions in many cases. Choice of devices should depend on this analysis rather than on whether a series rating is employed. The FPN of 700.25 alerts the system designer to consider selective coordination.

In many cases, a multi tiered system is used in which a main, feeders and branches provide overcurrent protection. Where the feeder and branch are series rated, the choice of loads on the feeder may well be selected to avoid unnecessary interruption of power to critical loads.

There may well be cases in which series ratings are not appropriate for emergency systems. However, there are also cases in which series ratings provide good overcurrent protection and the degree of selective coordination needed for the installation. The decision should be through system design rather than a mandated exclusion of all series ratings for all emergency systems.

No technical substantiation has been provided that a problem exists with the many systems now employing series ratings.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-85 Log #2578 NEC-P13 **Final Action: Accept**
(700.27)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 13-134
Recommendation: Reject the proposal.
Substantiation: There is no technical substantiation to restrict series rated combinations from these systems. Taken literally, the proposal would indicate that at no time and for no reason should an upstream device open even if the fault were on the line side of the downstream device.

The substantiation is written as though the upstream device in a series rating always opens under fault conditions. This is not the case. Whether the upstream device opens or not is dependent on the magnitude of the fault. Typically only the downstream device will open, but if the fault magnitude is significant than both devices may open as they should.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-86 Log #929 NEC-P13 **Final Action: Reject**
(700.27 Exception (New))

Submitter: Dorothy Kellogg, American Chemistry Council
Comment on Proposal No: 13-134
Recommendation: Add:

"Exception: Series rated combinations may be used in industrial facilities where conditions of maintenance and supervision ensure that only qualified persons service the installation."
Substantiation: This proposal seeks to forbid the use of "series rated combinations' in emergency systems. Use of fuse and breaker combinations is a common example frequently used. This design is safe if engineered properly and is widely used in industry. As is noted in Article 90 "This Code is not intended as a design specification or instruction manual for untrained persons." The NEC should not limit application of safe and reliable designs. The first sentence of the substantiation incorrectly states that both elements of the series combination clear faults, however, actually only the device rated for the short circuit will clear the fault in a correctly design combination.
Panel Meeting Action: Reject
Panel Statement: See the panel action on Comments 13-84 and 13-85. The panel action on Comments 13-84 and 13-85 accepts the rejection of the original proposal, and this action eliminates the need for the exception and meets the intent of the submitter.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-87 Log #930 NEC-P13 **Final Action: Reject**
(700.28 (New))

Submitter: Dorothy Kellogg, American Chemistry Council
Comment on Proposal No: 13-135
Recommendation: This proposal should be rejected.
Substantiation: The submitter has not provided any safety related documentation or technical substantiation in support of this proposal. Perfectly selective coordination is not always possible for all fault current levels. An example is when protection is provided by a series of common molded case circuit breakers. Reliability and safety of these systems are best served by the existing NEC FPN wording which alerts the user to the need for selectivity when possible.
Panel Meeting Action: Reject
Panel Statement: The panel reaffirms its action on Proposal 13-135, and the substantiation provided in Comment 13-87 has not convinced the panel that selective cooordination should not be integrated into emergency system overcurrent protection design.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 11 Negative: 3
Explanation of Negative:

ELKINS: The submitter of the original proposal has not provided any safety related documentation or technical substantiation in support of the proposal. Perfectly selective coordination is not always possible for all fault current levels. An example is when protection is provided by a series of common molded case circuit breakers. Reliability and safety of these systems are best served by the existing NEC FPN wording which alerts the user to the need for selectivity when possible.

KOVACIK: See my Explanation of Negative Vote on Comment 13-88.

NASBY: See my Explanation of Negative Vote on Comment 13-88.

13-88 Log #1600 NEC-P13 **Final Action: Reject**
(700.28)

Submitter: Alan Manche, Schneider Electric/Square D Co.
Comment on Proposal No: 13-135
Recommendation: Reconsider and reject this proposal.
Substantiation: Requiring perfect selective coordination would exclude the application of many overcurrent devices in emergency systems where they have had excellent long-standing performance. Selective coordination is usually present through fault current levels up to very high short circuit conditions. While overloads might occur with some frequency and selective coordination is needed for these conditions, the high short circuit conditions seldom occur. When they occur is usually after a circuit mistake has been made during installation or maintenance and the fault occurs when the circuit is first energized. The system design can readily determine that the appropriate level of selective coordination is present. The existing FPN in 700.25 adequately alerts system

designers to the need for selective coordination.

The panel should also consider the overall direction the NEC has taken in general on selective coordination. Article 517 has required two levels of selectively coordinated ground-fault since the 1975 NEC, but does not require short circuit or overload protection to be selectively coordinated. CMP-15 has addressed similar proposals in the past rejecting the requirement to selectively coordinate overcurrent device since no substantiation has been presented that would support this requirement.

However, if the panel disagrees and believes there is an electrical safety implication then selective coordination must be assured on all fault conditions including ground-fault. A ground-fault is a more likely occurrence than the selective coordination concern of the overcurrent devices. Therefore, if the panel insists this is a safety concern then selective coordination of ground-fault protection must also be required and the panel action would need to revise accordingly.

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 13-87.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 11 Negative: 3
Explanation of Negative:

ELKINS: See my Explanation of Negative Vote on Comment 13-87.

KOVACIK: I agree with the submitter's substantiation. Selective coordination is a design, not a Code issue. There is also a question of the enforceability of this requirement. The requirement would most likely exclude the application of circuit breakers in emergency systems. Although we believe circuit breakers can provide reliable selectivity, we have no data to support this as UL does not evaluate circuit breakers for this feature.

NASBY: NEMA agrees with the submitter's substantiation.

13-89 Log #3110 NEC-P13 **Final Action: Reject**
(700.28)

Submitter: Kenneth E. Vannice, Leviton/NSI-Colortran / Rep. United States Instiute for Theatre Technology
Comment on Proposal No: 13-135
Recommendation: The proposal should be rejected.
Substantiation: See Mr. Elkin's Explanation of Negative Vote.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 13-87.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 11 Negative: 3
Explanation of Negative:

ELKINS: See my Explanation of Negative Vote on Comment 13-87.

KOVACIK: See my Explanation of Negative Vote on Comment 13-88.

NASBY: See my Explanation of Negative Vote on Comment 13-88.

ARTICLE 701 — LEGALLY RQUIRED STANDBY SYSTEMS

13-90 Log #931 NEC-P13 **Final Action: Accept**
(701.7(A))

Submitter: Dorothy Kellogg, American Chemistry Council
Comment on Proposal No: 13-138
Recommendation: This proposal should be rejected.
Substantiation: The submitter did not provide substantiation that requiring the increased cost of "listed" transfer equipment was justified nor made substantive improvement to reliability. No examples, failure, or misapplication risks were cited in the substantiation.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-91 Log #1602 NEC-P13 **Final Action: Accept**
(701.7(A))

Submitter: Alan Manche, Schneider Electric/Square D Co.
Comment on Proposal No: 13-138
Recommendation: Reconsider and reject this proposal.
Substantiation: The proposal provides no substantiation that a safety issue exists or that requiring listing in place of identification would resolve a safety issue. The substantiation by the submitter is asking "to require that this equipment be subject to periodic follow-up inspection of production equipment to ensure suitability for stand-by purposes." There has been no substantiation presented that indicates follow-up inspection will address the concern of the submitter since there has been no substantiation presented that would convey an equipment safety issue exists.

There is no transfer equipment standard for equipment over 600V. These systems may use listed components or equipment rated to ANSI standards such as circuit breakers, switchgear, and starters to transfer power, however they are not listed for emergency or stand-by use. Accepting this change will eliminate over 600V transfer schemes until a standard could be developed and would tie the hands of engineers, contractors and inspectors from using systems in the future that are currently installed and being utilized safely and reliably.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-92 Log #643 NEC-P13 **Final Action: Accept**
(701.11(B)(5))

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 13-140
Recommendation: It was the action of the Technical Correlating Committee that this proposal be reconsidered and correlated with the Action on Proposal 4-26a. This action will be considered by the Panel as a public comment.
Substantiation: This is a direction from the National Electrical Code Technical Correlating Committee in accordance with 3-4.2 and 3-4.3 of the Regulations Governing Committee Projects.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-93 Log #644 NEC-P13 **Final Action: Accept**
(701.11(B)(5))

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 13-141
Recommendation: It was the action of the Technical Correlating Committee that this proposal be reconsidered and correlated with the Action on Proposal 4-26a. This action will be considered by the Panel as a public comment.
Substantiation: This is a direction from the National Electrical Code Technical Correlating Committee in accordance with 3-4.2 and 3-4.3 of the Regulations Governing Committee Projects.
Panel Meeting Action: Accept
Panel Statement: In light of the CMP 4 actions on the comments submitted on Proposal 4-26a and its action to revert to the 2002 text for 225.31 and 225.32, CMP 13 concludes that there is no need to further modify this section and reaffirms its action on Proposal 13-141.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-94 Log #1969 NEC-P13 **Final Action: Reject**
(701.11(B)(5))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 13-140
Recommendation: Accept the proposal in principle. Replace "within sight" with "on or immediately adjacent to."
Substantiation: The within sight definition would allow the generator disconnect to be up to 50 ft away. That is far too great in an emergency. In addition, since the generator is a separately derived system, and since 250.30 requires a grounding electrode connection at the system disconnect, and since all system grounding electrodes must be interconnected, the arrangement described in the proposal will result in a problematic extension of the grounding electrode system to the generator location. These are just some of the reasons that led to a comparable rule addressed in the 4-26a proposal going down to defeat at the Annual Meeting, and the current result in CMP 4 with the panel split 5-5. It is now fairly clear that what comes out of CMP 4 will involved a much shorter distance than 50 ft. The wording in this comment avoids a specific distance limitation, but if the panel chooses to add a prescriptive requirement, a 10-ft limitation would be a good place to start.
Panel Meeting Action: Reject
Panel Statement: In light of the CMP 4 actions on the comments submitted on Proposal 4-26a and its action to revert to the 2002 text for 225.31 and 225.32, CMP-13 concludes that there is no need to modify this section. The panel intends that the disconnecting means be within sight of the building or structure supplied to ensure safety for those who need to have ready access to it.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-95 Log #1238 NEC-P13 **Final Action: Accept**
(701.11(F))

Submitter: Donald A. Ganiere Ottawa, IL
Comment on Proposal No: 13-143
Recommendation: Replace the words "optional standby" with "legally required standby" in the proposal.

Substantiation: Article 701 applies to legally required standby systems, not optional standby systems.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-96 Log #1601 NEC-P13 **Final Action: Accept**
(701.18)

Submitter: Alan Manche, Schneider Electric/Square D Co.
Comment on Proposal No: 13-144
Recommendation: Reconsider and reject this proposal.
Substantiation: Series ratings are a recognized and tested method of providing overcurrent protection. Application of series ratings does not necessarily mean that both the downstream circuit breaker and the upstream overcurrent protective device will open when a fault occurs. On the contrary, the only time the upstream device would be expected to open is when a massive fault occurs on a system. In that case the fault current is near or above the rating of the downstream circuit breaker and the upstream device opens to protect the circuit breaker as well as the rest of the system. A massive fault generally only occurs when a mistake is made in the circuit connections and is discovered when the system is first energized after installation or maintenance.

The system design can analyze selective coordination for the series rating just as it would for any other combination of devices. Selective coordination will be present through much of the range of overcurrent conditions in many cases. Choice of devices should depend on this analysis rather than on whether a series rating is employed.

In many cases, a multi tiered system is used in which a main, feeders and branches provide overcurrent protection. Where the feeder and branch are series rated, the choice of loads on the feeder may well be selected to avoid unnecessary interruption of power to critical loads.

There may well be cases in which series ratings are not appropriate for emergency systems. However, there are also cases in which series ratings provide good overcurrent protection and the degree of selective coordination needed for the installation. The decision should be through system design rather than a mandated exclusion of all series ratings for all emergency systems.

No technical substantiation has been provided that a problem exists with the many systems now employing series ratings. The panel may choose to add a FPN similar to the one in 700.25 rather than excluding series ratings.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-97 Log #2580 NEC-P13 **Final Action: Accept**
(701.18)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 13-144
Recommendation: Reject this proposal.
Substantiation: There is no technical substantiation to restrict series rated combinations from these systems. Taken literally, the proposal would indicate that at no time and for no reason should an upstream device open even if the fault were on the line side of the downstream device.

The substantiation is written as though the upstream device in a series rating always opens under fault conditions. This is not the case. Whether the upstream device opens or not is dependent on the magnitude of the fault. Typically only the downstream device will open, but if the fault magnitude is significant than both devices may open as they should.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-98 Log #932 NEC-P13 **Final Action: Reject**
(701.18 Exception (New))

Submitter: Dorothy Kellogg, American Chemistry Council
Comment on Proposal No: 13-144
Recommendation: Add:

Exception: Series rated combinations may be used in industrial facilities where conditions of maintenance and supervision ensure that only qualified persons service the installation.
Substantiation: This proposal seeks to forbid the use of "series rated combinations" in standby systems. Use of fuse and breaker combinations is a common example frequently used. This design is safe if engineered properly and is widely used in industry. As is noted in Article 90 "This Code is not intended as a design specification or instruction manual for untrained persons." The NEC should not limit application of safe and reliable designs.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comments 13-97 and 13-98. The panel action on Comments 13-97 and 13-98 accepts the rejection of the original proposal and this action eliminates the need for the exception and meets the intent of the submitter.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-99 Log #933 NEC-P13 **Final Action: Reject**
(701.19 (New))

Submitter: Dorothy Kellogg, American Chemistry Council
Comment on Proposal No: 13-145
Recommendation: This proposal should be rejected.
Substantiation: The submitter has not provided any safety elated documentation or technical substantiation in support of this proposal. Perfectly selective coordination is not always possible for all fault current levels. An example is when protection is provided by a series of common molded case circuit breakers. Reliability and safety of these systems are best served by the existing NEC FPN wording which alerts the user to the need for selectivity when possible.
Panel Meeting Action: Reject
Panel Statement: The panel reaffirms its action on Proposal 13-145, and the substantiation provided in Comment 13-99 has not convinced the panel that selective cooordination should not be integrated into emergency system overcurrent protection design.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 12 Negative: 2
Explanation of Negative:
KOVACIK: See my Explanation of Negative Vote on Comment 13-100.
NASBY: NEMA agrees with the submitter's substantiation.

13-100 Log #1603 NEC-P13 **Final Action: Reject**
(701.19)

Submitter: Alan Manche, Schneider Electric/Square D Co.
Comment on Proposal No: 13-145
Recommendation: Reconsider and reject this proposal.
Substantiation: Requiring perfect selective coordination would exclude the application of many overcurrent devices in emergency systems where they have had excellent long-standing performance. Selective coordination is usually present through fault current levels up to very high short circuit conditions. While overloads might occur with some frequency and selective coordination is needed for these conditions, the high short circuit conditions seldom occur. When they occur is usually after a circuit mistake has been made during installation or maintenance and the fault occurs when the circuit is first energized. The system design can readily determine that the appropriate level of selective coordination is present. The panel may consider adding a FPN in 701.15 similar to the one in 700.25 rather than mandating full selective coordination.

The panel should also consider the overall direction the NEC has taken in general on selective coordination. Article 517 has required two levels of selectively coordinated ground-fault since the 1975 NEC, but does not require short circuit or overload protection to be selectively coordinated. CMP-15 has addressed similar proposals in the past rejecting the requirement to selectively coordinate overcurrent devices since no substantiation has been presented that would support this requirement.

However, if the panel disagrees and believes there is an electrical safety implication then selective coordination must be assured on all fault conditions including ground-fault. A ground-fault is a more likely occurrence than the selective coordination concern of the overcurrent devices. Therefore, if the panel insists this is a safety concern then selective coordination of ground-fault protection must also be required and the panel action would need to revise accordingly.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 13-99.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 12 Negative: 2
Explanation of Negative:
KOVACIK: I agree with the submitter's substantiation. Selective coordination is a design, not a Code issue. There is also a question of the enforceability of this requirement. The requirement would most likely exclude the application of circuit breakers in emergency systems. Although we believe circuit breakers can provide reliable selectivity, we have no data to support this as UL does not evaluate circuit breakers for this feature.
NASBY: See my Explanation of Negative Vote on Comment 13-99.

ARTICLE 702 — OPTIONAL STANDBY SYSTEMS

13-101 Log #1103 NEC-P13 **Final Action: Accept**
(702.6 Exception (New))

Submitter: Neil F. LaBrake, Jr., Niagara Mohawk, a National Grid Company / Rep. Edison Electric Institute
Comment on Proposal No: 13-148
Recommendation: Accept the Proposal in Principal and Part. Modify the original proposal as follows:

Exception: Temporary connection of a portable generator without transfer equipment shall be permitted ~~in industrial facilities installations~~ where conditions of maintenance and supervision insure that only qualified persons service the installation and where the normal supply is physically isolated by a lockable disconnect means or by disconnection of the normal supply conductors.
Substantiation: Temporary connection of a portable generator should not be limited to "industrial" installations. This type of installation is regularly installed in commercial and retail facilities for emergency repair of equipment or to provide power during an extended service outage. These installations are usually under the supervision of a qualified electrician, and coordinated with the serving utility. Many state laws recognize the installation, without a transfer switch, for temporary, emergency basis, only.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-102 Log #3106 NEC-P13 **Final Action: Accept**
(702.6 Exception)

Submitter: Kenneth E. Vannice, Leviton/NSI-Colortran / Rep. United States Instiute for Theatre Technology
Comment on Proposal No: 13-148
Recommendation: Delete "industrial facilities."
Substantiation: See Mr. Hornberger's Explanation of Negative Vote. We can think of assembly occupancies such as airports which this proposal would be applicable, but not allowed as an industrial facility.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-103 Log #645 NEC-P13 **Final Action: Accept**
(702.11)

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 13-152
Recommendation: It was the action of the Technical Correlating Committee that this proposal be reconsidered and correlated with the Action on Proposal 4-26a. This action will be considered by the Panel as a public comment.
Substantiation: This is a direction from the National Electrical Code Technical Correlating Committee in accordance with 3-4.2 and 3-4.3 of the Regulations Governing Committee Projects.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-104 Log #646 NEC-P13 **Final Action: Accept**
(702.11 (New))

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 13-154
Recommendation: It was the action of the Technical Correlating Committee that this proposal be reconsidered and correlated with the Action on Proposal 4-26a. This action will be considered by the Panel as a public comment.
Substantiation: This is a direction from the National Electrical Code Technical Correlating Committee in accordance with 3-4.2 and 3-4.3 of the Regulations Governing Committee Projects.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-105 Log #647 NEC-P13 **Final Action: Accept**
(702.11 (New))

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 13-155
Recommendation: It was the action of the Technical Correlating Committee that this proposal be reconsidered and correlated with the Action on Proposal 4-26a. This action will be considered by the Panel as a public comment.
Substantiation: This is a direction from the National Electrical Code Technical Correlating Committee in accordance with 3-4.2 and 3-4.3 of the Regulations Governing Committee Projects.
Panel Meeting Action: Accept
Panel Statement: In light of the CMP 4 actions on the comments submitted on Proposal 4-26a and its action to revert to the 2002 text for 225.31 and 225.32, CMP 13 concludes that there is no need to modify this section.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-106 Log #1971 NEC-P13 **Final Action: Reject**
(702.11 (New))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 13-152
Recommendation: Accept the proposal in principle. Replace "within sight" with "on or immediately adjacent to." Number the new section as 702.30.
Substantiation: The within sight definition would allow the generator disconnect to be up to 50 ft away. That is far too great in an emergency. In addition, since the generator is a separately derived system, and since 250.30 requires a grounding electrode connection at the system disconnect, and since all system grounding electrodes must be interconnected, the arrangement described in the proposal will result in a problematic extension of the grounding electrode system to the generator location. These are just some of the reasons that led to a comparable rule addressed in the 4-26a proposal going down to defeat at the Annual Meeting, and the current result in CMP 4 with the panel split 5-5. It is now fairly clear that what comes out of CMP 4 will involved a much shorter distance than 50 ft. The wording in this comment avoids a specific distance limitation, but if the panel chooses to add a prescriptive requirement, a 10-ft limitation would be a good place to start. The renumbering reflects the decade numbering rule in the Style Manual, with room to apply the same principle to Part II.
Panel Meeting Action: Reject
Panel Statement: In light of the CMP 4 actions on the comments submitted on Proposal 4-26a and its action to revert to the 2002 text for 225.31 and 225.32, CMP 13 concludes that there is no need to modify this section. The panel intends that the disconnecting means be within sight of the building or structure supplied to ensure safety for those who need to have ready access to it.
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

13-107 Log #3512 NEC-P13 **Final Action: Accept**
(702.11)

Submitter: Henry A. Jenkins, Wake County, Inspections Development
Comment on Proposal No: 13-154
Recommendation: I support the action of the committee.
Substantiation: None.
Panel Meeting Action: Accept
Number Eligible to Vote: 14
Ballot Results: Affirmative: 14

ARTICLE 725 — CLASS 1, CLASS 2, AND CLASS 3 REMOTE-CONTROL SIGNALING, AND POWER-LIMITED CIRCUITS

3-107 Log #1304 NEC-P03 **Final Action: Reject**
(725)

Submitter: Wayne G. Carson, Carson Assoc. Inc.
Comment on Proposal No: 3-126
Recommendation: Reject Proposal 3-126 (Log #121).
Substantiation: 1. There is no reason to place any cables in an environmental air duct. This proposal would violate the requirements of 300.22(B).

300.22 Wiring in Ducts, Plenums, and Other Air-Handling Spaces. The provisions of this section apply to the installation and uses of electric wiring and equipment in ducts, plenums, and other air-handling spaces.

FPN: See Article 424, Part VI, for duct heaters.

(B) Ducts or Plenums Used for Environmental Air. Only wiring methods consisting of Type MI cable, Type MC cable employing a smooth or corrugated impervious metal sheath without an overall nonmetallic covering, electrical metallic tubing, flexible metallic tubing, intermediate metal conduit, or rigid metal conduit without an overall nonmetallic covering shall be installed in ducts or plenums specifically fabricated to transport environmental air. Flexible metal conduit and liquidtight flexible metal conduit shall be permitted, in lengths not to exceed 1.2 m (4 ft), to connect physically adjustable equipment and devices permitted to be in these ducts and plenum chambers. The connectors used with flexible metal conduit shall effectively close any openings in the connection. Equipment and devices shall be permitted within such ducts or plenum chambers only if necessary for their direct action upon, or sensing of, the contained air. Where equipment or devices are installed and illumination is necessary to facilitate maintenance and repair, enclosed gasketed-type luminaires (fixtures) shall be permitted.

This proposal could lead to the use of "air ducts" as a raceway for uses other than "necessary for their direct action on, or sensing of, the contained air."

2. This proposal would eliminate the requirement to remove abandoned cables other than "accessible portions of abandoned cables". The term "accessible portions" is not defined. Accessible may be those cables within arms reach and not those cables that can be removed simply by pulling them out. There is no technical substantiation provided by the committee to change the requirement to permit nonaccessible portions of abandoned cables in plenums and risers.

3. The NEC already addresses the requirements for wiring in spaces that provide environmental air. The requirements for cables within air ducts, air conditioning rooms, ceiling cavities, or raised floor cavities are addressed in 300.22(B) and 300.22(C). There has been no technical substantiation why these existing requirements have not been adequate and why new requirements need to be added to the NEC.

4. This proposal introduces a new cable designation. This change is based on an assumption that there will be a change in the existing term "other spaces used for environmental air" to two separate terms "ceiling cavity plenums" and "raised floor plenums" without any technical documentation as to the need for such a change. There has been no documentation introduced for this division of the spaces used for environmental air and will result in a restriction of wiring methods within those areas without additional technical substantiation. There has been no clear, concise substantiation, such as fire loss data, as to why additional cable type designators are necessary.

5. The scope of CMP 16 only includes articles 770, 800, 820 and 830 which share the common requirement that Section 300.22 shall apply. There are no requirements or specifications in 300.22 for the use of air-duct "D" cables (OFND, OFCD, CMD, MPD) versus the communications cables already specified. In its action on Comment 16-98 for the 2002 NEC, the Technical Correlating Committee note that it is inappropriate to attempt to include references to all products that do not have a need or r specific application rules or products that are permitted but not required by the NEC. Hence supporting the inclusion of air-duct cable is in violation of specific ruling given by the TCC on this very similar (same cable requirements but with a new name) issue during the last code cycle.

6. The substantiation notes the following: "to restrict plenum cable (OFNP, FPLP, CMP etc.) to ceiling cavity and raised floor plenums, leads one to ask are there applications where it is necessary to put cables inside of air ducts and plenums other than ceiling cavity plenums and raised floor plenums." The answer is "Yes, it is necessary to place cables inside of air ducts and plenums such as air-handling unit room plenums for various security, sensing and control applications. That then leads to the next question, "If not plenum cable (OFNP, FPLP, CMP etc), what kind of cable would meet the requirements of NFPA 90A?" This question is already answered by NEC 300.22 that has been in the code for some time, and, again no technical substantiation provided as to why there needs to be a change and a new class of cable inserted in the NEC.

7. The committee substantiation notes: "This proposal complies with the Standards Council directive by designating potential heat, flame spread index and smoke developed index for duct cable." However, "duct cable" refers to the standard NFPA 259, Standard Test Method for Potential Heat of Building Materials and NFPA 255, Standard Test Method for potential Heat of Building Materials. The scope of both NFPA 255 and 259 deals with "building materials". The NFPA Standards Council in their decision #02-07 stated the following: "The term 'limited combustible" is considered appropriate for materials of building construction as defined in NFPA 220, but is not considered appropriate for other products and materials such as electrical wire and cable". It is clear that wire and cable are not considered building materials and therefore the referenced standards are not appropriate for testing wires and cable.

8. The substantiation notes that "The use of wire, cable and nonmetallic raceway in air ducts should be allowed on a very limited basis." This proposal provides no limits on the amount of cable and does not meet the intent of "very limited basis" as noted in the 90A committee proposal.

Panel Meeting Action: Reject
Panel Statement: This proposal was a first attempt to rewrite these articles and provide common titles of sections and parts, as well as to ensure common renumbering of sections. This proposal did not address placing cables in fabricated ducts and did not eliminate the requirement to remove abandoned cable, as indicated in the comment substantiation. It also does not introduce a new cable type, alleged in the substantiation.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-108 Log #995 NEC-P03 **Final Action: Hold**
(725 and 760)

Submitter: Stanley D. Kahn, Tri-City Electric Co., Inc.
Comment on Proposal No: 3-126
Recommendation: Renumber Articles 725, 760, 770, 800, 820 and 830 as shown in the table that appears on the following pages.
Substantiation: The NEC Technical Correlating Committee action on proposal 3-126 was:

"The Technical Correlating Committee directs the chairs of Code-Making Panels 3 and 16 to establish a small task group to consider the sequential numbering proposed by this and similar proposals. With the numbering as accepted, the addition of a new rule to any article would result in renumbering everything following that section. The task group should consider using a larger range of numbers to allow for future expansion of the articles. The task group can develop comments to accomplish this numbering."

The task group members are:
Jim Brunssen- CMP 16
Paul Casparro- CMP 3
Sandy Egesdal- CMP 3
Stanley Kahn- CMP 16
Stanley Kaufman- CMP 16
Mark Ode- CMP 3

Implementation of the renumbering scheme in the attached table will allow ample room for insertion of future sections.

Panel Meeting Action: Hold
Panel Statement: This comment was held because it would propose something that could not be properly handled within the time frame for processing the Report on Comments.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

#	725	760	770	800	820	830
	ARTICLE 725 Class 1, Class 2, and Class 3 Remote-Control, Signaling, and Power-Limited Circuits	ARTICLE 760 Fire Alarm Systems	ARTICLE 770 Optical Fiber Cables and Raceways	ARTICLE 800 Communications Circuits	ARTICLE 820 Community Antenna Television and Radio Distribution Systems	ARTICLE 830 Network-Powered Broadband Communications Systems
	I. General	I. General	I. General	I. General	I. General	I. General
1	725.1 Scope.	760.1 Scope.	770.1 Scope.	800.1 Scope.	820.1 Scope.	830.1 Scope.
2	725.2 Definitions.	760.2 Definitions.	770.2 Definitions.	800.2 Definitions.	820.2. Definitions.	830.2 Definitions.
3	725.3 Locations and Other Articles. [ROP changed to: 725.3 Other Articles.]	760.3 Locations and Other Articles. [ROP changed to: 760.3 Other Articles.]	770.3 Locations and Other Articles. [ROP changed to: 770.3 Other Articles.]	800.3 Hybrid Power and Communications Cables. [ROP changed to: 800.3 Other Articles]	820.3 Locations and Other Articles. [ROP changed to: 820.3 Other Articles.]	830.3 Other Articles (Include hazardous locations). [ROP changed to: 830.3 Other Articles.]
4						
5						
6			770.4 Optical Fiber Cables.			
7						
8						
9			770.5 Types.			
10						
11						
12			770.6 Raceways for Optical Fiber Cables.			
13						
14						
15					820.4 Energy Limitations.	830.4 Power Limitations.
16						
17						

	725	760	770	800	820	830
18				800.4 Equipment. [ROP changed to: 800.4 Installation of Equipment.]		
19						
20						
21	725.5 Access to Electrical Equipment Behind Panels Designed to Allow Access. [ROP changed to: 725.7 Access to Electrical Equipment Behind Panels Designed to Allow Access.]	760.5 Access to Electrical Equipment Behind Panels Designed to Allow Access. [ROP changed to: 760.7 Access to Electrical Equipment Behind Panels Designed to Allow Access.]	770.7 Access to Electrical Equipment Behind Panels Designed to Allow Access.	800.5 Access to Electrical Equipment Behind Panels Designed to Allow Access. [ROP changed to: 800.7 Access to Electrical Equipment Behind Panels Designed to Allow Access.]	820.5 Access to Electrical Equipment Behind Panels Designed to Allow Access. [ROP changed to: 820.7 Access to Electrical Equipment Behind Panels Designed to Allow Access.]	830.5 Access to Electrical Equipment Behind Panels Designed to Allow Access. [ROP changed to: 830.7 Access to Electrical Equipment Behind Panels Designed to Allow Access.]
22						
23						
24	725.6 Mechanical Execution of Work. [ROP changed to: 725.8 Mechanical Execution of Work.]	760.6 Mechanical Execution of Work. [ROP changed to: 760.8 Mechanical Execution of Work.]	770.8 Mechanical Execution of Work.	800.6 Mechanical Execution of Work. [ROP changed to: 800.8 Mechanical Execution of Work.]	820.8 Mechanical Execution of Work.	830.8 Mechanical Execution of Work.
				[ROP moved: (800.8 Hazardous (Classified) Locations.) to 800.3]		
25						
26						

	725	760	770	800	820	830
27	725.9 Class 1, Class 2, and Class 3 Circuit Grounding. [Note: 725.9 was omitted from of the ROP Preprint.]	760.9 Fire Alarm Circuit and Equipment Grounding.				
28						
29						
30	725.10 Class 1, Class 2, and Class 3 Circuit Identification	760.10 Fire Alarm Circuit Identification				
31	725.9 Safety-Control Equipment. [ROP changed to: 725.11 Safety-Control Equipment.]	760.11 Fire Alarm Circuits Extending Beyond One Building.				
32						
33						
34	725.15 Class 1, Class 2, and Class 3 Circuit Requirements.	760.15 Fire Alarm Circuit Requirements.				
35						
36						
37						
38						
39						

	725	760	770	800	820	830
				II. Wires and Cables Outside and Entering Buildings	II. Cables Outside and Entering Buildings	II. Cables Outside and Entering Buildings
40						830.10 Entrance Cables.
42						
43						
44				800.10 Overhead Communications Wires and Cables. [ROP changed to: 800.11 Overhead Communications Wires and Cables.]	820.10 Outside Cables [ROP changed to: 820.11 Overhead Cables.]	830.11 Aerial Cables.
45						
46						
47				800.11 Underground Circuits Entering Buildings. [ROP changed to: 800.12 Underground Circuits Entering Buildings.]	820.11 Entering Buildings. [ROP changed to: 820.12 Underground Circuits Entering Buildings.]	830.12 Underground Circuits Entering Buildings.
48						
49						

	725	760	770	800	820	830
50				800.12 Circuits Requiring Primary Protectors. [ROP changed to: 800.13 Circuits Requiring Primary Protectors.] ROP 16-149 extracted the listing requirements for drop wire and created new section 800.81.		
51						
52						
53				800.13 Lightning Conductors. [ROP changed to: 800.14 Lightning Conductors.]		
54						
55						
56						
57						
58						
59						

	725	760	770	800	820	830
	II. Class 1 Circuits	II. Non–Power-Limited Fire Alarm (NPLFA) Circuits				
60	725.21 Class 1 Circuit Classifications and Power Source Requirements.	760.21 NPLFA Circuit Power Source Requirements.				
61		.				
62						
63	725.23 Class 1 Circuit Overcurrent Protection.	760.23 NPLFA Circuit Overcurrent Protection.				
64						
65						
66	725.24 Class 1 Circuit Overcurrent Device Location.	760.24 NPLFA Circuit Overcurrent Device Location.				
67						
68						
69	725.25 Class 1 Circuit Wiring Methods.	760.25 NPLFA Circuit Wiring Methods.				
70						
71						
72	725.26 Conductors of Different Circuits in Same Cable, Enclosure, or Raceway.	760.26 Conductors of Different Circuits in Same Cable, Enclosure, or Raceway.				
73						
74						
75	725.27 Class 1 Circuit Conductors.	760.27 NPLFA Circuit Conductors.				

	725	760	770	800	820	830
76						
77						
78	725.28 Number of Conductors in Cable Trays and Raceway, and Derating.	760.28 Number of Conductors in Cable Trays and Raceways, and Derating.				
79						
80						
81	725.29 Circuits Extending Beyond One Building.					
82						
83						
84		760.30 Multiconductor NPLFA Cables.				
85						
86						
87						
88						
89						
			II. Protection	III. Protection	III. Protection	III. Protection
90				800.30 Protective Devices.		830.30 Primary Electrical Protection.
91						
92						
93			770.33 Grounding of Entrance Cables.	800.33 Cable Grounding.	820.33 Grounding of Outer Conductive Shield of a Coaxial Cable.	830.33 Grounding or Interruption of Metallic Members of Network-Powered Broadband Communications Cables.
94						

	725	760	770	800	820	830
95						
96						
97						
98						
99				IV. Grounding Methods	IV. Grounding Methods	IV. Grounding Methods
100				800.40 Cable and Primary Protector Grounding.	820.40 Cable Grounding.	830.40 Cable, Network Interface Unit, and Primary Protector Grounding.
101						
102						
103					820.41 Equipment Grounding.	
104						
105						
106				800.41 Primary Protector Grounding and Bonding at Mobile Homes. [ROP changed to: 800.42 Primary Protector Grounding and Bonding at Mobile Homes.]	820.42 Bonding and Grounding at Mobile Homes.	830.42 Bonding and Grounding at Mobile Homes.
107						
108						
109						

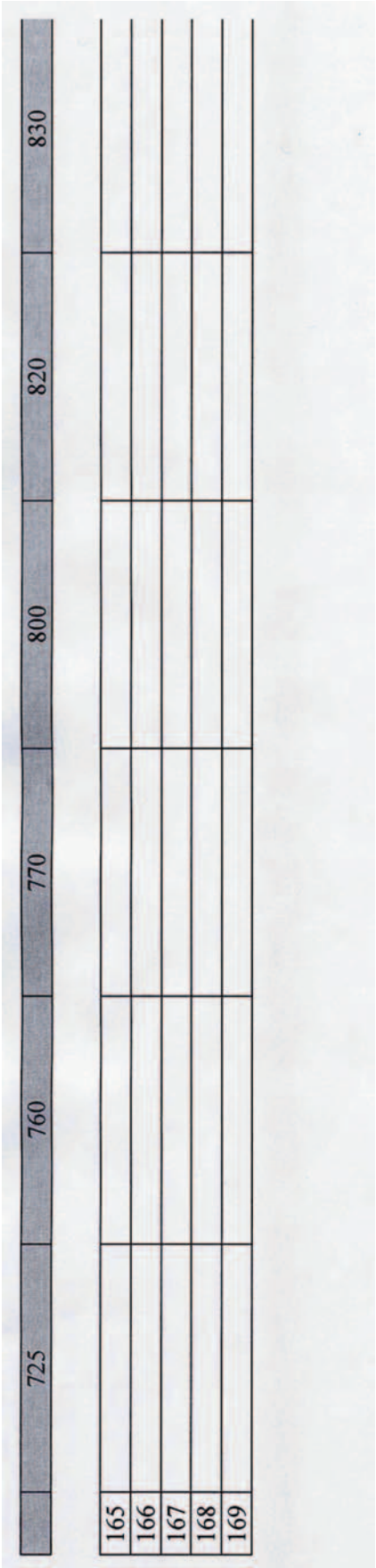
	725	760	770	800	820	830
	III. Class 2 and Class 3 Circuits	III. Power-Limited Fire Alarm (PLFA) Circuits	III. Cables Within Buildings	V. Communications Wires and Cables Within Buildings	V. Cables Within Buildings	V. Wiring Methods Within Buildings
			[ROP deleted: 770.49 Fire Resistance of Optical Fiber Cables.	[ROP deleted: 800.49 Fire Resistance of Optical Fiber Cables.	[ROP deleted: 820.49 Fire Resistance of Optical Fiber Cables.	
110				800.48 Raceways for Communications Wires and Cables.		
111						
112						
113			770.50 Listing, Marking, and Installation of Listed Optical Fiber Cables. [ROP changed to: 770.50 Installation of Optical Fiber Cables.]	800.50 Listing, Marking, and Installation of Communications Wires and Cables. [ROP changed to: 800.50 Installation of Communications Wires and Cables.]	820.50 Listing, Marking, and Installation of Coaxial Cables. [ROP changed to: 820.50 Installation of Coaxial Cables.]	
114						
115						
116						
117						
118						
119						
120	725.41 Power Sources for Class 2 and Class 3 Circuits	760.41 Power Sources for PLFA Circuits.				
121	725.42 Circuit Marking.	760.42 Circuit Marking.				

	725	760	770	800	820	830
122						
123						
124	725.51 Wiring Methods on Supply Side of the Class 2 or Class 3 Power Source.	760.51 Wiring Methods on Supply Side of the PLFA Power Source.				
125						
126						
127	725.52 Wiring Methods and Materials on Load Side of the Class 2 or Class 3 Power Source.	760.52 Wiring Methods and Materials on Load Side of the PLFA Power Source.				
128						
129						
130	725.54 Installation of Conductors and Equipment in Cables, Compartments, Cable Trays, Enclosures, Manholes, Outlet Boxes, Device Boxes, and Raceways for Class 2 and Class 3 Circuits.	760.54 Installation of Conductors and Equipment in Cables, Compartments, Cable Trays, Enclosures, Manholes, Outlet Boxes, Device Boxes, and Raceways for Power-Limited Circuits.				
131						
132						

	725	760	770	800	820	830
133	725.55 Separation from Electric Light, Power, Class 1, Non–Power-Limited Fire Alarm Circuit Conductors, and Medium Power Network-Powered Broadband Communications Cables.	760.55 Separation from Electric Light, Power, Class 1, NPLFA, and Medium Power Network-Powered Broadband Communications Circuit Conductors.	770.52 Installation of Optical Fibers and Electrical Conductors. [ROP changed to: 770.55 Installation of Optical Fibers and Electrical Conductors.]	800.52 Installation of Communications Wires, Cables, and Equipment. [ROP changed to: 800.55 Installation of Communications Wires, Cables, and Equipment.	820.52 Installation of Cables and Equipment. [ROP changed to: 820.55 Installation of Cables and Equipment.	830.58 Installation of Network-Powered Broadband Communications Cables and Equipment. [ROP changed to: 830.55 Installation of Network-Powered Broadband Communications Cables and Equipment.]
134						
135						
136	725.56 Installation of Conductors of Different Circuits in the Same Cable, Enclosure, or Raceway.	760.56 Installation of Conductors of Different PLFA Circuits, Class 2, Class 3, and Communications Circuits in the Same Cable, Enclosure, or Raceway.				
137						
138						
139	725.57 Installation of Circuit Conductors Extending Beyond One Building.					
140						
141						

	725	760	770	800	820	830
142		760.57 Conductor Size.				
143						
144						
145	725.58 Support of Conductors.	760.58 Support of Conductors.				
146						
147						
148		760.59 Current-Carrying Continuous Line-Type Fire Detectors.				
149						
150						
151						830.54 Medium Power Network-Powered Broadband Communications System Wiring Methods. [ROP changed to: 830.60 Medium Power Network-Powered Broadband Communications System Wiring Methods.]
152						
153						

	725	760	770	800	820	830
154	725.61 Applications of Listed Class 2, Class 3, and PLTC Cables.	760.61 Applications of Listed PLFA Cables.	770.53Applications of Listed Optical Fiber Cables and Raceways. [ROP changed to: 770.61Applications of Listed Optical Fiber Cables and Raceways.]	800.53 Applications of Listed Communications Wires and Cables and Communications Raceways. [ROP changed to: 800.61 Applications of Listed Communications Wires and Cables and Communications Raceways.]	820.53 Applications of Listed CATV Cables. [ROP changed to: 820.61 Applications of Listed CATV Cables.]	830.55 Low Power Network-Powered Broadband Communications System Wiring Methods. [ROP changed to: 830.61 Low Power Network-Powered Broadband Communications System Wiring Methods.]
155						
156						
157						830.56 Protection Against Physical Damage. [ROP changed to: 830.62 Protection Against Physical Damage.]
158						
159						
160						830.57 Bends. [ROP changed to: 830.63 Bends.]
161						
162						
163						
164						


725
760
770
800
820
830
165
166
167
168
169

	725	760	770	800	820	830
	V Listing Requirements	V Listing Requirements	IV Listing Requirements	VI Listing Requirements	VI Listing Requirements	VI Listing Requirements
170				800.4 Equipment [ROP changed to: 800.80 Equipment.]		
171						
172						
173				[ROP 16-149 created: 800.81 Drop wire & cable.]		
174						
175						
176		760. 31 NPLFA Cables. [ROP changed to: 760. 81 NPLFA Cables.]				
177						
178						

	725	760	770	800	820	830
179	725.71 Class 2, Class 3, and Type PLTC Cables. [ROP changed to: 725.82 Class 2, Class 3, and Type PLTC Cables.]	760.71 PLFA Cables and Insulated Continuous Line-Type Fire Detectors. [ROP changed to: 760.82 PLFA Cables and Insulated Continuous Line-Type Fire Detectors.]	770.51 Optical Fiber Cables. [ROP changed to: 770.82 Optical Fiber Cables.]	800.51 Communications Wires and Cables. [ROP changed to: 800.82 Communications Wires and Cables.]	820.51 Additional Listing Requirements. [ROP changed to: 820.82 Coaxial Cables.]	830.5 Network-Powered Broadband Communications Equipment and Cables. [ROP changed to: 830.82 Network-Powered Broadband Communications Equipment and Cables.]
180						
181						
182			770.51 Optical Fiber Raceways. [ROP changed to: 770.83 Optical Fiber Raceways.	800.51 Communications Raceways. [ROP changed to: 800.83 Communications Raceways.]		
183			"			

3-109 Log #2943 NEC-P03 **Final Action: Reject**
(725 and 760)

Submitter: Robert Dennelly, Avaya
Comment on Proposal No: 3-196
Recommendation: Accept my proposals.
Substantiation: I submitted proposals 3-196 and 3-290. These proposals were part of a series of proposals submitted to establish duct cable in the NEC. The panel action to accept proposals 3-192 and 3-286 in principle established listing requirements for duct cable and appear to be the basis of the panel reporting its actions on proposals 3-196 and 3-290 as "accept in principle". The panel should continue to accept the listing of duct cable in articles 725 and 760.

My proposal, like all the others that were submitted to establish duct cable, assumed that panels 3 and 16 would accept the proposals submitted by the Technical Committee on Air Conditioning to harmonize the terminology and requirements of the NEC with NFPA 90A. Panel 16 accepted these proposals and Panel 3 did not. I assume that the Technical Committee on Air Conditioning will provide adequate response to the concerns expressed by panel 3 so that panel 3 will then change its position on correlating with NFPA 90A.

Concerning the panel statement about the lack of substantiation for height restriction without physical protection, please refer to the excerpt (below) from the substantiation in proposal 3-169 submitted by Sandy Egesdal.

"An air-handling unit plenum (a.k.a., fan room) requires control wiring for the HVAC equipment. The majority of the circuits are Class 2, connected to sensors, control relays, and small motors for dampers and valves. From interviews with HVAC technicians, most circuits are in conduit. Exposed cables are typically protected to 7 feet above the floor. Presently, all cables installed exposed do not comply with NFPA 90A."

Panel 3 should accept proposals 3-196 and 3-290 as submitted or accept them in principle by accepting broader proposals 3-194 and 3-288 that include all the changes in 3-196 and 3-290.
Panel Meeting Action: Reject
Panel Statement: The panel is acting on this and other comments based on the Standards Council decision dated November 13, 2003 that is identified as Number 03-10-25 plus a subsequent letter by the Standards Council Chairman, Philip J. DiNenno, dated December 3, 2003. This decision states, in pertinent part as follows:
"The Council believes, that the best course of action for the NEC project is to generally refrain, unless absolutely necessary, from making revisions that interrelate with the NFPA 90A in advance of completion of the latest revision cycle of NFPA 90A, and instead to maintain the status quo in the NEC project on the applicable technical subjects pending the completion of the NFPA 90A revision cycle."

This action does not constitute agreement or disagreement with any of the substantiations submitted for the affected comments.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-110 Log #3708 NEC-P03 **Final Action: Accept**
(725 and 760)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-172
Recommendation: Continue rejecting this proposal.
Substantiation: Note: State the problem that will be resolved by your recommendation. Give the specific reason for your comment including copies of tests, research papers, fire experience, etc. If more than 200 words, it may be abstracted for publication.

The G designation of cables should be retained because it serves as a way for the Canadian manufacturers to be able to sell their products which have been listed to CSA FT4. The CSA FT4 test is similar to the UL 1581 vertical cable tray test, but is somewhat more severe.

While CMP 3 and CMP 12 have rejected this concept, CMP 16 has accepted this proposal (in part). All three of the proposals (3-172, 12-52 and 16-28) should be rejected.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-111 Log #3829 NEC-P03 **Final Action: Accept**
(725.2)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-127
Recommendation: *Continue rejecting the definitions of the various types of plenum contained within this proposal.*
Substantiation: * There is no need for these definitions in the NEC. These definitions are not contained in NFPA 90A, but, more importantly, are not needed in the NEC. Acceptance of proposals using these terms exclusively by CMP 16 is not enough justification, in view of the rejection of proposals using these terms by CMP 3 in Articles 300, 725 and 760, to put the terms into the NEC.

* This comment recommends rejection of a subdivision of "other spaces used for environmental air" and rejection of granting priority to NFPA 90A on choices of wiring methods.

* The input from CMP 3 and from the NEC Technical Coordinating Committee makes it clear that the terminology used in 300.22 has served the NEC well and needs no change. It has also become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods.

* It has already been shown in detail by the fire hazard and fire risk analysis presented together with my original proposals (see for example the section on pages 2080-2091 of the NEC-ROP of the substantiation for my proposal 3-130) that there is no need to change the requirements, or limit the application, for wiring methods in plenums, because the fire safety record is excellent.

* The definition of "air duct" is unnecessary in Articles 725 and 760, as it has been adopted as a general NEC definition by CMP 1 in Article 100.

* I understand that this comment represents a change in some of the concepts the submitter believed when the proposal was submitted, but "even old dogs can learn".
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-112 Log #3031 NEC-P03 **Final Action: Accept in Principle**
(725.2.Circuit Integrity (CI) Cable)

Submitter: Edward Walton, Draka USA
Comment on Proposal No: 3-128
Recommendation: Add the following definition:
Circuit integrity (CI) Cable. Cable used for remote-control, signaling, and power-limited circuits that are critical to life safety, property protection or emergency management as may be required by referencing codes in order to ensure continued operation for a specified time under fire conditions.
Substantiation: This definition supports a term used in proposals for Section 725.71(F) and Section 725.61(H). For substantiation, see comment on 725-71(F) (reference ROP 3-216 Log #3308).
Panel Meeting Action: Accept in Principle
Revise the definition to read as follows:
Circuit Integrity (CI) Cable. Cable(s) used for remote control, signaling, or power-limited systems that supply critical circuits to ensure survivability for continued circuit operation for a specified time under fire conditions.
Panel Statement: The panel revised the suggested text to remove mandatory references in the definition, as required by the NEC Style Manual. The phrases "life safety," "property protection," and "emergency management" were changed to "critical circuits" to provide the ability to apply these cables to any number of required applications and parallels the information on similar cables in Article 760.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-113 Log #3007 NEC-P03 **Final Action: Accept in Part**
(725.2, 725-3, 760-2 and 760-3)

Submitter: Ray R. Keden, Erico, Inc.
Comment on Proposal No: 3-127
Recommendation: Delete listing requirements for "duct cable". Modify to read: "Cables shall not be directly placed in air ducts."
Substantiation: No adequate substantiation has been provided why the use of plenum rated cable should be limited in applications. We have not been able to find one contractor in the past ten months who had installed any inside an air duct. When we presented this installation method to engineers/cable network designers, we only received as response head shaking and the question Why would anyone do that?
Panel Meeting Action: Accept in Part
The panel accepts the part to delete listing requirements for duct cable and associated text. Reject any modification about cable placing.
Panel Statement: The panel is acting on this and other comments based on the Standards Council decision dated November 13, 2003, identified as Number 03-10-25, plus a subsequent letter by the Standards Council Chairman, Philip J. DiNenno, dated December 3, 2003. This decision states, in pertinent part, as follows:
"The Council believes, that the best course of action for the NEC project is to generally refrain, unless absolutely necessary, from making revisions that interrelate with the NFPA 90A in advance of completion of the latest revision cycle of NFPA 90A, and instead to maintain the status quo in the NEC project on the applicable technical subjects pending the completion of the NFPA 90A revision cycle."
This action does not constitute agreement or disagreement with any of the substantiations submitted for the affected comments.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-114 Log #247 NEC-P03 **Final Action: Reject**
(725.2, 760.2)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-127
Recommendation: Accept this proposal in principle.
Change the definition of air duct to the definition in NFPA 90A-2002 and accept the remaining definitions as proposed.
Air Duct. A conduit for or passageway for conveying air to or from heating, cooling, air conditioning, or ventilating equipment, but not including the plenum.
Substantiation:
The panel rejected the definitions of plenums because they were not used in Article 725 and 760. See the numerous comments from the technical committee on air conditioning urging the panel to accept proposals using these terms. Until the NEC and NFPA 90A use the same terminology, it will be difficult, perhaps impossible, to achieve full correlation. Refer to proposals 16-31, 16-107 and 16-170 which were accepted by Panel 16. They revise the requirements for entrance cables and use the terms air duct, ceiling cavity plenum, raised floor plenum, duct distribution plenum, apparatus casing plenum and air-handing unit room plenum in Articles 770, 800 and 820. Since the terms are used in multiple articles, these definitions belong in Article 100 and we have submitted a comment to panel 1 urging acceptance of proposal 1-49. See also proposal 16-9. The panel should accept this comment. If panel 1 accepts the definitions in Article 100, the correlating committee can decide where they should be. The sources of the proposed definitions are shown in the table below:

Term	Source
Air Duct	NFPA 90A-2002, 3.3.5
Ceiling Cavity Plenum	NFPA 90A-2002, 4.3.10.2
Raised Floor Plenum	NFPA 90A-2002, 4.3.10.6.1
Duct Distribution Plenum	NFPA 90A-2002, 4.3.10.3
Apparatus Casing Plenum	NFPA 90A-2002, 4.3.10.4
Air-Handling Unit Plenum	NFPA 90A-2002, 4.3.10.5

The definition of air duct is in the definitions section of NFPA 90A. The definitions of the five different kinds of plenums are in the sections show in the chart where they are effectively defined in the context of requirements. Since each term is used only once, it was not necessary to formally define them and place the definition in the definitions section of the standard.

Why is the Technical Committee on Air Conditioning submitting comments?

In action 80- 60, the Standards Council assigned primary jurisdiction for combustibles in plenums to the Technical Committee on Air Conditioning and directed it to seek the cooperation of the committees on Fire Tests, National Electrical Code and Safety to Life. The Technical Committee on Air Conditioning has been cooperating with the National Electrical Code Committee by submitting a series of proposals for the 2005 NEC. It now continues that cooperation by commenting on all proposals dealing with combustibles in plenums. The purpose of the proposals and comments is to bring about correlation between NFPA 70, National Electrical Code and NFPA 90A, Standard for the Installation of Air-Conditioning and Ventilating Systems. The Technical Committee on Air Conditioning established consensus on these comments through a letter ballot.

The NEC Technical Correlating Committee has acknowledged the responsibility of the Technical committee on Air Conditioning. The TCC Action on this proposal states:

"The Technical Correlating Committee understands that the Standards Council has given primary responsibility to the Technical Committee on Air-Conditioning for combustible materials in plenums in cooperation with other committees including the National Electrical Code Committee. The Chair of the Technical Correlating Committee will work with the Chair of the Technical Committee on Air-Conditioning and appoint a Task Group to review the proposals affecting correlation between Code-Making Panels 3, 16, and the Technical Committee on Air-Conditioning. In addition, the Technical Correlating Committee directs that this proposal be referred to the NFPA Committee on Air-Conditioning for comment."
NFPA 5000-2003 Building Construction and Safety Code, in Chapter 52, requires electrical systems and equipment to be designed and constructed in accordance with NFPA 70. Likewise, in Chapter 50, it requires air-conditioning and ventilating systems to be designed and constructed in accordance with NFPA 90A. NFPA 5000 has conflicting provisions for wiring in air handling spaces because of conflicts between NFPA 70 and NFPA 90A. Many of the proposals and comments from the Committee on Air-Conditioning to the National Electrical Code Committee are intended to eliminate these conflicts. These proposals and comments are part of the implementation of the Standards Council's recently issued Scope Coordination Policy for NFPA Documents that has the "goal of having a coordinated set of documents for the built environment".
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-115 Log #1791 NEC-P03 **Final Action: Reject**
(725.2, 760.2)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-127
Recommendation: Accept in Part.
Accept the definitions for "plenum, ceiling cavity" and "plenum, raised floor".
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.
In the Proposal stage, Panel 3 did not accept the use of air duct, air handling rooms, apparatus casing plenum, ceiling cavity plenum, duct distribution plenum, and raised floor plenum, within Section 300.22, or in Articles 725 and 760 and did not accept the concept of including these definitions in Article 100. In the Proposal stage, Panel 16 accepted the concept of these definitions in Article 100 and also accepted the use of these terms in Articles 770, 800, 820, and 830.
The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.
The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.
One of the major differences involved definitions for terms used within these articles and also terms that would be used in Section 300.22 dealing with ducts, plenums, and other spaces used for environmental air.
The Task Group members who were available for the teleconferences recommended accepting the definitions for "Ceiling Cavity Plenum" and "Raised Floor Plenums" but not the remainder of the definitions. The members felt that the other definitions were not clear and concise enough but should be revised b y the NFPA 90A committee before submitting to the NEC.
The Task Group further suggested that Panel 16 place the remainder of these definitions in Articles 800, 820, and 830 in the definition sections for each article, if the Panel members felt the definitions would be of benefit in these articles.
See proposed changes to Panel 3 action on Proposal 3-94.
The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National

Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. form Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-116 Log #3837 NEC-P03 **Final Action: Accept**
(725.2, 760.2)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-127
Recommendation: *Continue rejecting this proposal.*
Substantiation: * There is no need for these definitions of various types of plenums in the NEC. These definitions are not contained in NFPA 90A, but, more importantly, are not needed in the NEC. Acceptance of proposals using these terms exclusively by CMP 16 is not enough justification, in view of the rejection of proposals using these terms by CMP 3 and by CMP 1, to put the terms into the NEC.

* This comment recommends continued rejection of a subdivision of "other spaces used for environmental air" and continued rejection of granting priority to NFPA 90A on choices of wiring methods.

* The input from CMP 3 and from the NEC Technical Coordinating Committee makes it clear that the terminology used in 300.22 has served the NEC well and needs no change. It has also become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods.

* It has already been shown in detail by the fire hazard and fire risk analysis presented together with my original proposals (see for example the section on pages 2080-2091 of the NEC-ROP of the substantiation for my proposal 3-130) that there is no need to change the requirements for wiring methods in plenums, because the fire safety record is excellent.

* CMP 1 has accepted as the proposed definition for "air duct" the definition contained in the NFPA Glossary of Terms, which comes from NFPA 97. That is the definition that is needed, and it needs to go into Article 100 and not into Article 725 or Article 760.

This comment is one of a series of comments on Articles 300, 725, 760, 770, 800, 820 and 830, regarding "plenum cables". The philosophy behind all the comments is that the NEC is OK as published in 2002, but that 2 minor changes might represent improvements: (i) the clarification of the 6 inch extension of a wiring method into a more restricted environment and (ii) the clarification in the Fine Print Notes that a cable listed to NFPA 262 is listed both based on its "low-smoke" characteristics and its "low-flame-spread" characteristics, and that the two are not listed separately.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-117 Log #2624 NEC-P03 **Final Action: Reject**
(725.2.Air Duct & 760.2)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-127
Recommendation: Accept this proposal in principle.

Change the definition of air duct to the definition in NFPA 90A-2002 and accept the remaining definitions as proposed.

Air Duct. A conduit for or passageway for conveying air to or from heating, cooling, air conditioning, or ventilating equipment, but not including the plenum.
Substantiation: The NFPA 70 and NFPA 90A need to be harmonized and use the same terminology in order to have a consistent set of NFPA codes and standards.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-118 Log #1898 NEC-P03 **Final Action: Accept**
(725.2 and 760.2)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-127
Recommendation: In regards to this proposal, I agree and support the panel's action (Reject) and also the panel statement.
Substantiation: Chapter 3 of the NFPA 90A, Standard for the Installation of Air Conditioning and Ventilating Systems, 2002 edition lists and identifies terminology that are officially recognized as Definitions to be used throughout the NFPA 90A, standard. In regards to the following terms: air duct, air-handling unit room plenum, apparatus casing plenum, ceiling cavity plenum, duct distribution plenum, and raised floor plenum; only one of the terms is properly identified and listed as a definition. Under 3.3 General Definitions and more specifically 3.3.5 — Air Duct. A conduit or passageway for conveying air to or from heating, cooling, air conditioning, or ventilating equipment, but not including the plenum.

In regards to the following terms: air-handling unit room plenum, apparatus casing plenum, ceiling cavity plenum, duct distribution plenum, and raised floor plenum, they are all listed and identified in Chapter 4 of NFPA 90A standard under the heading of HVAC Systems. These 5 terms are listed and worded differently than those identical terms that are proposed in the 2005 ROP for the NEC. Here is a breakdown of the 5 terms as listed in the 2005 ROP and also NFPA 90A-2002 standard.

Air — Handling Unit Room Plenum as listed in NFPA 90A standard 2002; 4.3.10.5.1-Individual rooms containing an air-handling unit(s) shall gather return air from various sources and combine the return air within the room for returning to the air-handling unit.

Air — Handling Unit Room Plenum as listed in the 2005 ROP for the NEC: An individual room containing an air-handling unit(s) used to gather return air from various sources and combine the return air within the room for returning to the air-handling unit.

Apparatus Casing Plenum as listed in NFPA 90A standard; 4.3.10.4.1-A fabricated plenum and apparatus casing shall be permitted to be used for supply, return, or exhaust air service.

Apparatus Casing Plenum as listed in the 2005 ROP for the NEC: a fabricated plenum and apparatus casing used for supply, return, or exhaust air service.

Ceiling Cavity Plenum as listed in NFPA 90A standard-2002; 4.3.10.2-The space between the top of the finished ceiling and the underside of the floor of the floor or roof above shall be permitted to be used to supply air to the occupied area, or return or exhaust air from the occupied area, provided that the conditions in 4.3.10.2.1 through 4.3.10.2.8 are met:

Ceiling Cavity Plenum as listed in the 2005 ROP for the NEC: The space between the top of the finished ceiling and the underside of the floor of the floor or roof above where used to supply air to the occupied area, or return or exhaust air from the occupied area.

Duct Distribution Plenum as listed in the NFPA 90A standard-2002; 4.3.10.3-A duct enclosure used for the multiple distribution or gathering of ducts or connectors shall be constructed of materials and methods specified in 4.3.1.

Duct Distribution Plenum as listed in the 2005 ROP for the NEC: A duct enclosure used for the multiple distribution or gathering of ducts or connectors.

Raised Floor Plenum as listed in the NFPA 90A standard-2002; 4.3.10.6.1-The space between the top of the finished floor and the underside of a raised floor shall be permitted to be used to supply air to the occupied area, or return or exhaust air from or return and exhaust air from the occupied area, provided that the conditions in 4.3.10.6.2 through 4.3.10.6.8 are met:

Raised Floor Plenum as listed in the 2005 ROP for the NEC: The space between the top of the finished floor and the underside of a raised floor where used to supply air to the occupied area, or return or exhaust air from or from the occupied area.

The terms air-handling unit room plenum, apparatus casing plenum, ceiling cavity plenum, duct distribution plenum and raised floor plenum as listed in the NFPA 90A standard-2002 are statements and cannot possibly be used as definitions. The submitter of this proposal has stated that the source for these definitions is the NFPA 90A and yet the terms are used and identified differently in the NFPA 90A than in this proposal. There is too much confusion with these terms as to how they are identified in the NFPA 90A standard and the proposed 2005 ROP for the NEC. This is a definite correlating problem that exists and will continue to do so until it is fixed.

This comment represents the official position of the International Brotherhood of Electrical Workers Code and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-119 Log #274 NEC-P03 **Final Action: Accept**
(725.3)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-130
Recommendation: Continue to reject this proposal.
Substantiation: The Technical Committee on Air Conditioning agrees with the panel action. Acceptance of this proposal would have created a conflict with NFPA 90A. "P" type plenum cables are permitted in ceiling cavity plenums and raised floor plenums but not in duct distribution plenums, apparatus casing plenums and air-handling unit room plenums.

This comment is one in a series of comments including 3-89, 3-90, 3-130, 3-169, 3-197, 3-228, 3-242, 3-251, 3-267, and 3-291.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-120 Log #1321 NEC-P03 **Final Action: Reject**
(725.3)

Submitter: Stanley D. Kahn, Tri-City Electric Co., Inc.
Comment on Proposal No: 3-132
Recommendation: Reconsider the proposal but make the following changes such that this section reads like Section 760.3(B):

- Ducts, Plenums and Other air Handling Spaces. NEC Section 300.22, where installed in ducts or plenums or other spaces used for environmental air.
- Exception to (b). As permitted in 725.61(A).

Substantiation: An error was made during the 2002 code cycle when the Exceptions were changed to positive language and an exception permitted in the 1999 text was omitted. Comparison with similar sections in articles 760 and 770 show that the Exception was not changed. The text in 725.3(b) in the 2002 Code seems to require Chapter 3 wiring methods, but will permit Class 2 and Class 3 cables to be installed in a raceway due to a primary reference to 300.22. This 2002 NEC reference to 300.22 in Part 1 seems to take precedence over the wiring permitted by 2002 Section 725.61(A) and such a change is unsubstantiated. The revised wording corrects this apparent error.

The 1999 NEC Section 725-3 reads:

(b) Ducts, Plenums, and Other Air Handling Spaces. NEC Section 300-22, where installed in ducts or plenums or other space used for environmental air.

Exception to (b). As permitted in NEC Section 725-61(a).

The 2002 NEC Section 725.3 reads:

(b) Ducts, Plenums, and Other Air Handling Spaces. NEC Section 300.22 for Class 1, Class 2, and Class 3 circuits installed in ducts, plenums or other space used for environmental air. Type CL2P or CL3P cables shall be permitted for Class 2 and Class 3 circuits.

The 2002 NEC Section 760.3 reads:

(B) Ducts, Plenums and Other Air Handling Spaces. NEC Section 300.22, where installed in ducts or plenums or other spaces used for environmental air.

Exception: As permitted in 760.30(B)(1) and (2) and 760.61(A).

Other 2002 Articles (770, 800, etc.) read like 760.3.
Panel Meeting Action: Reject
Panel Statement: The panel continues to reject the proposal and rejects the comment since 725.61(A) already adequately covers this application in Part III of Article 725.

The panel is acting on this and other comments based on the Standards Council decision dated November 13, 2003, identified as Number 03-10-25, plus a subsequent letter by the Standards Council Chairman, Philip J. DiNenno, dated December 3, 2003. This decision states, in pertinent part, as follows:

"The Council believes, that the best course of action for the NEC project is to generally refrain, unless absolutely necessary, from making revisions that interrelate with the NFPA 90A in advance of completion of the latest revision cycle of NFPA 90A, and instead to maintain the status quo in the NEC project on the applicable technical subjects pending the completion of the NFPA 90A revision cycle."

This action does not constitute agreement or disagreement with any of the substantiations submitted for the affected comments.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 11 Negative: 1 Abstain: 1
Explanation of Negative:
AYER: See my explanation of negative vote on Comment 3-128.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-121 Log #1641 NEC-P03 **Final Action: Accept**
(725.3)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-130
Recommendation: Continue to reject.
Substantiation: I agree with both the panel action and panel statement to reject proposal 3-130. No technical substantiation has been provided that a change to the 2002 NEC language is needed or required. This comment represents the official position of the International Brotherhood of Electrical Workers Code and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-122 Log #1711 NEC-P03 **Final Action: Accept**
(725.3)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-130
Recommendation: Continue to reject.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

The task group agrees with Panel 3's action and statement.

By accepting the majority of the suggested changes in a submitted comment for Proposal 3-94, "Other Spaces for Environmental Air" has been further subdivided into two separate spaces, ceiling cavity and raised floor plenums but the Panel still has maintained the electrical industry terminology associated with these spaces. Providing this further subdivision will enhance the usability of the NEC by making it easier to determine what other spaces are being referenced in this section. It will also improve correlation between the NEC and NFPA 90A.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-123 Log #2625 NEC-P03 **Final Action: Accept**
(725.3)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-130
Recommendation: Continue to reject this proposal.
Substantiation: CFRA agrees with the panel action.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-124 Log #3838 NEC-P03 **Final Action: Reject**
(725.3)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-130
Recommendation: Revise to read as follows:

725.3 Locations and Other Articles. Circuits and equipment shall comply with the articles or sections listed in 725.3(A) through (F). Only those sections of Article 300 referenced in this article shall apply to Class 1, Class 2, and Class 3 circuits.

(A) Number and Size of Conductors in Raceway. Section 300.17.

(B) Spread of Fire or Products of Combustion. Section 300.21. The accessible portion of abandoned Class 2, Class 3, and PLTC cables shall not be permitted to remain.

(C) Ducts, Plenums, and Other Air-Handling Spaces. Class 1, Class 2, and Class 3 circuits installed in ducts, plenums, or other space used for environmental air shall comply with 300.22. Type CL2P or CL3P cables and plenum signaling raceways shall be permitted for Class 2 and Class 3 circuits installed in other spaces used for environmental air. Wiring methods installed in spaces covered by Section 300.22 (C) shall be permitted to extend not more than 150 mm (6 in.) beyond the limits of the space into a space covered by section 300.22 (B).

(D) Hazardous (Classified) Locations. Articles 500 through 516 and Article 517, Part IV, where installed in hazardous (classified) locations.

(E) Cable Trays. Article 392, where installed in cable tray.

(F) Motor Control Circuits. Article 430, Part VI, where tapped from the load side of the motor branch-circuit protective device(s) as specified in 430.72(A).

Substantiation: It is important that installers of wiring in plenums and other spaces used for environmental air be able to complete installations without having to change wiring methods in order to terminate their installation just outside the plenum area, because that will help them and prevent unwarranted increases in wiring installation costs. Therefore, wiring systems should be

permitted to extend up to 6 inches into a more restrictive environment, without developing any limitations for their use in less restrictive environments. There are multiple examples in the NEC where materials are permitted to extend slightly beyond the original space, including the following: 110.26 (3), 210.52 (5) Exception, 300.50 (A) Exceptions 2 and 3, 426.22 (b), 520.42, 550.13 (G) (3), and Table 830.12. Moreover, the concept of using 6 inches as a small distance is used over 30 times in the NEC.

This comment is one of a series of comments on Articles 300, 725, 760, 770, 800, 820 and 830, regarding "plenum cables". The philosophy behind all the comments is that the NEC is OK as published in 2002, but that 2 minor changes might represent improvements: (i) the clarification of the 6 inch extension of a wiring method into a more restricted environment and (ii) the clarification in the Fine Print Notes that a cable listed to NFPA 262 is listed both based on its "low-smoke" characteristics and its "low-flame-spread" characteristics, and that the two are not listed separately.

Panel Meeting Action: Reject

Panel Statement: The comment is rejected, since there are construction methods that would permit the transition of cabling systems into raceway systems in more restrictive areas. For example, EMT or flexible metal conduit can be stubbed into the "other space for environmental air" from the more restrictive space with the transition between raceway and cable based on 300.16(A) or (B). The suggested text also includes all wiring methods, many of which are already acceptable to be installed in fabricated ducts and plenums. This added text would limit any wiring method from extending further than six inches into the fabricated duct.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 13

3-125 Log #3850 NEC-P03 **Final Action: Reject**
(725.3)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association

Comment on Proposal No: 3-130

Recommendation: Revise to read as follows:

725.3 Locations and Other Articles. Circuits and equipment shall comply with the articles or sections listed in 725.3(A) through (F). Only those sections of Article 300 referenced in this article shall apply to Class 1, Class 2, and Class 3 circuits.

(A) Number and Size of Conductors in Raceway. Section 300.17.

(B) Spread of Fire or Products of Combustion. Section 300.21. The accessible portion of abandoned Class 2, Class 3, and PLTC cables shall not be permitted to remain.

(C) Ducts, Plenums, and Other Air-Handling Spaces. Section 300.22 for Class 1, Class 2, and Class 3 circuits installed in ducts, plenums, or other space used for environmental air. Type CL2P or CL3P cables shall be permitted for Class 2 and Class 3 circuits. Wiring methods installed in spaces covered by Section 300.22 (C) shall be permitted to extend not more than 150 mm (6 in.) beyond the limits of the space into a space covered by section 300.22 (B).

725.3 (D) through (F) to remain unchanged.

Substantiation: This comment accepts two recommendations by CMP 3: (1) not to go into detail on the types of plenums and (2) improving on the original proposal, which had as its primary intent to make it clear that wiring systems should be permitted to extend up to 6 inches into a more restrictive environment, without developing any limitations for their use in less restrictive environments.

Explanation:

* It is important that installers of wiring in plenums and other spaces used for environmental air be able to complete installations without having to change wiring methods in order to terminate their installation just outside the plenum area, because that will help them and prevent unwarranted increases in wiring installation costs. There are multiple examples in the NEC where materials are permitted to extend slightly beyond the original space, including the following: 110.26 (3), 210.52 (5) Exception, 300.50 (A) Exceptions 2 and 3, 426.22 (b), 520.42, 550.13 (G) (3), and Table 830.12. Moreover, the concept of using 6 inches as a small distance is used over 30 times in the NEC.

* This comment recommends continued rejection of a subdivision of "other spaces used for environmental air" and continued rejection of granting priority to NFPA 90A on choices of wiring methods.

* The input from CMP 3 and from the NEC Technical Coordinating Committee makes it clear that the terminology used in 300.22 has served the NEC well and needs no change. It has also become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, as a member of the Technical Committee on Air Conditioning, I believe the NEC panels should continue making their own choices regarding wiring methods.

* It has already been shown in detail by the fire hazard and fire risk analysis presented together with my original proposals (see for example the section on pages 2080-2091 of the NEC-ROP of the substantiation for this proposal) that there is no need to change the requirements, or limit the application, for wiring methods in plenums, because the fire safety record is excellent.

* I understand that this comment represents a change in some of the concepts the submitter believed when the proposal was submitted, but "even old dogs can learn".

This comment is one of a series of comments on Articles 300, 725, 760, 770, 800, 820 and 830, regarding "plenum cables". The philosophy behind all the comments is that the NEC is OK as published in 2002, but that 2 minor changes might represent improvements: (i) the clarification of the 6 inch extension of a wiring method into a more restricted environment and (ii) the clarification in the Fine Print Notes that a cable listed to NFPA 262 is listed both based on its "low-smoke" characteristics and its "low-flame-spread" characteristics, and that the two are not listed separately.

Also see comments from the chairman of the Technical Correlating Committee.

Panel Meeting Action: Reject

Panel Statement: See panel action and statement on Comment 3-124.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 13

3-126 Log #3832 NEC-P03 **Final Action: Accept**
(725.3, 760.3)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association

Comment on Proposal No: 3-132

Recommendation: *Continue rejecting this proposal.*

Substantiation: There is no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.

See further information in the comment I made to recommend rejection of proposal 3-213.

Panel Meeting Action: Accept

Number Eligible to Vote: 13

Ballot Results: Affirmative: 13

3-127 Log #3861 NEC-P03 **Final Action: Reject**
(725.3(B))

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association

Comment on Proposal No: 3-131

Recommendation: *There is no consistency in the NEC on the removal of abandoned cables. This is primarily an issue with cables in Articles 645, 725, 760, 770, 800, 820 and 830. The wording should be as follows consistently: "Abandoned [cable type] cables shall be removed." It should also be contained in the section on applications of cables.*

725.3 Locations and Other Articles. Circuits and equipment shall comply with the articles or sections listed in 725.3(A) through (F). Only those sections of Article 300 referenced in this article shall apply to Class 1, Class 2, and Class 3 circuits.

(A) Number and Size of Conductors in Raceway. Section 300.17.

(B) Spread of Fire or Products of Combustion. Section 300.21. Abandoned ~~The accessible portion of abandoned~~ Class 2, Class 3, and PLTC cables shall be removed.

Substantiation: The issue here is the interpretation of the action required with respect to what is accessible.

The issue of "accessible" cables creates confusion that makes the enforcement of the removal of abandoned cable "dicey" because it is unclear what "accessible" means. The NEC defines the following terms in Article 100:

Accessible (as applied to equipment). Admitting close approach; not guarded by locked doors, elevation, or other effective means.

Accessible (as applied to wiring methods). Capable of being removed or exposed without damaging the building structure or finish or not permanently closed in by the structure or finish of the building.

Accessible, Readily (Readily Accessible). Capable of being reached quickly for operation, renewal, or inspections without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders, and so forth.

The phrase "the accessible portion of abandoned cables" is much vaguer than the definitions in the code, because the term "accessible portion" is not defined. Therefore, accessible portion is probably considered that length of cable that is within a few feet of the opening, and that can be cut off by reaching in. That is clearly not the intent of the code provision: the entire length of cable that can be pulled out should be removed.

Another possible interpretation is that this refers to excluding from removal those cables installed in the areas that CMP 16 calls "inaccessible ceiling cavity plenums and inaccessible raised floor plenums". The concept of those

"inaccessible areas" was rejected by CMP 3 as inappropriate because there is no known fire safety problem with the present type of wiring methods, but it was approved by CMP 16. If this concept is approved, and the wording of "abandoned cables" includes the "accessible portion" concept, it would clearly mean that the NEC would permit some cables to be left permanently in place once abandoned. This was soundly rejected by the membership several times, in a concept upheld by Standards Council.

It is pretty obvious that the concept of removal of abandoned cable is not one where someone should try to tear down a building or cause structural damage to it just to remove cables "permanently closed in by the structure or finish of the building". I believe that we must trust in the intelligence of our code officials and electrical inspectors that they will not demand such actions. If there is a feeling that this is a possibility (which I cannot believe), it might be worth adding a Fine Print Note to the effect that removal of abandoned cables should not cause structural damage to the building. An example follows:

FPN: Removal of abandoned cables is not intended to cause structural damage to buildings.

Clearly, "the accessible portion of abandoned cables" is a misleading phrase which can lead to abundant misinterpretation. It should be eliminated in favor of the simpler "abandoned cables".

Panel Meeting Action: Reject

Panel Statement: The submitter's substantiation has provided the definition of "accessible" for wiring methods as capable of being removed or exposed without damaging the building structure or finish or not permanently closed in by the structure or finish of the building. This definition clearly provides the information necessary to determine the accessible portion of an abandoned cable versus the non-accessible portion.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-128 Log #209 NEC-P03 **Final Action: Reject**
(725.3(C))

Submitter: David Wechsler, The Dow Chemical Company

Comment on Proposal No: 3-133

Recommendation: Revise text to read as follows:

725.3(C) Ducts, Plenums, and Other Air-Handling Spaces. Class 1, Class 2, and Class 3 circuits installed in ducts, plenums, or other space used for environmental air shall comply with 300.22. ~~Type CL2P or CL3P cables and plenum signaling raceways shall be permitted for Class 2 and Class 3 circuits installed in other spaces used for environmental air.~~

Substantiation: If in fact 725-71(A) makes CL2P and CL3P, part of a Class 2 or Class 3 circuit, then the current text provides a circular counter requirement in the first sentence with that of the second. For example, CL3P is a Class 3 circuit and per sentence 1, these are permitted to be used in accordance with 300.22 in other spaces used for environmental air. In the second sentence, CL3P cables which are part of the Class 3 circuit may be used in other spaces used for environmental air, but apparently these do not have to comply with 300.22.

Additionally, and more importantly than user-understanding, there seems to be a lack of technical substantiation to justify that the use of Types CL2P and CL3P as defined in 725.71 and 725.71(A) should no longer be permitted in plenums or ducts, as is inferred by the second sentence. While there may be data to suggest that an improved product may be available, again there is nothing to support that the current or future such installations are unsafe, a danger to the public, or present a hazard.

There also does not seem to be substantiation as to the inclusion for the installation of "plenum signaling raceways" outside the controls presented by 300.22. Assuming that this substantiation has been made elsewhere.

Panel Meeting Action: Reject

Panel Statement: The text, as modified the panel action in Proposal 3-133, provides very clear direction to comply with the requirements in 300.22, while also indicating that CL2P, CL3P, and plenum signaling raceways can be installed in accordance with 300.22(C). Permitting plenum signaling raceways is a logical step, since similar raceways have been in 800.53(A) for communications wiring for a couple of Code cycles.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Negative: 1

Explanation of Negative:

AYER: The 2002 NEC text of 725.3(C) should revert back to the original text found in the 1999 version that simply states that the wiring in Article 725 shall be incompliance with 300.22(C) unless the exception is taken which allows for 725.61 to modify 725.3. This text is simpler and easier to understand. There have been numerous individuals who have submitted proposals to correct this section for the very same reason.

By leaving the text in its present form, one may be led to think that CL2P and CL3P cables can only be installed in "other spaces used for environmental air" when, in fact, 725.61 allows them to be installed in ducts and plenums as well. The panel statement suggests that we also need to retain plenum-signaling raceway in this secion in order that the user may know that these raceways are allowed to be installed in "other spaces used for environmental air". 725.61(A) already includes the same text that allows plenum-signaling raceways to be installed in these types of spaces. Repeating the same text serves no purpose and tends to confuse the user. By reverting back to the same code text of 1999, 760.3, 820.3, and 830.3 will also be paralleled in construction and meaning.

3-129 Log #371 NEC-P03 **Final Action: Accept in Part**
(725.3(C))

Submitter: Technical Committee on Air Conditioning

Comment on Proposal No: 3-133

Recommendation: Continue to accept this proposal in principle but change the text to:

(c) Ducts, Plenums, and Other Air-Handling Spaces. Section 300-22, where installed in ducts or plenums or other space used for environmental air.

Exception to (b): As permitted in Section 725-61(a).

Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-132.

The proposed text is from the 1999 NEC. Article 725 is the only article where this requirement is stated in positive language. Articles 760, 770, 800, 820 & 830 retained the exception. Article 725 should return to the text of the 1999 NEC in order to improve clarity and maintain editorial consistency across the articles.

Panel Meeting Action: Accept in Part

Accept the part to continue accepting the proposal in principle as written in the panel action but reject adding the exception referencing 725.61(A).

Panel Statement: The text, as modified in the panel action in Proposal 3-133, provides very clear direction to comply with the requirements in 300.22, while also indicating that CL2P, CL3P, and plenum signaling raceways can be installed in accordance with 300.22(C). Permitting plenum signaling raceways is a logical step, since similar raceways have been in 800.53(A) for communications wiring for a couple of Code cycles. Adding the text in the exception is unnecessary, since 725.3 is under general requirements and 725-61 in Part III of Article 725 can add additional information or requirements dealing specifically with Class 2 or 3 circuits.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 11 Negative: 1 Abstain: 1

Explanation of Negative:

AYER: See my explanation of negative vote on Comment 3-128.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-130 Log #895 NEC-P03 **Final Action: Accept**
(725.3(C))

Submitter: Noel Williams, Noel Williams Consulting

Comment on Proposal No: 3-133

Recommendation: This proposal should continue to be accepted in principle as modified by panel action.

Substantiation: The panel action improved upon the proposal. A more clear statement here is definitely needed. Otherwise, users of this article often mistakenly use the permissions in 725.61 and 725.71 as if they were the only applicable requirements. To make this even clearer, those sections should include FPNs to direct the user to the clarified language in 725.3(C).

Panel Meeting Action: Accept

Number Eligible to Vote: 13

Ballot Results: Affirmative: 11 Negative: 1 Abstain: 1

Explanation of Negative:

AYER: See my explanation of negative vote on Comment 3-128.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-131 Log #1473 NEC-P03 **Final Action: Accept**
(725.3(C))

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals

Comment on Proposal No: 3-133

Recommendation: Continue accepting this proposal in principle and retain the language accepted by CMP 3.

Substantiation: The action taken by CMP 3 is self explanatory and does not require going to other sections for understanding. The NFPA Manual of Style recommends removal of exceptions. The NEC is permitted to retain existing exceptions; however, the incorporation of new exceptions is a move in the wrong direction.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-132 Log #1478 NEC-P03 **Final Action: Accept**
(725.3(C))

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals
Comment on Proposal No: 3-132
Recommendation: Continue rejecting this proposal.
Substantiation: • This comment recommends continued rejection of a subdivision of "other spaces used for environmental air" and continued rejection of granting priority to NFPA 90A on choices of wiring methods.
• The input from CMP 3 and from the NEC Technical Coordinating Committee makes it clear that the terminology used in 300.22 has served the NEC well and needs no change. It has also become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods.
• It has already been shown in detail by the fire hazard and fire risk analysis presented together with my original proposals (see for example the section on pages 2080-2091 of the NEC-ROP of the substantiation for my proposal 3-130) that there is no need to change the requirements, or limit the application, for wiring methods in plenums, because the fire safety record is excellent.
• I understand that this comment represents a change in some of the concepts the submitter believed when the proposal was submitted, but "even old dogs can learn".
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-133 Log #1481 NEC-P03 **Final Action: Accept**
(725.3(C))

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals
Comment on Proposal No: 3-132
Recommendation: Continue rejecting this proposal.
Substantiation: • This comment recommends continued rejection of a subdivision of "other spaces used for environmental air" and continued rejection of granting priority to NFPA 90A on choices of wiring methods.
• The input from CMP 3 and from the NEC Technical Coordinating Committee makes it clear that the terminology used in 300.22 has served the NEC well and needs no change. It has also become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods.
• It has already been shown in detail by the fire hazard and fire risk analysis presented together with my original proposals (see for example the section on pages 2080-2091 of the NEC-ROP of the substantiation for my proposal 3-130) that there is no need to change the requirements, or limit the application, for wiring methods in plenums, because the fire safety record is excellent.
• I understand that this comment represents a change in some of the concepts the submitter believed when the proposal was submitted, but "even old dogs can learn".
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-134 Log #2885 NEC-P03 **Final Action: Accept in Part**
(725.3(C))

Submitter: Stanley Kaufman, CableSafe, Inc.
Comment on Proposal No: 3-133
Recommendation: Continue to accept this proposal in principle but change the text to:
(c) Ducts, Plenums, and Other Air-Handling Spaces. Section 300-22, where installed in ducts or plenums or other space used for environmental air.
Exception to (c): As permitted in Section 725-61(a).
Substantiation: The comment submitted by the Technical Committee on Air Conditioning on proposal 3-133 has a typo in it. The exception is to "c" not "b". This comment corrects that typo.
Panel Meeting Action: Accept in Part
See the panel action on Comment 3-129.
Panel Statement: See the panel statement on Comment 3-129.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 11 Negative: 1 Abstain: 1
Explanation of Negative:
AYER: See my explanation of negative vote on Comment 3-128.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-135 Log #3674 NEC-P03 **Final Action: Reject**
(725.3(C))

Submitter: Sanford Egesdal, Egesdal Associates PLC
Comment on Proposal No: 3-132
Recommendation: Change the text of 725.3(C) to back to the text in the 1999 edition.
(C) Ducts, Plenums, and Other Air-Handling Spaces. Section 300.22 for Class 1, Class 2, and Class 3 circuits installed in ducts, plenums, or other space used for environmental air. ~~Type CL2P or CL3P cables shall be permitted for Class 2 and Class 3 circuits.~~
Exception: As permitted in 725.61(A).
Substantiation: The comment is editorial. The 1999 text, with the Exception, is easy to understand. The last sentence of the present text has been interpreted as requiring Class 2 and Class 3 cables to be installed in raceway in accordance with 300.22, which negates the requirements of 725.61(A). Reverting back to the Exception will make the text consistent with the text in Article 760.
Panel Meeting Action: Reject
Panel Statement: See the panel statement on Comment 3-129.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Negative: 1
Explanation of Negative:
AYER: See my explanation of negative vote on Comment 3-128.

3-136 Log #253 NEC-P03 **Final Action: Accept**
(725.3(C), 760.3 (B))

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-132
Recommendation: Continue to reject our proposal.
Substantiation: Elimination of the exception in section 760.3(B) can lead to confusion in understanding the requirements of these sections. That's what happened when the exception in section 725.3(C) in the 1999 NEC was eliminated and replaced with positive language.
The panel should consider returning to the wording of section 725.3(C) in the 1999 NEC.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13
Comment on Affirmative:
AYER: This should have been an Accept in Part. The panel did continue to reject the proposal as requested by the submitter, but should have returned the wording of 725.3(C) to the text found in the 1999 version.
See my explanation of negative vote on Comment 3-128.

3-137 Log #1642 NEC-P03 **Final Action: Accept**
(725.3(C) & 760.3 (B))

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-132
Recommendation: Continue to reject.
Substantiation: We agree with the panel action and panel statement. This comment represents the official position of the International Brotherhood of Electrical Workers codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-138 Log #1788 NEC-P03 **Final Action: Reject**
(725.3(C), 760.3(B))

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-132
Recommendation: Accept this proposal in principle in part.
Continue to reject the change to 760.3(B).
Change the text of 725.3(C) to the text in the 1999 edition.
(C) Ducts, Plenums, and Other Air-Handling Spaces. Section 300.22, where ~~for Class 1, Class 2, and Class 3 circuits~~ installed in ducts, plenums, or other space used for environmental air. ~~Type CL2P or CL3P cables shall be permitted for Class 2 and Class 3 circuits.~~
Exception: As permitted in 725.61(A).
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.
The proposed change is unnecessary. This section directs the user to 300.22, or 725.61(A), 760.30(B)(1), and 760.61(A) for circuit installation requirements. Article 760.3(B), with the Exception, is easier to understand than the text of 725.3(C).
The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.
The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.
One of the major differences involved terms that would be used in Section 300.22 dealing with ducts, plenums, and other spaces used for environmental air.
The phrase "Other Space for Environmental Air" is used in Section 300.22 and various locations within the Articles covered by CMP-3 and 16. Proposals were submitted to both CMP-3 and CMP-16 to provide a subdivision of the "other space for environmental air" to include "raised floor plenums" and "ceiling cavity plenums."
In the Proposal stage, Panel 3 did not accept proposals for the subdivision of the phrase "Other Space for Environmental" with the "raised floor plenums" and "ceiling cavity plenum." Panel 16 did accept the subdivisions of this phrase throughout their articles.
By accepting the majority of the suggested changes in Proposal 3-94, "Other Spaces for Environmental Air" has been further subdivided into two separate spaces, ceiling cavity and raised floor plenums but the Panel still has maintained the electrical industry terminology associated with these spaces. Providing this further subdivision will enhance the usability of the NEC by making it easier to determine what other spaces are being referenced in this section. It will also improve correlation between the NEC and NFPA 90A.
The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.
Panel Meeting Action: Reject
Panel Statement: See the panel statement on Comment 3-129.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13
Comment on Affirmative:
AYER: This should have been Accept in Part. The panel did continue to Reject the proposal as requested by the submitter, but should have returned the wording of 725.3(C) to the text found in the 1999 version. See my explanation of negative vote on Comment 3-128.

3-139 Log #2806 NEC-P03 **Final Action: Reject**
(725.3(C) & 760.3(B))

Submitter: Paul Schmugge, Pirelli Cables & Systems North America
Comment on Proposal No: 3-133
Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace current Sections 725.3(C) & 760.3(B) as indicated below:
Notes:
1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For
725: **CL2P** and **CL3P** (as is below)
760: **FPLP**
2) Renumber Sections as appropriate.
Replace Section 725.3(C) & 760.3(B) with all of the following:
(**B or C) Ducts or Plenums Used for Environmental Air**. The requirements of 300.22(B) shall apply for electric wire and cables where installed in ducts or plenums used for environmental air.
(C or D) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Listed type **CL2P** and **CL3P** cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities.
Substantiation: Comment Discussion
The purpose of this comment and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.
Specific actions recommended include:
1. Harmonize on appropriate definitions, as well as:
Eliminating or correcting erroneous definitions
Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)
Comment Rationale
In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following reasons:
Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.
The primary objectives of this comment, and associated comments, can be summarized as the needs to:
Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
Such cables have a proven track record for safety.
Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g. those involving safety of equipment and personnel).

Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Reject

Panel Statement: See the panel action and statement on Comment 3-109.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-140 Log #2997 NEC-P03 **Final Action: Reject**
(725.3(C) & 760.3(B))

Submitter: James Walter Clark, Timberland Mechanical Services

Comment on Proposal No: 3-133

Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace Section 725.3(C) & 760.3(B) as appropriate

Note: The relevant cables types need to be inserted in the text below as appropriate for each article. For

- 725: CL2P and CL3P
- 760: FPLP

With all of:

(B) or (C) Ducts or Plenums Used for Environmental Air. The requirements of 300.22(B) shall apply for electric wire and cables where installed in ducts or plenums used for environmental air.

(C) or (D) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Listed type CL2P and CL3P cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities.

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various articles and sections with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820 and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
- Eliminating or correcting erroneous definitions
- Consolidating definitions in Article 100

2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)

3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)

4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the state for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises end users (i.e., fiber-to-the-end user). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

- Maintain the viability of listed "plenums" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety.
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).
- Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.
- Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).
- Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.
- Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However; "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Reject

Panel Statement: See the panel action and statement on Comment 3-109.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-141 Log #3330 NEC-P03 **Final Action: Reject**
(725.3(C)& 760.3(B))

Submitter: Robert Pollock, Corning Cable Systems

Comment on Proposal No: 3-133

Recommendation: With respect to cabling in ducts, plenums and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace current Sections 725.3(C) & 760.3(B) as indicated below:

Notes:

1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For
• 725: **CL2P** and **CL3P** (as is below)
• 760: **FPLP**
2) Renumber Sections as appropriate.
Replace Section 725.3(C) & 760.3(B) with all of the following:
(B or C) Ducts or Plenums Used for Environmental Air. The requirements of 300.22(B) shall apply for electric wire and cables where installed in ducts or plenums used for environmental air.
(C or D) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installation for electric wire and cables where they are installed in other spaces used for environmental air. Listed type **CL2P** and **CL3P** cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities.
Substantiation: Comment Discussion
The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air", such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.
Specific actions recommended include:
1. Harmonize on appropriate definitions, as well as:
• Eliminating or correcting erroneous definitions
• Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)
Comment Rationale
In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:
- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data.)
- Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.
The primary objectives of this comment, and associated comments, can be summarized as the needs to:
• Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).
• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums
• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).
• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.
• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-142 Log #3337 NEC-P03 **Final Action: Reject**
(725.3(C) & 760.3(B))

Submitter: Grant P. Watkins, Confluent Photonics Corporation
Comment on Proposal No: 3-133
Recommendation: With respect to cabling in ducts, plenums and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace current Sections 725.3(C) & 760.3(B) as indicated below:
Notes:
1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For
• 725: **CL2P** and **CL3P** (as is below)
• 760: **FPLP**
2) Renumber Sections as appropriate.
Replace Section 725.3(C) & 760.3(B) with all of the following:
(B or C) Ducts or Plenums Used for Environmental Air. The requirements of 300.22(B) shall apply for electric wire and cables where installed in ducts or plenums used for environmental air.
(C or D) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installation for electric wire and cables where they are installed in other spaces used for environmental air. Listed type **CL2P** and **CL3P** cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities.
Substantiation: Comment Discussion
The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air", such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.
Specific actions recommended include:
1. Harmonize on appropriate definitions, as well as:
• Eliminating or correcting erroneous definitions
• Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)
Comment Rationale
In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:
- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole

(i.e., not supported by meaningful and relevant technical data.)
- Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-143 Log #3350 NEC-P03 **Final Action: Reject**
(725.3(C)& 760.3(B))

Submitter: Jean Baer, Supeiror Essex
Comment on Proposal No: 3-133
Recommendation: With respect to cabling in ducts, plenums and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace current Sections 725.3(C) & 760.3(B) as indicated below:
Notes:
1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For
• 725: **CL2P** and **CL3P** (as is below)
• 760: **FPLP**
2) Renumber Sections as appropriate.
Replace Section 725.3(C) & 760.3(B) with all of the following:
(B or C) Ducts or Plenums Used for Environmental Air. The requirements of 300.22(B) shall apply for electric wire and cables where installed in ducts or plenums used for environmental air.
(C or D) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installation for electric wire and cables where they are installed in other spaces used for environmental air. Listed type **CL2P** and **CL3P** cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities.
Substantiation: Comment Discussion
The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air", such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.
Specific actions recommended include:
1. Harmonize on appropriate definitions, as well as:
• Eliminating or correcting erroneous definitions
• Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)
Comment Rationale
In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:
- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data.)
- Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Reject

Panel Statement: See the panel action and statement on Comment 3-109.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-144 Log #3611 NEC-P03 **Final Action: Reject**
(725.3(C)760.3(B))

Submitter: Larry Best, Mills Communications

Comment on Proposal No: 3-133

Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace current Sections 725.3(C) & 760.3(B) as indicated below:

Notes:

1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For

725: **CL2P** and **CL3P** (as is below)

760: **FPLP**

2) Renumber Sections as appropriate.

Replace Section 725.3(C) & 760.3(B) with all of the following:

(**B or C) Ducts or Plenums Used for Environmental Air**. The requirements of 300.22(B) shall apply for electric wire and cables where installed in ducts or plenums used for environmental air.

(C or D) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Listed type **CL2P** and **CL3P** cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities.

Substantiation: Comment Discussion

The purpose of this comment and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
   Eliminating or correcting erroneous definitions
   Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following reasons:

Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).

Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.

Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.

Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

Such cables have a proven track record for safety.

Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.

The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g. those involving safety of equipment and personnel).

Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Reject

Panel Statement: See the panel action and statement on Comment 3-109.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-145 Log #3839 NEC-P03 **Final Action: Accept**
(725.3(C), 760.3(B))

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association

Comment on Proposal No: 3-132

Recommendation: *Continue rejecting this proposal.*

Substantiation: This proposal would limit the application of plenum rated cable. It does so without presenting any data to justify this change based on fire hazard or fire risk of wiring in plenums.

It has already been shown in detail by the fire hazard and fire risk analysis presented together with my original proposals (see for example the section on pages 2080-2091 of the NEC-ROP of the substantiation for my proposal 3-130) that there is no need to change the requirements, or limit the application, for wiring methods in plenums, because the fire safety record is excellent.

This comment is one of a series of comments on Articles 300, 725, 760, 770, 800, 820 and 830, regarding "plenum cables". The philosophy behind all the comments is that the NEC is OK as published in 2002, but that 2 minor changes might represent improvements: (i) the clarification of the 6 inch extension of a wiring method into a more restricted environment and (ii) the clarification

in the Fine Print Notes that a cable listed to NFPA 262 is listed both based on its "low-smoke" characteristics and its "low-flame-spread" characteristics, and that the two are not listed separately.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-146 Log #3887 NEC-P03 **Final Action: Reject**
(725.3(C), 760.3(B))

Submitter: John A. Jay, Corning
Comment on Proposal No: 3-133
Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace Sections 725.3(C) & 760.3(B) as appropriate:
Notes:
The relevant cables types need to be inserted in the text below as appropriate for each Article. For
725: **CL2P** and **CL3P** (as is below)
760: FPLP
Replace Section 725.3(C) & 760.3(B) with all of the following:
(B or C) Ducts or Plenums Used for Environmental Air. The requirements of 300.22(B) shall apply for electric wire and cables where installed in ducts or plenums used for environmental air.
(C or D) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Listed type **CL2P** and **CL3P** cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities.
Substantiation: Comment Discussion
The purpose of this comment and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.
Specific actions recommended include:
1. Harmonize on appropriate definitions, as well as:
Eliminating or correcting erroneous definitions
Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)
Comment Rationale
In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following reasons:
Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.
The primary objectives of this comment, and associated comments, can be summarized as the needs to:
Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
Such cables have a proven track record for safety.
Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g. those involving safety of equipment and personnel).
Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.
Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).
Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.
Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-147 Log #2973 NEC-P03 **Final Action: Reject**
(725.3(C) and 760-3(B))

Submitter: Sean Foley, AFL Telecommunications
Comment on Proposal No: 3-133
Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace current Sections 725.3(C) & 760.3(B) as indicated below:
Notes:
1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For
725: **CL2P** and **CL3P** (as is below)
760: **FPLP**
2) Renumber Sections as appropriate.
Replace Section 725.3(C) & 760.3(B) with all of the following:
(B or C) Ducts or Plenums Used for Environmental Air. The requirements of 300.22(B) shall apply for electric wire and cables where installed in ducts or plenums used for environmental air.
(C or D) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Listed type **CL2P** and **CL3P** cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities.
Substantiation: Comment Discussion
The purpose of this comment and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain require-

ments that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.
Specific actions recommended include:
1. Harmonize on appropriate definitions, as well as:
   Eliminating or correcting erroneous definitions
   Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following reasons:

Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:
Maintain the viability of listed “plenum” (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

Such cables have a proven track record for safety.

Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.

The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g. those involving safety of equipment and personnel).

Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building exterior. However, “duct cable” can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning “duct cable” in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-148 Log #3554 NEC-P03 **Final Action: Reject**
(725.3(C) and 760-3(B))

Submitter: Michael J. McLear, Madison Cable Corporation
Comment on Proposal No: 3-133
Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace current Sections 725.3(C) & 760.3(B) as indicated below:
Notes:
1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For
   725: **CL2P** and **CL3P** (as is below)
   760: **FPLP**
2) Renumber Sections as appropriate.

Replace Section 725.3(C) & 760.3(B) with all of the following:

(B or C) Ducts or Plenums Used for Environmental Air. The requirements of 300.22(B) shall apply for electric wire and cables where installed in ducts or plenums used for environmental air.

(C or D) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Listed type **CL2P** and **CL3P** cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities.

Substantiation: Comment Discussion

The purpose of this comment and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in “other places used for environmental air,” such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.
Specific actions recommended include:
1. Harmonize on appropriate definitions, as well as:
   Eliminating or correcting erroneous definitions
   Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following reasons:

Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:
Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

Such cables have a proven track record for safety.

Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.

The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g. those involving safety of equipment and personnel).

Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-149 Log #2185 NEC-P03 **Final Action: Reject**
(725.3(C) and 760-3(B) (as appropriate))

Submitter: Ken Chauvin, Corning Cable Systems
Comment on Proposal No: 1-133
Recommendation: With respect to cabling in ducts, plenums and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace current Sections 725.3(C) & 760.3(B) as indicated below:
Notes:
1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For
• 725: **CL2P** and **CL3P** (as is below)
• 760: **FPLP**
2) Renumber Sections as appropriate.
Replace Section 725.3(C) & 760.3(B) with all of the following:
(B or C) Ducts or Plenums Used for Environmental Air. The requirements of 300.22(B) shall apply for electric wire and cables where installed in ducts or plenums used for environmental air.
(C or D) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installation for electric wire and cables where they are installed in other spaces used for environmental air. Listed type **CL2P** and **CL3P** cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities.
Substantiation: Comment Discussion
The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air", such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
• Eliminating or correcting erroneous definitions
• Consolidating definitions in Article 100.

2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)

3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)

4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data.)
- Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-150 Log #3041 NEC-P03 **Final Action: Reject**
(725.3(C) and 760.3(B))

Submitter: William Tenkate, EIS Wire & Cable Co.
Comment on Proposal No: 3-133
Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace current Sections 725.3(C) & 760.3(B) as indicated below:
Notes:
1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For
725: **CL2P** and **CL3P** (as is below)
760: **FPLP**
2) Renumber Sections as appropriate.
Replace Section 725.3(C) & 760.3(B) with all of the following:
(**B or C) Ducts or Plenums Used for Environmental Air**. The requirements of 300.22(B) shall apply for electric wire and cables where installed in ducts or plenums used for environmental air.
(C or D) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Listed type **CL2P** and **CL3P** cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities.
Substantiation: Comment Discussion
The purpose of this comment and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.
Specific actions recommended include:
1. Harmonize on appropriate definitions, as well as:
Eliminating or correcting erroneous definitions
Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)
Comment Rationale
In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following reasons:
Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.
The primary objectives of this comment, and associated comments, can be summarized as the needs to:
Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
Such cables have a proven track record for safety.
Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g. those involving safety of equipment and personnel).
Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.
Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).
Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.
Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-151 Log #3317 NEC-P03 **Final Action: Reject**
(725.3(C) and 760.3(B))

Submitter: Donald G. Ouellette, Teknor Apex Co.
Comment on Proposal No: 3-133
Recommendation: With respect to cabling in ducts, plenums and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace current Sections 725.3(C) & 760.3(B) as indicated below:
Notes:
1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For
• 725: **CL2P** and **CL3P** (as is below)
• 760: **FPLP**
2) Renumber Sections as appropriate.
Replace Section 725.3(C) & 760.3(B) with all of the following:
(B or C) Ducts or Plenums Used for Environmental Air. The requirements of 300.22(B) shall apply for electric wire and cables where installed in ducts or plenums used for environmental air.
(C or D) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Listed type **CL2P** and **CL3P** cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities.
Substantiation: In the mid 1970's the NFPA 255 test, (referred to at that time as the ASTM E-84), was deemed inappropriate for wire and cables because there was no provision for mounting cables in this test designed for building materials. The NFPA 255 test then known as ASTM E-84, Steiner Tunnel Test was modified to accommodate testing wires and cables and as a result a steel ladder suspended in the approximate center of the fire rig to simulate a horizontal cable tray. The modified ASTM E-84 was then named UL-190,

Steiner Tunnel Fire Test. In addition to cable mounting differences there also remains another very important difference in comparing the NFPA 255 to the UL-910 (now known as NFPA 262). This very important difference is the test time duration. The proposed NFPA 255 has a test duration time of 10 minutes. The test time duration of the UL-910 (NFPA 262 test) is 20 minutes. This is important because fluoropolymer insulating and jacketing materials do not begin to burn until temperatures reach > 1100°F. Furthermore, Underwriters Laboratories has since issued a new UL standard, UL 2424, and is now accepting applications to list Limited Combustible, CMD Cables. The UL 2424 standard has omitted NFPA 262, a 20-minute duration test, in favor of NFPA 255, a 10-minute duration test.

The effects of favoring NFPA 255 (10 minute test) versus NFPA 262 (20 minute test) have not been studied across all plenum cable designs. If the NFPA 255 test protocol is to be the test method for wires and cables then consideration must be given to extend the test time of NFPA 255 for wires and cables to 20 minutes.

In 1998 the Fire Protection Research Foundation, FPRF, conducted a study called "International Limited Combustible Plenum Cable Fire Test Project". Teknor Apex Company participated in this research project. The final report to this project was printed in March 2001. The cable samples consisted of only 4 UTP, unshielded twisted pairs made from various insulating and jacketing materials. The decision to use NFPA 255 and NFPA 259 building materials test methods was not a consensus decision. The facts are that NFPA 255 and NFPA 259 are clearly described as: NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials - NFPA 259, Standard Method for Potential Heat of Building Materials. Despite objections from a minority of sponsors the project moved forward utilizing these test methods previously deemed inappropriate during a time period when 4 pair UTP consisting of cables made of all fluoropolymer materials already existed.

Panel Meeting Action: Reject

Panel Statement: See the panel action and statement on Comment 3-109.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-152 Log #3380 NEC-P03 **Final Action: Reject**

(725.3(C) and 760.3(B))

Submitter: Matt Brown, US Conec

Comment on Proposal No: 3-133

Recommendation: With respect to cabling in ducts, plenums and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace current Sections 725.3(C) & 760.3(B) as indicated below:

Notes:

1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For

- 725: **CL2P** and **CL3P** (as is below)
- 760: **FPLP**

2) Renumber Sections as appropriate.

Replace Section 725.3(C) & 760.3(B) with all of the following:

(B or C) Ducts or Plenums Used for Environmental Air. The requirements of 300.22(B) shall apply for electric wire and cables where installed in ducts or plenums used for environmental air.

(C or D) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installation for electric wire and cables where they are installed in other spaces used for environmental air. Listed type **CL2P** and **CL3P** cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities.

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air", such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
- Eliminating or correcting erroneous definitions
- Consolidating definitions in Article 100.

2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)

3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)

4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data.)
- Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Reject

Panel Statement: See the panel action and statement on Comment 3-109.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-153 Log #3559 NEC-P03 **Final Action: Reject**
(725.3(C) and 760.3(B))

Submitter: Doug Coleman, Corning Cable Systems
Comment on Proposal No: 3-133
Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace current Sections 725.3(C) & 760.3(B) as indicated below:
Notes:
1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For
725: **CL2P** and **CL3P** (as is below)
760: **FPLP**
2) Renumber Sections as appropriate.
Replace Section 725.3(C) & 760.3(B) with all of the following:
(**B or C) Ducts or Plenums Used for Environmental Air**. The requirements of 300.22(B) shall apply for electric wire and cables where installed in ducts or plenums used for environmental air.
(C or D) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Listed type **CL2P** and **CL3P** cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities.
Substantiation: Comment Discussion
The purpose of this comment and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.
Specific actions recommended include:
1. Harmonize on appropriate definitions, as well as:
Eliminating or correcting erroneous definitions
Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)
Comment Rationale
In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following reasons:
Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.
The primary objectives of this comment, and associated comments, can be summarized as the needs to:
Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
Such cables have a proven track record for safety.
Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g. those involving safety of equipment and personnel).
Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.
Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).
Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.
Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-154 Log #3596 NEC-P03 **Final Action: Reject**
(725.3(C) and 760.3(B))

Submitter: Alfred D. Messineo, Calm Technologies Inc.
Comment on Proposal No: 3-133
Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace Section 725.3(C) and 760.3(B) as appropriate:
Note: The relevant cables types need to be inserted in the text below as appropriate for each Article. For
• 725: CL2P and CL3P
• 760: FPLP
With all of:
(B or C) Ducts or Plenums Used for Environmental Air. The requirements of 300.22(B) shall apply for electric wire and cables where installed in ducts or plenums used for environmental air.
(C or D) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Listed type CL2P and CL3P cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities.
Substantiation: Comment Discussion
The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document. Specific actions recommended include:
1. Harmonize on appropriate definitions, as well as:
• Eliminating or correcting erroneous definitions
• Consolidating definitions in Article 100.

2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles (###.3)

3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)

4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

It is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications section by the following means.

– Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).

– Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.

– Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.

– Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain the visibility of listed “plenum” (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

– Such cables have a proven track record for safety

– Listed plenum cables currently installed within buildings have not been sown to raise the risk factor to building occupants.

– The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical area (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business. educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building’s exterior. However, “duct cable” can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning “duct cable” in the air duct, such emissions would continue to building up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Reject

Panel Statement: See the panel action and statement on Comment 3-109.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-155 Log #3613 NEC-P03 **Final Action: Reject**

(725.3(C) and 760.3(B))

Submitter: Charles D. Marion, II, Marion Fiber Splice Inc.

Comment on Proposal No: 3-133

Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace Section 725.3(C) and 760.3(B) as appropriate:

Note: The relevant cables types need to be inserted in place of OFNP/OFCP and OFND/OFCD as appropriate for each Article.

• 725: **CL2P/CL3P** and **CL2D/CL3D**

• 760: **FPLP** and **FPLD**

With:

(B) Ducts or Plenums Used for Environmental Air. The requirements of 300.22(B) for electric wiring shall also apply to installations of optical fiber cables and raceways where they are installed in ducts or plenums used for environmental air. Type CL2D and CL3D cables shall be permitted when associated with the operation of the duct or plenum to include the sensing, monitoring, handling, or control of environmental air with the duct or plenum, as well as supporting the associated equipment such as fire alarm and suppression.

• Placing cables in ducts and true plenums should be avoided where alternate pathways exist such as ceiling cavity and raised floor spaces, even when such cables are associated with the sensing, monitoring or control of the air distribution system and associated components.

• Communications cables not specifically associated the operation of the air distribution systems shall not be placed in ducts or plenums, regardless of flame and smoke performance.

(C) Other Spaces Used for Environmental Air. The requirements of 300.22(C) for electric wiring shall also apply to installations of optical fiber cables and raceways where they are installed in other space used for environmental air, such as ceiling cavities and raised floor cavities. Type CL2P and CL3P cables and plenum optical fiber raceways shall be permitted.

Substantiation: In regards to structured cabling supporting intrabuilding telecommunications systems, it is imperative to avoid changes that directly or indirectly effect, or which otherwise set the stage for, the development of unnecessary and extraneous requirements that severely and negatively affect, and or unnecessarily limit, viable solutions to real-world requirements. To do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

– Significantly complicate intrabuilding structured cabling requirements with no substantive, definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).

– Critically limit the availably product sets compliant to the revised requirements or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.

– Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser), resulting in significant delays in realizing improvements to endusers’ Quality-of-Life and access to on-demand services.

– Limit the flexibility and upgrade potential of newer structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as:

• Maintain the viability of listed “plenum” (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

– Such cables have a proven track record for safety

– The report on an investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Reiterate that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums unless specifically associated with the operation of the duct or plenum, to include the sensing, monitoring, handling, or control of environmental air within the duct or plenum, or with the associated systems such as fire alarm and suppression.

• Encourage the NFPA to recognize that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications supporting sprawling business complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• No significant consideration has apparently been given to what alternative viable structured cabling solutions may exist or can be developed, if any

Comment Discussion

The purpose of this comment, and associated comments, is improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding, wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document (see link below).

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:

• Eliminating or correcting erroneous definitions

• Consolidating definitions in Article 100.

2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)

3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)

– Plenums and air ducts, vs.

– Other spaces used for environmental air

– ceiling cavities and raised floor cavities

4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

– Plenums and ducts, vs.

– Other spaces used for environmental air

– ceiling cavities and raised floor cavities

5. Allow substitution hierarchy to be employed as appropriate, by avoiding redundant requirements in the sections addressed above.

– The use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they would be needed, when such products exist. This flexibility is allowed per the NEC substitution hierarchy.

Panel Meeting Action: Reject

Panel Statement: See the panel action and statement on Comment 3-109.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-501a Log #3140 NEC-P03 **Final Action: Accept**
(725.5)

Submitter: Michael I. Callanan, IBEW

Comment on Proposal No: 3-135

Recommendation: Continue to reject.

Substantiation: We agree with both the panel action and the panel statement to reject proposal 3-135. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.

Panel Meeting Action: Accept

Number Eligible to Vote: 13

Ballot Results: Affirmative: 13

3-156 Log #1806 NEC-P03 **Final Action: Reject**
(725.6)

Submitter: Thomas P. Hammerberg, Automatic Fire Alarm Association

Comment on Proposal No: 3-137

Recommendation: Accept in principle by adding "and 300.11" after "300.4(D)" in the last sentence of 725.6.

Substantiation: The proposal provides clarity. The additional reference to 300.11 makes the text read similar to the articles under the jurisdiction of Panel 16.

Panel Meeting Action: Reject

Panel Statement: The submitter did not provide any technical substantiation to add Section 300.11 to the requirements for Class 1, 2, and 3 systems, other than Panel 16 added it for telecommunications. Even some of the Panel 16 members did not agree with adding 300.11 as a requirement to Sections 800.6, 820.6, and 830.7. There was no technical substantiation given in the Panel 16 proposals for adding Section 300.11. To affect a change in the NEC, a technical reason for the change must be given with information detailing the safety aspect that is enhanced by this change.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Negative: 1

Explanation of Negative:

CASPARRO: This comment should have been accepted.

See my explanation of negative vote on Comment 3-157.

3-157 Log #3128 NEC-P03 **Final Action: Reject**
(725.6)

Submitter: Michael I. Callanan, IBEW

Comment on Proposal No: 3-137

Recommendation: This proposal should have been accepted in principle and revised as follows:

725.6 Mechanical Execution of Work. Class 1, Class 2, and Class 3 circuits shall be installed in a neat and workmanlike manner. Cables and conductors installed exposed on the surface of ceilings and sidewalls shall be supported by the building structure in such a manner that the cable will not be damaged to normal building use. Such cables shall be supported by straps, staples, hangers, or similar fittings designed and installed so as not to damage the cable. The installation shall conform with 300.4(D) and 300.11.

FPN: Accepted industry practices are described in ANSI/NECA/BICSI 568-2001, Standard for Installing Commercial Building Telecommunications Cabling, and other ANSI-approved installation standards.

Substantiation: The above revised language will meet the intent of the submitter to show consistency with the language of 770.8, 800.6, 820.6 and 830.6.

Panel Meeting Action: Reject

Panel Statement: See the panel action and statement on Comment 3-156.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Negative: 1

Explanation of Negative:

CASPARRO: This comment should have been accepted.

This comment shows consistency with the language of 770.8; 800.6; 820.6 and 830.6.

3-158 Log #3676 NEC-P03 **Final Action: Accept**
(725.6 and 760-6)

Submitter: Sanford Egesdal, Egesdal Associates PLC

Comment on Proposal No: 3-138

Recommendation: Continue to reject.

Substantiation: I agree with the Panel Statement. Additionally, the submitter did not provide each Panel member with a copy of the document referenced in the proposed Exception.

Panel Meeting Action: Accept

Number Eligible to Vote: 13

Ballot Results: Affirmative: 13

3-159 Log #1189 NEC-P03 **Final Action: Accept in Part**
(725.6 (new 725-8))

Submitter: James E. Brunssen, Telcordia Technologies, Inc.

Comment on Proposal No: 3-137

Recommendation: Revise text to read as follows:

CMP 3 should reconsider their Action and accept Proposal 3-137 for correlation with the Panel Action of CMP 12 and CMP 16 on similar proposals. The proposed revised text contained in Proposal 3-137 continues to be appropriate and should be accepted. However, the reference to 300.11 should not be included. CMP 16 did not provide substantiation for the addition of the reference to 300.11, and as the submitter of the original proposal, the addition of the reference to 300.11 does not meet my intent.

Substantiation: Proposal 3-137 is a companion proposal and intended to correlate with similar proposals for 640.6, 760.6, 770.8, 800.6, 820.6, 830.7. CMP 12 accepted the proposal for 640.6; CMP 16 accepted the proposal in principle for 770.8, 800.6, 820.6, and 830.7. Rejection of this proposal will result in a lack of correlation across the affected articles and sections of the NEC.

Panel Meeting Action: Accept in Part

Accept the part to reject adding "300.11" to the text and reject the remainder of the comment.

Panel Statement: The Panel accepted the part of the comment rejecting the addition of 300.11 to 725.6. See the Panel Statement on this in Comment 3-156.

The submitter of the comment has not provided any additional information to the Panel to address why baseboards and walls are not considered to be structural components of the building. Obviously, an extremely large and heavy cable must be securely attached to the building or structure such that the cables or conductors will not be damaged by normal building use and will be attached securely enough to maintain support of the cables or conductors. However, cable attached to the exterior of drywall can be attached with straps, staples, hangers, and similar fittings that have support screws that go through the drywall and into the wood or metal studs beneath the drywall.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-160 Log #1424 NEC-P03 **Final Action: Reject**
(725.8)

Submitter: Technical Correlating Committee on Signaling Systems for the Protection of Life and Property
Comment on Proposal No: 3-137
Recommendation: Accept this proposal in principle. Revise 725.8 to read as follows:
Mechanical Execution of Work. Cables shall be installed in a neat and workmanlike manner. Cables installed exposed on the surface of ceilings and sidewalls shall be supported by the building structure in such a manner that the cable will not be damaged by normal building use. Such cables shall be secured by straps, staples, hangers, or similar fittings designed and installed so as not to damage the cable. The installation shall also conform with 300.4 (D) and 300.11.
Substantiation: Accepting this comment will make the mandatory text of section 725.8 identical to sections 770.8, 800.8, 820.8 & 830.8. All of these section deal with communications/data/signaling wiring. See panel 16 actions of proposals 16-20, 16-81, 16-160 & 16-216.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-156.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-161 Log #2167 NEC-P03 **Final Action: Reject**
(725.8)

Submitter: Robert W. Jensen, dbi-Telecommunications
Comment on Proposal No: 3-137
Recommendation: Accept this proposal in principle.
Revise 725.8 to read as follows:
Mechanical Execution of Work. Cables shall be installed in a neat and workmanlike manner. Cables installed exposed on the surface of ceilings and sidewalls shall be support ed by the building structure in such a manner that the cable will not be damaged by normal building use. Such cables shall be secured by straps, staples, hangers, or similar fittings designed and installed so as not to damage the cable. The installation shall also conform with 300.4 (D).
FPN: Accepted industry practices are described in ANSI/NECA/BICSI 568-2001, Standard for Installing Commercial Building Telecommunications Cabling, and other ANSI-approved installation standards.
Substantiation: The current code text is not clear. The panel 3 statement that the Authority Having Jurisdiction can determine whether the cables are sufficiently supported assumes that the installation will be inspected. Unlike power installations, inspection is not common for installations of class 2 wiring. It is better to have clearly stated code requirements than to rely on an inspector to determine the code intent.
Panel Meeting Action: Reject
Panel Statement: The Panel reaffirms its position that the Fine Print Note in the Comment does not address Class 1, 2, or 3 systems but instead is meant to apply to telecommunications, not to power limited, remote control, and signaling systems, as covered by Article 725.
The panel did not have the ANSI/NECA/BICSI 568-2001 document for review and consideration.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-162 Log #3002 NEC-P03 **Final Action: Reject**
(725.8)

Submitter: Ray R. Keden, BICSI
Comment on Proposal No: 3-137
Recommendation: Accept this proposal in principle. Revise 725.8 to read as follows:
Mechanical Exedution of Work. Cables shall be installed in a neat and workmanlike manner. Cables installed exposed on the surface of ceilings and sidewalls shall be supported by the building structre in such a manner that the cable will not be damaged by normal building use. Such cables shall be secured by straps, staples, hangers, or similar fittings designed and installed so as not to damage the cable. The installation shall also conform to 300.4(D).
FPN: Accepted industry practices are described in NASI/NECA/BICSI 568-2001, Standard for Installing Commercial Building Telecommunications Cabling, and other ANSI-approved installation standards.
Substantiation: The current code text is not clear. The panel 3 statement that the AHJ can determine whether the cables are sufficiently supported assumes that the installation will be inspected. Unlike power installations, inspection is not common for installations of class 2 wiring. It is better to have clearly stated code requirements than to rely on an inspector is determine the code intent.
Panel Meeting Action: Reject
Panel Statement: The Panel reaffirms its position that the Fine Print Note in the Comment does not address Class 1, 2, or 3 systems but instead is meant to apply to telecommunications, not to power limited, remote control, and signaling systems, as covered by Article 725. The submitter also did not supply any information in his substantiation concerning the safety issue involving a Class 2 wiring method without proper support. A Class 2 system is not supposed to be a fire or shock hazard due either to the use of limited voltage or limited amperage, or a combination of both.
The panel did not have the ANSI/NECA/BICSI 568-2001 document for review and consideration.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-163 Log #896 NEC-P03 **Final Action: Accept**
(725.9)

Submitter: Noel Williams, Noel Williams Consulting
Comment on Proposal No: 3-140
Recommendation: This proposal should continue to be accepted in principle as modified by panel action.
Substantiation: The panel action improved upon the proposal and the panel correctly pointed out that a general requirement for grounding would be inappropriate. The existing language adds nothing to the requirements. The existing language does not hinder understanding either, but should be consistent with the style manual.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-164 Log #2369 NEC-P03 **Final Action: Reject**
(725.21(A)(1))

Submitter: James M. Daly, General Cable
Comment on Proposal No: 3-142
Recommendation: The Proposal should have been Accepted in Principle.
Substantiation: The Panel Action on Proposal 3-141a satisfies the intent of the submitter.
Panel Meeting Action: Reject
Panel Statement: The panel action to this proposal could not have been an "accept in principle," since the proposal was to delete 725.21(A)(1). The panel action to Proposal 3-141a accepted a change in this section. A change cannot be accepted by one proposal with another proposal deleting the section altogether.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-165 Log #207 NEC-P03 **Final Action: Reject**
(725.26 and 725-26 (B)(4))

Submitter: David Wechsler, The Dow Chemical Company
Comment on Proposal No: 3-151
Recommendation: Delete 725.26(B)(4) entirely, and revise 725.26 header title by deleting "Cable tray" as follows:
725.26 Conductors of Different Circuits in the Same Cable, ~~Cable Tray,~~ Enclosure, or Raceway.

Substantiation: It is my understanding that action on 725.26(B) was the result of the NFPA NEC push for more appropriate NEC style language, which included an objective of making "exceptions" positive language where possible. The basis for the Committee Action seems to be found in Proposal 16-51a, a Committee proposal, and 16-54. As most of you know I am a member of several NFPA Committees, and I have first hand experience with this NFPA style "push". I was also a member of CMP-16 for several cycles, and during some of this time I was the chairman of a subteam appointed by then Chairman, Dean Wilson, charged with re-writing many of the Panel 16 articles, including Article 725. Some members of this subteam included Dr. Stan Kaufmann, Mr. Irv Mande, Mr. Sandy Egesdal, and Mr. Mel Anna. It is my hope that this experience may aid the Committee in further consideration of this comment, which asks that 725.26(B)(4) be deleted.

I think that from just a style perspective, the actions except for the creation of 725.26(B)(4) are a logical progression from the 1999 NEC 725-26(b) section to the 2002 NEC 725.26(B) section and may be summarized as shown in the following table:

725-26(b) [1999 NEC]	725.26(B) [2002 NEC]
(b) Class 1 Circuits with Power Supply Circuits	(B) Class 1 Circuits with Power Supply Circuits
	Class 1 circuits shall be permitted to be installed with power supply conductors as specified in 725.26(B)(1) through (B)(4).
Class 1 circuits and power supply circuits shall be permitted to occupy the same cable, enclosure, or raceway only where the equipment powered is functionally associated.	(1) In a Cable, Enclosure, or Raceway. Class 1 circuits and power supply circuits shall be permitted to occupy the same cable, enclosure, or raceway only where the equipment powered is functionally associated.
Exception No. 1: Where installed in factory- or field-assembled control centers.	(2) In Factory- or Field-Assembled Control Centers. Class 1 circuits and power supply circuits shall be permitted to be installed in factory- or field-assembled control centers.
Exception No. 2: Underground conductors in a manhole where one of the following conditions is met.	(3) In a Manhole. Class 1 circuits and power supply circuits shall be permitted to be installed as underground conductors in a manhole in accordance with one of the following:
a. The power-supply or Class 1 circuit conductors are in a metal-enclosed cable or Type UF cable.	(1) The power-supply or Class 1 circuit conductors are in a metal-enclosed cable or Type UF cable.
b. The conductors are permanently separated from the power-supply conductors by a continuous firmly fixed nonconductor, such as flexible tubing, in addition to the insulation on the wire.	(2) The conductors are permanently separated from the power-supply conductors by a continuous firmly fixed nonconductor, such as flexible tubing, in addition to the insulation on the wire.
c. The conductors are permanently and effectively separated from the power supply conductors and securely fastened to racks, insulators, or other approved supports	(3) The conductors are permanently and effectively separated from the power supply conductors and securely fastened to racks, insulators, or other approved supports.
	(4) In cable trays, where the Class 1 circuit conductors and power-supply conductors not functionally associated with them are separated by a solid fixed barrier of a material compatible with the cable tray, or where the power-supply or Class 1 circuit conductors are in a metal-enclosed cable.

As can be seen, the 2002 NEC item 4 does not correlate with any aspect of the 1999 Section 725-26 section. So what it the basis for its inclusion? In part I think that the answer lies within actions taken during consideration of Proposal 16-54 with the analogy that if this separation requirement is needed for a raceway, (see 725.26(B)(1)), then it must be true for cable tray. The NEC defines a cable tray as a mechanical support system, and this is NOT a raceway. In fact cable tray has its own article, Article 392 and the "rules" for cable tray are defined within this general application chapter of the NEC, as opposed to the "special" or "differences" that are addressed within Chapter 7 Articles, like 725. Section 392.3(A) defines the permitted wiring methods for use on cable tray. For purposes of space, I will not repeat this table, but I do call attention to two entries within the table. The first is titled "Power and Control Cable" and its reference to Article 336. The second is to "Power-limited tray cable" and its reference to Section and NOT Article. 725.61(C) and 725.71(F). In passing, this discussion does not need to consider the reference to these sections, as Type PLTC is a Class III and not a Class I circuit and we are only interested in Class I circuits.

Again, Article 366 is one of the general provisions found within Chapters 1 thru 4 of the NEC. Article 336 defines Power and Control Tray Cable, Type TC as follows: "Power and Control Tray Cable, Type TC. A factory assembly of two or more insulated conductors, with or without associated bare or covered grounding conductors, under a nonmetallic jacket, for installation in cable trays, in raceways, or where supported by a messenger wire." This article also provides for the very specific uses permitted for this cable, in Section 336.10 as follows: "336.10 Uses Permitted.

Type TC tray cable shall be permitted to be used in the following:

(1) For power, lighting, control, and signal circuits.

(2) In cable trays, or in raceways, or where supported in outdoor locations by a messenger wire.

(3) In cables trays in hazardous (classified) locations as permitted in Articles 392, 501, 502, 504, and 505 in industrial establishments where the conditions of maintenance and supervision ensure that only qualified persons service the installations.

(4) For Class I circuits as permitted in Article 725.

(5) For non-power-limited fire alarm circuits if conductors comply with the requirements of 760.27.

(6) In industrial establishments where the conditions of maintenance and supervision ensure that only qualified persons service the installation, and where the cable is continuously supported and protected against physical damage using mechanical protection, such as struts, angles, or channel, Type TC tray cable that complies with the crush and impact requirements of Type MC cable and is identified for such use shall be permitted between a cable tray and the utilization equipment or device. The cable shall be secured at intervals not exceeding 1.8 M (6 ft). Equipment grounding for the utilization equipment shall be provided by an equipment grounding conductor within the cable.

(7) Where installed in wet locations, Type TC cable shall also be resistant to moisture and corrosive agents.

Of particular interest to this discussion should be the facts that this Type TC cable is permitted to be used for power and lighting and control and signal circuits, all under (1). It does not state, just power, just control, or just signaling circuits. This is a permitted mixed application of circuits. Under (2) this cable is permitted to be used in cable tray. Subsection (4) permits this cable to be used for Class I circuits as permitted in Article 725. Where is the permission within Article 725 found? It is provided under Section 725.3(E) which states: "Cable Trays. Article 392, where installed in cable trays." And in Section 725.28(C) which states: "(C) Class 1 Circuit Conductors in Cable Trays. Where Class 1 circuit conductors are installed in cable trays, they shall comply with the provisions of 392.9 through 392.11." Which provisions? Not the provisions stated in Parts I or II of Article 725, but those in Article 392. In fact, these additional references, (392.9 thru 392.11) which deal with mixing of multiconductor cables in the tray, clearly re-enforce that the general rules of Chapter 3 are to be followed.

At the time of the Article 725 re-writes in the 1996 code Cycle, it was well understood, that cable tray was a Chapter 3 mechanical support system; that the wiring method using Type TC was also a Chapter 3 topic that permitted the mixing of power, lightning, control and signaling within that cable, and that Article 725 permitted its use by the permission stated in the sections mentioned above. Again, with the ordered structure of the NEC being general applicable sections contained in Chapters 1 thru 4 and special conditions addressed as exceptions within Chapter 7, the appropriate order was determined to exist for this issue. It was not an oversight that Type TC and cable tray was not included under 725.26. There was nothing broke here that needed fixing. Again, it was never the intent to bring the aspect of cable tray and type TC into the specific "exception" rules of the 725.26(B) section as the prior Committee action now reflects.

The actions in the Comment 4 section above will remove this non-justified paragraph, as well as correct the title of the section, while retaining the Committee Action and desire to follow the NFPA NEC style recommendation.

Thank you for your reconsideration of this very important issue.

Panel Meeting Action: Reject

Panel Statement: While the submitter has provided a very complex and compelling discussion in his substantiation for his comment to delete 725.26(B)(4), he has failed to provide any information about the safety aspect of maintaining separation between a Class 1 control circuit, which could very well be a Class 1 power limited system where the voltage does not exceed 30 volts and the rated output is maintained at not greater than 1000 VA, and any power circuit of the same or different voltage classification.

The panel defers to the TCC to consider a task group to review this issue.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 11 Negative: 2

Explanation of Negative:
HORMAN: The panel should accept the comment in principle, accept Proposal 3-151 in principle and accept Proposal 3-149. Proposal 3-151 should be accepted in principle since Proposal 3-151 is similar in intent as Proposal 3-149. The panel has not received any comment submittals or technical or safety substantiation that support not accepting this comment in principle, not accepting Proposal 3-151 in principle and not accepting Proposal 3-149. It is the Edison Electric Institute's position, as stated in the substantiation of Comment 3-168, that the installation of 120 volt AC and 125 volt DC , Class 1 remote control and signaling circuits in common raceways or cable trays with Class 600 volt (480 volt and 208Y/120 volt circuits) power cables is a safe and economical installation method. Accepting this comment in principle and accepting Proposal 3-149 would allow the electrical industry to return to this cost-effective and safe installation method.
PACE: The requirement to separate non-power limited Class I circuits from other circuits operating up to 600 volts has no technical substantiation. Currently, 120 volt lighting circuits are allowed to be installed in the same cable tray as 600 volt motor feeders. The cables for both are rated for 600 volts. A non-power limited Class 1 circuit in a 600 volt rated cable installed in the same cable tray is just as safe as having a lighting circuit and motor feeder in the same cable tray. No safety hazard exists and there is no technical substantiation for the requirement to separate these cables.**Comment on Affirmative:**
CASPARRO: Accept Standards Council decision.
See my comment on affirmative on Comment 3-189.

3-166 Log #3429 NEC-P03 **Final Action: Reject**
(725.26(B))

Submitter: Thomas F. Mueller, Mueller Electric Co.
Comment on Proposal No: 3-149
Recommendation: Accept the proposal.
Substantiation: This proposal should be accepted. The panel statement in support of rejection missed the submitter's point. That point being that there is a great difference between power limited circuits and remote control/signaling circuits (even though both are called Class I). The existing rule fails to recognize this difference and saddles users (mainly industrial) with increased costs without any change to the safety or usability of the installation. Even the NFPA Handbook explanation of this rule misses the mark by implying that the rule is applicable to power limited circuits only.
Industrial users have found that it is safe and economically sound to install non armored composite cables containing both power and control, from motor control centers to motor installations. 725.26(B) currently prohibits such installations in trays and manholes. This is just one example of a proven safe wiring practice prohibited by the rule.
300.3(C)(1), 392.6(E) and 392.9 allow mixing of 600-volt circuits in raceways and trays. For example, 120 volt lighting circuits may occupy the same tray as a 600-volt motor power circuit. An argument that another 120 volt circuit cannot occupy that same tray, simply because it is used as remote control for a motor, is impossible to support. 600 volt Class I circuits are allowed to share common raceways, trays and even cable with 30 volt maximum Class I circuits, but it is strange that mixing with other 600 volt power circuits in trays is not allowed.
Intermixing of remote control/signaling circuits with 600-volt power circuits in trays was allowed until 2002 when Code Making Panel 16 adopted this rule over the written objections of several in the industrial community. Panel 3 now has the opportunity to correct this unfortunate error by adopting the proposal substantially as written.
Note: I have not submitted a comment on Proposal 3-151 (same article and currently slated for rejection) but I support the submitter's reasoning and substantiation as his proposal is trying to accomplish a similar end as this proposal.
Panel Meeting Action: Reject
Panel Statement: See the panel statement on Comment 3-165.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 10 Negative: 3
Explanation of Negative:
AYER: See my explanation of negative vote on Comment 3-168.
HORMAN: The panel should accept the comment and accept Proposal 3-149. The panel statement does not address the submitter's recommendation and does not support the rejection of the submitter's substantiation. Additionally, the panel has not received any comment submittals or technical or safety substantiation that would support not accepting this comment and Proposal 3-149. It is the Edison Electric Institute's position, as stated in the substantiation of Comment 3-168, that the installation of 120 volt AC and 125 volt DC, Class 1 remote control and signaling circuits in common raceways or cable trays with Class 600 volt (480 volt and 208Y/120 volt circuits) power cables is a safe and economical installation method. Proposal 3-149 would allow the electrical industry to return to this cost-effective and safe installation method. The proposal will not allow the unrestricted installation of 30 volt, power-limited Class I circuits in the same cable tray or manhole as Class 600-volt power supply conductors.
PACE: See my explanation of negative vote on Comment 3-165.

3-167 Log #49 NEC-P03 **Final Action: Reject**
(725.26(B) and (C))

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-149
Recommendation: The panel should accept the proposal as stated.
Substantiation: The proposed wording changes assure that the concerns over integrity of power-limited circuits and devices are maintained while allowing for the power and control to be based on insulation levels. Devices which are not capable of withstanding higher fault levels would not be part of the power and control circuits in question here anyway, thus the allowance for grouping power and control together.
Panel Meeting Action: Reject
Panel Statement: See the panel statement on Comment 3-165.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 10 Negative: 3
Explanation of Negative:
AYER: See my explanation of negative vote on comment 3-168.
HORMAN: The panel should accept the comment and accept Proposal 3-149. The panel statement does not address the submitter's recommendation and does not support the rejection of the submitter's substantiation. Additionally, the panel has not received any comment submittals or technical or safety substantiation that would support not accepting this comment and Proposal 3-149. It is the Edison Electric Institute's position, as stated in the substantiation of Comment 3-168, that the installation of 120 volt AC and 125 volt DC, Class 1 remote control and signaling circuits in common raceways or cable trays with Class 600 volt (480 volt and 208Y/120 volt circuits) power cables is a safe and economical installation method. Proposal 3-149 would allow the electrical industry to return to this cost-effective and safe installation method. The proposal will not allow the unrestricted installation of 30 volt, power-limited Class I circuits in the same cable tray or manhole as Class 600-volt power supply conductors.
PACE: See my explanation of negative vote on Comment 3-165.

3-168 Log #1076 NEC-P03 **Final Action: Reject**
(725.26(B) and (C) (New))

Submitter: Neil F. LaBrake, Jr., Niagara Mohawk, a National Grid Company / Rep. Edison Electric Institute
Comment on Proposal No: 3-149
Recommendation: Accept the Proposal.
Substantiation: This proposal should be accepted. It is the Edison Electric Institute's position that the installation of 120-volt AC and 125-volt DC, Class 1 remote control and signaling circuits in common raceways or cable trays with 600-volt Class (480-volt and 208Y/120-volt circuits) power cables is a safe and economical installation method. Class 1 circuits are required to have 600-volt insulation per Section 725.27(B).
The mixing of 600-volt insulated remote control circuits with 600-volt insulated power or lighting circuits in cable trays was the industry standard installation method for years. During the 2002 National Electrical Code revision cycle, Section 725.26 was revised, without technical or safety substantiation, to prohibit the mixing of remote control circuits with power or lighting circuits in cables, enclosures, raceways or cable trays, even though all the cables carry 600-volt insulation.
Accepting Proposal 3 - 149 would allow the electrical industry to return to the cost-effective and safe installation method of placing 600-volt insulated power and lighting circuits with 600-volt insulated remote control circuits in a common tray or raceway such as is allowed by 2002NEC Sections 300.3(C)(1), 392.6(E) and 392.9. Refer to 725.21(B) for the defined characteristic of a Class 1 remote control and signaling circuit.
The proposal will not allow the unrestricted installation of 30-volt, Class 1 power-limited circuits in the same cable, enclosure, raceway, manhole or cable tray as 600-volt Class power supply conductors unless functionally associated. Refer to 725.21(A) for the defined characteristic of a Class 1 power-limited circuit.

Panel Meeting Action: Reject
Panel Statement: See the panel statement on Comment 3-165.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 10 Negative: 3
Explanation of Negative:
AYER: The proposal should have been accepted. There is no logical reason to require separation of Class 1 circuit conductors with 600-volt insulation and other power conductors with the same insulation level. The mixing of Class 1 circuits with power conductors prior to the 2002 NEC was done without reason for concern. Even in today's Code motor control circuits, which are tapped from the motor branch circuit protective device, are allowed to be installed in the same conduit with other motor control circuits without harm. However, motor control circuits that are not tapped from the motor branch circuit are prohibited from being installed with other control circuits. This contradiction should be corrected since there is no substantiation to treat similar control wiring methods differently.
The panel statement refers to Comment 3-165, which only deals with the separation of these types of conductors in cable tray. The panel has not provided the proper substantiation on why the specific Proposal 3-149 should be rejected.
HORMAN: The panel should accept the comment and accept Proposal 3-149. The panel statement does not address the submitter's recommendation and does not support the rejection of the submitter's substantiation. Additionally, the panel has not received any comment submittals or technical or safety substantiation that would support not accepting this comment and Proposal 3-149. It is the Edison Electric Institute's position, as stated in the substantiation of Comment 3-168, that the installation of 120 volt AC and 125 volt DC, Class 1 remote control and signaling circuits in common raceways or cable trays with Class 600 volt (480 volt and 208Y/120 volt circuits) power cables is a safe and economical installation method. Proposal 3-149 would allow the electrical industry to return to this cost-effective and safe installation method. The proposal will not allow the unrestricted installation of 30 volt, power-limited Class I circuits in the same cable tray or manhole as Class 600-volt power supply conductors.
PACE: See my explanation of negative vote on Comment 3-165.

3-169 Log #411 NEC-P03 **Final Action: Reject**
(725.26(B) & (C) (New))

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-149
Recommendation: The panel should accept the proposal as stated.
Substantiation: The proposed wording changes assure that the concerns over integrity of power-limited circuits and devices are maintained while allowing for the power and control to be based on insulation levels. Devices which are not capable of withstanding higher fault levels would not be part of the power and control circuits in question here anyway, thus the allowance for grouping power and control together.
Panel Meeting Action: Reject
Panel Statement: See the panel statement on Comment 3-165.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 11 Negative: 2
Explanation of Negative:
HORMAN: The panel should accept the comment and accept Proposal 3-149. The panel statement does not address the submitter's recommendation and does not support the rejection of the submitter's substantiation. Additionally, the panel has not received any comment submittals or technical or safety substantiation that would support not accepting this comment and Proposal 3-149. It is the Edison Electric Institute's position, as stated in the substantiation of Comment 3-168, that the installation of 120 volt AC and 125 volt DC, Class 1 remote control and signaling circuits in common raceways or cable trays with Class 600 volt (480 volt and 208Y/120 volt circuits) power cables is a safe and economical installation method. Proposal 3-149 would allow the electrical industry to return to this cost-effective and safe installation method. The proposal will not allow the unrestricted installation of 30 volt, power-limited Class I circuits in the same cable tray or manhole as Class 600-volt power supply conductors.
PACE: See my explanation of negative vote on Comment 3-165.

3-170 Log #412 NEC-P03 **Final Action: Reject**
(725.26(B) & (C) (New))

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-149
Recommendation: The panel should consider acceptance of the proposal as modified below:
725.26 (B) - Changes as stated;
725.26 (C) - Change to read:
Class 1 Remote-Control and Signaling Circuits with Power Supply Circuits. Class 1 remote-control and signaling circuits and power supply circuits shall be permitted to occupy the same cable tray or manhole, provided the insulation on all such conductors is suitable for the maximum voltage present.
Substantiation: This modification to the proposal allows the installer to revert to the methods previously used before the 2002 NEC was approved. Cables in cable tray and manholes are a different situation than conductors cables, enclosures or raceways, and should be treated differently. No safety or hazardous situation is created by allowing this modification to the original proposal.
Panel Meeting Action: Reject
Panel Statement: See the panel statement on Comment 3-165.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 11 Negative: 2
Explanation of Negative:
HORMAN: The panel should accept the comment and accept Proposal 3-149. The panel statement does not address the submitter's recommendation and does not support the rejection of the submitter's substantiation. Additionally, the panel has not received any comment submittals or technical or safety substantiation that would support not accepting this comment and Proposal 3-149. It is the Edison Electric Institute's position, as stated in the substantiation of Comment 3-168, that the installation of 120 volt AC and 125 volt DC, Class 1 remote control and signaling circuits in common raceways or cable trays with Class 600 volt (480 volt and 208Y/120 volt circuits) power cables is a safe and economical installation method. Proposal 3-149 would allow the electrical industry to return to this cost-effective and safe installation method. The proposal will not allow the unrestricted installation of 30 volt, power-limited Class I circuits in the same cable tray or manhole as Class 600-volt power supply conductors.
PACE: See my explanation of negative vote on Comment 3-165.

3-171 Log #14 NEC-P03 **Final Action: Reject**
(725.26(B)(4))

Submitter: Hector R. de Vega, Fluor Daniel, Inc. / Rep. Associated Builders & Contractors
Comment on Proposal No: 3-151
Recommendation: Delete section 725.26(B)(4). This section was new to the 2002 NEC.
Substantiation: In industrial applications it is customary to group power and Class 1 remote control and signaling cables within the same cable tray, as allowed by 392.6. Often, these power and control cables are installed as single "composite" cables. This section unnecessarily prohibits the safe use of composite cables in cable trays. I will also add that the original proposal to add this requirement (Proposal 16-54) to 2002 NEC) did not identify any safety related risks to this common practice.
Panel Meeting Action: Reject
Panel Statement: See the panel statement on Comment 3-165.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 11 Negative: 2
Explanation of Negative:
HORMAN: The panel should accept the comment in principle, accept Proposal 3-151 in principle and accept Proposal 3-149. Proposal 3-151 should be accepted in principle since Proposal 3-151 is similar in intent as Proposal 3-149. The panel has not received any comment submittals or technical or safety substantiation that support not accepting this comment in principle, not accepting Proposal 3-151 in principle and not accepting Proposal 3-149. It is the Edison Electric Institute's position, as stated in the substantiation of Comment 3-168, that the installation of 120 volt AC and 125 volt DC, Class 1 remote control and signaling circuits in common raceways or cable trays with Class 600 volt (480 volt and 208Y/120 volt circuits) power cables is a safe and economical installation method. Accepting this comment in principle and accepting Proposal 3-149 would allow the electrical industry to return to this cost-effective and safe installation method.
PACE: See my explanation of negative vote on Comment 3-165.**Comment on Affirmative:**
CASPARRO: See my comment on affirmative on Comment 3-189.

3-172 Log #501 NEC-P03 **Final Action: Reject**
(725.26(B)(4))

Submitter: Paul E. Guidry, Fluor Daniel, Inc.
Comment on Proposal No: 3-151
Recommendation: Add new text to read as follows:
725.26(B)(4) In Cable Tray. Class 1 circuits, both power-limited and non-power-limited, and other circuits, 600V or less, shall be permitted to occupy the same cable tray in accordance with one of the following:
(1) In Industrial installations, where conditions of maintenance and supervision ensure that only qualified persons service the installation and all circuits have insulation suitable for, but not to exceed, 600V.

(2) ~~In cable tray, w~~ Where the Class 1 circuit conductors and power-supply conductors not functionally associated with them are separated by a solid fixed barrier of a material compatible with the cable tray, or where the power-supply or Class 1 circuit conductors are in a metal-enclosed cable.

Substantiation: There is a long, safe history in industrial facilities of installing all cables with 600V insulation in a common tray regardless of what type of load they serve. These cables may be motor branch circuits, lighting circuits, Class 1 power-limited and Class 1 non-power-limited control circuits, or other types of branch circuits. The requirement that was added to the 2002 Edition of the Code seemingly made this practice a violation of the NEC.

During the 2005 NEC proposal stage, I submitted a proposal to delete the entire section 725.26(B)(4). This requirement was added without any substantiation. The panel statement to my proposal said: "Normally low-voltage circuits are isolated from power, lighting, and other high voltage circuits to keep possible short circuits from the higher rated circuits from affecting the power-limited circuits."

Generally speaking, I agree with this principle, especially if the low-voltage circuits have 300V insulation (ITC or PLTC), which was (and still is) a Code violation before this rule was added. However, all Class 1 circuit conductors are required to have 600V insulation by 725.27(B). There isn't any reason why all cables with 600V insulation can't be installed together; as evidenced in the general rule found in 300.3(C)(1). The main reason that low-voltage circuits are kept away from higher voltage circuits in industrial facilities is a matter of performance, not safety, if all of the circuits have 600V insulation. For instance, it is a common practice to install all of the analog (and digital) instrumentation circuits in a separate tray, even if all of the control circuits have insulation rated 600V. This practice keeps the electromagnetic fields from the power and lighting circuits from interfering with the performance of the analog signals.

The problem with the new rule found in the 2002 NEC is that it requires the common 120V, three-wire Stop-Start, and 120V, HOA signals normally routed with the motor branch circuits to be put in a separate tray as well. I'm sure that this was not the intent of the rule. In fact, routing a separate tray for all of the motor control circuits could constitute a safety hazard in itself, since the controls are in one tray and the power is in another.

An example of a common installation found today in industrial facilities throughout the world and the logic behind it: 10- 480V lighting circuits are installed in 3/C, Type TC cables each, 20- 120V Class 1 remote control and signaling circuits (Stop-Start circuits) are installed with a 3/C TC cable for each of the 20 circuits, 20- 480V motor branch circuits are installed with a 3/C TC cable for each of the circuits. All of these cables are located in the same tray without a barrier. Not all of the motor branch circuits and control circuits are functionally associated. Not all of the lighting circuits are functionally associated either. If the 480V lighting circuit has a break in the insulation, it cannot backfeed into the 120V Stop-Start circuit because they too have 600V insulation. There isn't a safety issue associated with this type of installation.

In the industrial sector, this rule is causing problems. It creates headaches for new installations. But more importantly, in most states, if you alter an existing electrical installation you must bring it up to the current Code requirements. This would mean that when installing a new 600V cable in an existing tray, barriers would need to be placed and the cables separated. Separating cables and installing barriers in existing trays is impractical, most likely impossible, and doesn't bring any value to the installation.

It is recognized throughout the Code that industrial installations, such as a petrochemical plant or refinery, has highly-trained qualified personnel, and, therefore, may be allowed exceptions to the general requirements for other installations. Adding an exception for industrial installations is quite common, as we did in Code-Making Panel 11 for motor disconnecting means in 430.102(B) during the 2002 cycle.

I am asking the Code-Making Panel to please consider adding the rule I propose above for industrial facilities, so that the NEC continues to be a reasonable, usable document without unnecessary burdens for the industrial business sector.

Panel Meeting Action: Reject

Panel Statement: See the panel statement on Comment 3-165.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 11 Negative: 2

Explanation of Negative:

HORMAN: The panel should accept the comment in principle, accept Proposal 3-151 in principle and accept Proposal 3-149. Proposal 3-151 should be accepted in principle since Proposal 3-151 is similar in intent as Proposal 3-149. The panel has not received any comment submittals or technical or safety substantiation that support not accepting this comment in principle, not accepting Proposal 3-151 in principle and not accepting Proposal 3-149. It is the Edison Electric Institute's position, as stated in the substantiation of Comment 3-168, that the installation of 120 volt AC and 125 volt DC, Class 1 remote control and signaling circuits in common raceways or cable trays with Class 600 volt (480 volt and 208Y/120 volt circuits) power cables is a safe and economical installation method. Accepting this comment in principle and accepting Proposal 3-149 would allow the electrical industry to return to this cost-effective and safe installation method.

PACE: See my explanation of negative vote on Comment 3-165.

3-173 Log #1275 NEC-P03 **Final Action: Reject**
(725.26(B)(4))

Submitter: Hector R. de Vega, Fluor Daniel, Inc.

Comment on Proposal No: 3-151

Recommendation: Revise to read as follows:

725.26(B)(4) ~~In cable trays, where~~ Where Class 1 circuit conductors and power-supply conductors ~~not functionally associated with them are separated by a solid fixed barrier of a material compatible with the cable tray, or where the power supply or Class 1 circuit conductors are in a metal enclosed cable~~ occupy the same cable tray, all conductors shall have an insulation rating equal to at least the maximum circuit voltage applied to any conductor within the cable tray.

Substantiation: There are at least two problems with 725.26(B)(4) as presently structured. First, in industrial application, it is a safe and common practice to install 600V combined power and control cable (UL type TC composite cable) in a common cable tray. This approach can sometimes save a significant amount of installation time and material dollars. The current wording in 725.26(B)(4) completely prohibits this type of cable and method of installation.

Secondly, the functional association rule in 725.26(B)(4) has no clear bearing in regards to the safety of persons or property. Also, the phrase "functionally associated" is inherently ambiguous. It is used in the Code four (4) times, but is never defined. In a large industrial complex, the phrase "functionally associated" will mean different thing to different people, requiring the Authority Having Jurisdiction to intervene and interpret.

A common example that we see many times in industrial application follows:

A manufactured process skid with multiple mechanical equipment items is purchased as a completed assembly. The skid might include 1 main pump/motor, 2 auxiliary pump/motors (such as lube oil), and a lube oil heater. In this case, all power cables and Class 1 Remote Control and Signaling cables are in separate 600V type TC cables routed to a remote MCC.

In the above example, I believe 725.26(B)(4) requires a solid fixed barrier between the power and control cables (where the cables are not MC), although some might argue that in this example, all the equipment is "functionally associated". Worst case scenario is where the design is based on a conservative interpretation (i.e., all equipment is associated and barriers are not provided), but the Authority Having Jurisdiction, client and/or the inspector do not agree after the installation has been completed. From the panel's statement to reject Proposal 3-151, the phrase "functionally associated" is referenced back to a disconnecting means (although that is not in the code text). This very finite interpretation either needs to be included in Article 100 to support the use for the phrase in the Code, or the requirement needs to be deleted throughout the Code.

Panel Meeting Action: Reject

Panel Statement: See the panel statement on Comment 3-165.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 11 Negative: 2

Explanation of Negative:

HORMAN: The panel should accept the comment in principle, accept Proposal 3-151 in principle and accept Proposal 3-149. Proposal 3-151 should be accepted in principle since Proposal 3-151 is similar in intent as Proposal 3-149. The panel has not received any comment submittals or technical or safety substantiation that support not accepting this comment in principle, not accepting Proposal 3-151 in principle and not accepting Proposal 3-149. It is the Edison Electric Institute's position, as stated in the substantiation of Comment 3-168, that the installation of 120 volt AC and 125 volt DC, Class 1 remote control and signaling circuits in common raceways or cable trays with Class 600 volt (480 volt and 208Y/120 volt circuits) power cables is a safe and economical installation method. Accepting this comment in principle and accepting Proposal 3-149 would allow the electrical industry to return to this cost-effective and safe installation method.

PACE: See my explanation of negative vote on Comment 3-165.

3-174 Log #2198 NEC-P03 **Final Action: Reject**
(725.26(B)(4))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.

Comment on Proposal No: 3-151

Recommendation: The proposal should be accepted in principle. Instead of deleting the entire rule, revise it to read as follows:

(4) In cable trays, where (1) the power-supply conductors are run in wiring methods listed in Table 392.3(A), or where (2) the power supply conductors are run as single conductors as covered in 392.3(B)(1) and all Class 1 circuit conductors not functionally associated with them are separated by a solid fixed barrier of a material compatible with the cable tray, or where the Class 1 circuit conductors are in a metal-enclosed cable.

Substantiation: Cable trays are not supposed to be raceways; they are intended to be a mechanical support for cabled wiring methods. As such, the presence of a Class 1 control cable next to a multiconductor power cable, whether or not functionally related, should not provoke a code objection, any more than one would object to the same power cable secured to a wall with the same control cable run next to it. The only time the functional relationship limitation should come into play is when the cable tray actually functions as some sort of raceway, and that only occurs where the industrial/single conductor option is in use. This comment limits the application of the separation requirement to the sole cable tray application that is comparable to the 725.26(B)(1) limitation.
Panel Meeting Action: Reject
Panel Statement: See the panel statement on Comment 3-165. The submitter has proposed increasing the complexity without adding user-friendliness to this section.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Negative: 1
Explanation of Negative:
HORMAN: The panel should accept the comment in principle, accept Proposal 3-151 in principle and accept Proposal 3-149. Proposal 3-151 should be accepted in principle since Proposal 3-151 is similar in intent as Proposal 3-149. The panel has not received any comment submittals or technical or safety substantiation that support not accepting this comment in principle, not accepting Proposal 3-151 in principle and not accepting Proposal 3-149. It is the Edison Electric Institute's position, as stated in the substantiation of Comment 3-168, that the installation of 120 volt AC and 125 volt DC, Class 1 remote control and signaling circuits in common raceways or cable trays with Class 600 volt (480 volt and 208Y/120 volt circuits) power cables is a safe and economical installation method. Accepting this comment in principle and accepting Proposal 3-149 would allow the electrical industry to return to this cost-effective and safe installation method.

3-175 Log #48 NEC-P03 **Final Action: Reject**
(725.26(C) (New))

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-149
Recommendation: The panel should at least accept in part the addition of the following paragraph as stated in the proposal:
725.26(C) Class 1 Remote-Control and Signaling Circuits with Power Supply Circuits. Class 1 remote-control and signaling circuits,
and power supply circuits shall be permitted to occupy the same cable, enclosure, cable tray, raceway or manhole, provided the
insulation on all such conductors is suitable for the maximum voltage present.
Substantiation: The installation of 120 volt AC and 125 volt DC, Class I remote control and signaling circuits in the same raceway or tray with Class 600 volt insulated power cables has been a safe and economical industry practice for many years. The 2002 NEC revision apparently disallowed this practice without much in the way of substantiation. This portion of the proposal would allow the electrical industry to return to this cost-effective and safe installation method. There is no safety reason for disallowing 600 volt insulated cables to occupy the same raceway or tray when the only difference is how they have been "labeled" as Class 1 or power & lighting circuits.
Panel Meeting Action: Reject
Panel Statement: See the panel statement on Comment 3-165.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 11 Negative: 2
Explanation of Negative:
HORMAN: The panel should accept the comment in principle, accept Proposal 3-151 in principle and accept Proposal 3-149. Proposal 3-151 should be accepted in principle since Proposal 3-151 is similar in intent as Proposal 3-149. The panel has not received any comment submittals or technical or safety substantiation that support not accepting this comment in principle, not accepting Proposal 3-151 in principle and not accepting Proposal 3-149. It is the Edison Electric Institute's position, as stated in the substantiation of Comment 3-168, that the installation of 120 volt AC and 125 volt DC, Class 1 remote control and signaling circuits in common raceways or cable trays with Class 600 volt (480 volt and 208Y/120 volt circuits) power cables is a safe and economical installation method. Accepting this comment in principle and accepting Proposal 3-149 would allow the electrical industry to return to this cost-effective and safe installation method.
PACE: See my explanation of negative vote on Comment 3-165.**Comment on Affirmative:**
CASPARRO: See my comment on affirmative on comment 3-189.

3-176 Log #50 NEC-P03 **Final Action: Reject**
(725.26(C))

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-149
Recommendation: The panel should consider acceptance of the proposal as modified below:
725.26 (B) - Changes as stated;
725.26 (C) - Change to read:
Class 1 Remote-Control and Signaling Circuits with Power Supply Circuits.
Class 1 remote-control and signaling circuits and power supply circuits shall be permitted to occupy the same cable tray or manhole, provided the insulation on all such conductors is suitable for the maximum voltage present.
Substantiation: This modification to the proposal allows the installer to revert to the methods previously used before the 2002 NEC was approved. Cables in cable tray and manholes are a different situation than conductors cables, enclosures or raceways, and should be treated differently. No safety or hazardous situation is created by allowing this modification to the original proposal.
Panel Meeting Action: Reject
Panel Statement: See the panel statement on Comment 3-165.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 11 Negative: 2
Explanation of Negative:
HORMAN: The panel should accept the comment in principle in part, and accept Proposal 3-149. The panel statement does not address the submitter's recommendation and does not support the rejection of the submitter's substantiation. Additionally, the panel has not received any comment submittals or technical or safety substantiation that would support not accepting this comment and Proposal 3-149. It is the Edison Electric Institute's position, as stated in the substantiation of Comment 3-168, that the installation of 120 volt AC and 125 volt DC, Class 1 remote control and signaling circuits in common raceways or cable trays with Class 600 volt (480 volt and 208Y/120 volt circuits) power cable is a safe and economical installation method. Proposal 3-149 would allow the electrical industry to return to this cost-effective and safe installation method. The proposal will not allow the unrestricted installation of 30 volt, power-limited Class 1 circuits in the same cable tray or manhole as Class 600-volt power supply conductors.
PACE: See my explanation of negative vote on Comment 3-165.

3-177 Log #410 NEC-P03 **Final Action: Reject**
(725.26(C) (New))

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-149
Recommendation: The panel should at least accept in part the addition of the following paragraph as stated in the proposal:
725.26(C) Class 1 Remote-Control and Signaling Circuits with Power Supply Circuits. Class 1 remote-control and signaling circuits,
and power supply circuits shall be permitted to occupy the same cable, enclosure, cable tray, raceway or manhole, provided the
insulation on all such conductors is suitable for the maximum voltage present.
Substantiation: The installation of 120 volt AC and 125 volt DC, Class I remote control and signaling circuits in the same raceway or tray with Class 600 volt insulated power cables has been a safe and economical industry practice for many years. The 2002 NEC revision apparently disallowed this practice without much in the way of substantiation. This portion of the proposal would allow the electrical industry to return to this cost-effective and safe installation method. There is no safety reason for disallowing 600 volt insulated cables to occupy the same raceway or tray when the only difference is how they have been "labeled" as Class 1 or power & lighting circuits.
Panel Meeting Action: Reject
Panel Statement: See the panel statement on Comment 3-165.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 11 Negative: 2
Explanation of Negative:
HORMAN: The panel should accept the comment and accept Proposal 3-149. The panel statement does not address the submitter's recommendation and does not support the rejection of the submitter's substantiation. Additionally, the panel has not received any comment submittals or technical or safety substantiation that would support not accepting this comment and Proposal 3-149. It is the Edison Electric Institute's position, as stated in the substantiation of Comment 3-168, that the installation of 120 volt AC and 125 volt DC, Class 1 remote control and signaling circuits in common raceways or cable trays with Class 600 volt (480 volt and 208Y/120 volt circuits) power cables is a safe and economical installation method. The proposal will not allow the unrestricted installation of 30 volt, power-limited Class 1 circuits in the same cable tray or manhole as Class 600-volt power supply conductors.
PACE: See my explanation of negative vote on Comment 3-165.

3-178 Log #2199 NEC-P03 **Final Action: Accept in Principle**
(725.27(C) (New))

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc. / Rep. Massachusetts Electrical Code Advisory Committee
Comment on Proposal No: 3-154
Recommendation: The proposal should be accepted in principle and in part. Retain Article 727, do not add 725.17(C) as originally proposed, and do not amend 725.23 as per Proposal 7-143. Instead, add a new (G) to 725.3 as follows:

(G) Circuits using instrumentation tray cable, Type ITC, and qualifying under applicable provisions of Article 727, shall be installed in accordance with the provisions of Article 727 whether or not the circuits qualify as Class 1, Class 2, or Class 3 control circuits as defined in 725.2.

Substantiation: Nothing in 90.3 arbitrates conflicts between articles in Chapters 5, 6, or 7. The substantiation for Proposal 3-154 demonstrated that a circuit could qualify under the definitions in 725.2 for inclusion in Article 725, and yet be covered under Article 727. The substantiation also clearly indicated, and the panel statement confirmed, that the intent was to cover such a circuit under Article 727. This wording avoids the complexity that CMP clearly wishes to avoid, while resolving an ongoing direct conflict in the NEC. This comment does not, however, address fine points that follow from this approach, such as how to address separation issues from power circuit conductors, which were comprehensively addressed in Proposal 3-154. These will need to be the subject of future proposals if CMP 3 agrees to this approach.
Panel Meeting Action: Accept in Principle

Revise the reference in 725.3 from "725.3(A) through 725.3(F)" to "725.3(A) through 725.3(G)."

Change the text in the comment recommendation to read as follows:
(G) Instrumentation Tray Cable. See Article 727.

Panel Statement: The text was changed to make it consistent with the format used in 725.3. This will ensure that circuits dealing with instrumentation tray cable will use Article 727 and not Article 725.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-179 Log #210 NEC-P03 **Final Action: Reject**
(725.41(A)(3) Exception)

Submitter: David Wechsler, The Dow Chemical Company
Comment on Proposal No: 3-155
Recommendation: Reject Proposal 3-155.

Delete the following exception and delete FPN (4):

~~Exception No. 2: Limited power circuits of listed equipment where these circuits have energy levels rated at or below the limits established in Chapter 9, Tables 11(A) and 11(B).~~

FPN: Examples of other listed equipment are as follows:

(1) A circuit card listed for use as a Class 2 or Class 3 power source where used as part of a listed assembly

(2) A current-limiting impedance, listed for the purpose, or part of a listed product, used in conjunction with a non-power limited transformer or a stored energy source, for example, storage battery, to limit the output current

(3) A thermocouple

~~(4) Limited Voltage/Current or limited impedance secondary communications circuits of listed control equipment.~~

Substantiation: While the Panel is not bound by the actions of former Panel committee members that worked on Article 725, I think it may be of benefit that the Panel understand the actions taken by past Panel members working on Article 725, in reconsidering the action taken on this proposal. I was a member of then CMP-16 for several NEC cycles, and additionally as the rewrite subteam chairman, under then Panel Chairman Dean Wilson, was a major contributor to the editorial rewrites of the Chapter 7 Articles, along with Dr. Stanley Kaufman, Mr. Irv mande, Mr. Mel Anna, and Mr. Sandy Egesdal, that took place in the 1996 NEC edition. It was in this 1996 cycle that Figure 725-41 was introduced, former Tables 725-31(a) and (b) were relocated to the NEC Appendix, and the entire Article 725 (as well as the other CMP-16 Chapter 7 articles for correlation) went though a major revision developed by the Committee (CMP-16). One of the major core issues that required this significant undertaking, was the position accepted by the majority of the Committee that it was not possible for a user to build a Class 2 or Class 3 power source had to be listed devices. Part of the reason for this undertaking, however, as I recall, came from proposals raising issues about energy and shock characteristics of intrinsically safe circuits and Class 2 or Class 3 circuits, and were Class 2 and Class 3 circuits really not shock hazards? From the 1993 edition of the NEC, one can see that then 725-31 provided no requirement that Class 2 or Class 3 power sources had to be listed. The requirement was "725-31 Power Limitations of Class 2 and Class 3 Circuits. As specified in Table 725-31(a) for ac circuits and Table 725-31(b) for dc circuits, the power for Class 2 and Class 3 circuits shall be either inherently limited requiring no overcurrent protection or limited by a combination of a power source and overcurrent protection." The majority of the Committee in reviewing the proposals and the Table notes also concluded that the application of the table notes, especially that for Imax, effectively eliminated the 725-31 basis for having a power source with overcurrent protection. These decisions were by no means trivial. As has been pointed out, not only was Article 725 rewritten, but the application of Type PLTC as an accepted installation method that had been used for years, was placed at a forkroad of becoming an NEC noncompliance condition in its use with instrumentation, since the instrument sources which met the voltage and current values in Tables 725-31(a) and (b), could no longer be considered as Class 2 or Class 3 power sources because these power sources were not listed as Class 2 or Class 3. There were several long, face-to-face, meetings as well as weeks of hourly duration telephone conversations before we were finally able to characterize what exactly the now Part III of Article 725 was addressing. This was captured in Figure 725-41 Class 2 and Class 3 Circuits. From this figure, the subteam developed a list of Class 2 and Class 3 power sources. This list became the first paragraph of the rewrite, 725-41(a) Power Source. With the exception of the battery, which was a direct extraction from Note 4 from the so called "Power Limitation" tables, all the designated sources were specified as "listed" Class 2 or "listed" Class 3. While not stated in the Article, instrincially safe circuits which are truly "energy limited" were considered by the committee as not being able to be considered as Class 2 or Class 3 circuits, because the source of energy was not a "listed Class 2 or Class 3 power source". The action to develop type ITC was also indicative of the fact that a nominal 12 or 24 volt instrument circuit loop with a 3 amp fuse also was not considered as being an acceptable condition of a Class 2 or Class 3 power source either especially since the fuse could be replaced by a large fuse size or totally shorted.

The proposal under question addresses "limited voltage/current'" or "limited impedance" of a listed control equipment. I am not sure what the word "limited" means or how this is defined. Clearly, "limited" does not match with those product details that define Class 2 or Class 3 power source as is now required by Article 725. If they did, I would suspect that this device could be marked as Class 2 or Class 3 and there would be no need for this proposal. However, it would appear that these devices cannot be considered as Class 2 or Class 3 power sources. If the installation was being made in an industrial location, perhaps type ITC might solve the problem. However, with the proposed action to accept this proposal, the Committee is effectively changing the base condition of a Class 2 and Class 3 power source. This should not be permitted. Perhaps in conclusion, this proposal should seek its solution within Article 800 and only within Article 800, and additionally distinction should at last be made between Articles 725 and 800 which have been linked "at the hip" due to historic use of telephone wiring that was like a Class 2 circuit, but never made a pseudo Class 2 circuit until the breakup of the telephone company when life changed a bit again.

As an aside, there was an effort to try and resolve the apparent differences between Class 1 and Class 2 and 3 circuits, as well as making clear definitions of such terms as power-limited [for example, there is a Class 1 power limited circuit and there are Class 1 Power sources, but there is also a Class 2 and Class 3 power limited circuit. Each is totally different and especially in the case of Class 1, it really seems a stretch of one's imagination to think of a circuit with 600 volt rated insulation, and 1000 volt-amperes as being "power-limited"], acceptable protection from electric shock hazard", considers safety from a fire initiation standpoint", and lastly one of my favorites - "a wire" " a conductor" and "a cable". Our group was not able to address these and they were left for others to try and resolve. May the members of this new Committee continue with my gratitude for attempting to tackle one of the most difficult portions of the NEC.
Panel Meeting Action: Reject
Panel Statement: While the submitter has provided a great historical perspective of how 725.41 was developed, the proposal, as accepted by the panel, fills a void for control power sources within control panels as covered by UL 508. The communications referred to in the proposal substantiation is not an Article 800 telecommunications system; otherwise 800.4 would require specific listing in accordance with different standards. It covers control circuit wiring between remote devices and the control panel. When a panel manufacturer applies for Listing in accordance with UL 508, specific diagrams and installation information must be provided and this information plus the diagrams are then reviewed to determine compliance with the standard. The limited energy (voltage and current) or limited impedance is required to be set at levels that are at or below the limits established by Tables 11A and 11B in Chapter 9 but may not be listed specifically as Class 2 or 3 power sources.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-180 Log #897 NEC-P03 **Final Action: Accept**
(725.41(A)(3) Exception)

Submitter: Noel Williams, Noel Williams Consulting
Comment on Proposal No: 3-155
Recommendation: This proposal should continue to be accepted.
Substantiation: This change resolves a major problem in industrial applications of limited-energy controls. The submitter has documented the issue well. The adoption of this proposal will not compromise safety in any way and will help make enforcement, interpretation, and application of this section consistent throughout the industry.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-181 Log #898 NEC-P03 **Final Action: Accept**
(725.42)

Submitter: Noel Williams, Noel Williams Consulting
Comment on Proposal No: 3-157
Recommendation: This proposal should continue to be accepted.
Substantiation: This change resolves an interpretation problem. The panel statement correctly and concisely describes the issue, and this change will make application and understanding of this rule much more consistent in the field.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-182 Log #982 NEC-P03 **Final Action: Reject**
(725.56(E))

Submitter: Dorothy Kellogg, American Chemistry Council
Comment on Proposal No: 3-162
Recommendation: The panel statement does not address the submitter's proposed addition of "or cable tray" to 725-56(E). The words "or cable tray" should be added.
Substantiation: I do not agree with the panel statement that "The ITC circuit would constitute a power circuit and separation must be maintained between these different systems". 5 amps at 150 volts does not constitute a power circuit and is in fact less than some of those allowed (30 volts and less than 1000 VA). The insulation system of the ITC cable is sufficient for safety of personnel and proper operation of the circuits involved. There is no technical reason that ITC should not be allowed to be used in the same raceway as those listed in this section.
Panel Meeting Action: Reject
Panel Statement: Since Class 2 and 3 circuits are separated from power circuits of any levels above those values acceptable by Tables 11A and 11B, installing ITC circuits in the same cable tray with Class 2 or Class 3 circuits could cause confusion where the user assumed that all of the cables within the cable tray were power-limited. This confusion could cause shock hazards to anyone working on the circuits contained within or fed from the cable trays.
The submitter should recognize that multiconductor control and signaling cables installed in a cable tray must comply with Article 392. See the panel action and statement on Comment 3-178.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-183 Log #1425 NEC-P03 **Final Action: Accept**
(725.56(F))

Submitter: Technical Correlating Committee on Signaling Systems for the Protection of Life and Property
Comment on Proposal No: 3-162a
Recommendation: Continue to accept.
Substantiation: The Signaling Systems for the Protection of Life and Property TCC supports the panel action.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-184 Log #1819 NEC-P03 **Final Action: Accept**
(725.56(F) (New))

Submitter: Thomas P. Hammerberg, Automatic Fire Alarm Association
Comment on Proposal No: 3-162a
Recommendation: Continue to accept.
Substantiation: The Automatic Fire Alarm Association supports the panel action.
The maximum audio amplifier voltage output permitted is double that permitted for a Class 3 circuit. While the voltage output for Class 2 and Class 3 audio circuits does not exceed the conductor insulation rating, there are other concerns; induced electrical noise due to the high voltage and unlimited current, which could interrupt critical Class 2 or Class 3 systems; and the unknown consequences from a fault between the audio circuits with unlimited current, having the potential for destruction of critical Class 2 and Class 3 elements due concern.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-185 Log #3678 NEC-P03 **Final Action: Accept**
(725.56(F) (New))

Submitter: Sanford Egesdal, Egesdal Associates PLC
Comment on Proposal No: 3-162a
Recommendation: Continue to accept.
Substantiation: The Panel Statement is accurate.
Additionally, Article 725 power sources are restricted to a maximum output of 100 VA in order to be identified as Class 2 or Class 3. Article 725 power sources with outputs greater than 100 VA are required to be installed using Class 1 wiring methods and materials. Article 725 requires Class 2 and 3 circuits to be separated from Class 1 circuits.
A commercial audio amplifier (Article 640) does not have a requirement to use Class 1 wiring methods where the amplifier output is greater than 100 VA. Therefore, it is not possible to know if the audio amplifier's output is equivalent to Class 2 and 3 power source requirements.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-186 Log #3279 NEC-P03 **Final Action: Reject**
(725.58)

Submitter: Christopher R. Pharo Marlton, NJ
Comment on Proposal No: 3-165
Recommendation: I would like the panel to reconsider the panel action and accept this proposal.
Substantiation: Other wiring methods, as noted in the Panel's statement, dictate support requirements in order "to ensure the integrity of the wiring method so that equipment grounding and bonding is maintained and that a complete path for fault current is maintained." By virtue of the current panel statement, Class 2 and Class 3 cabling poses no danger and any bonding or grounding that results utilizing this cabling method is not important.
I can only wonder why the code does not maintain minimum distances between supports for class 2 and class 3 cabling. Aren't we trying to get the load off the ceiling and make the code easier to enforce for the AHJ?
This proposal is essentially the same as proposal 16-73 (Log #4016) and proposal 6-39 (Log #3100) in the 2001 ROP. These proposals were accepted and accepted in principle back in 2001. The 2001 ROC lists a comment 16-40 (Log #857) which only clarifies the submitter's intent. It does not eliminate the support intervals.
I do not understand how the process can allow this arbitrary changing/eliminating the wording of:
(1) accepted, almost unanimously, proposals and (2) their corresponding affirming comments.
Panel Meeting Action: Reject
Panel Statement: The submitter of the proposal and the comment did not provide any technical substantiation for the support distances given in the recommended text. Section 725.5 provides the answer to the submitter of the comment about his concern that the cables be removed from directly on the ceiling. This section requires the cabling to be supported in such a manner that electrical equipment above the ceiling remains accessible without being impeded by cabling laid across the access panel.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Negative: 1
Explanation of Negative:
CASPARRO: This comment should have been accepted.
The purpose of supporting cables is to ensure that the cable is not inadvertently damaged during construction, where an unsupported cable is captured between the wall covering and the stud behind the wall covering. The submitter of this proposal provides specific installation requirements to ensure that the cable is protected from physical damage during the period of construction.

3-187 Log #259 NEC-P03 **Final Action: Accept**
(725.61)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-168
Recommendation: Continue to reject this proposal.
Substantiation: The Technical Committee on Air Conditioning agrees with the panel action. Acceptance of this proposal would have created a conflict with NFPA 90A. "P" type plenum cables are permitted in ceiling cavity plenums and raised floor plenums but not in duct distribution plenums, apparatus casing plenums and air-handling unit room plenums.
This comment is one in a series of comments including 3-89, 3-90, 3-130, 3-169, 3-197, 3-228, 3-242, 3-251, 3-267, and 3-291.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-188 Log #307 NEC-P03 **Final Action: Reject**
(725.61)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-190
Recommendation: Accept this proposal in principle by accepting the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-189 Log #313 NEC-P03 **Final Action: Reject**
(725.61)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-169
Recommendation: Accept this proposal in principle by accepting the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: I agree with both the panel action and panel statement on this comment. I agree with, support, and commend Standards Council Decision Number 03-10-25 and also a subsequent letter issued by the Standards Council Decision Chairman, Philip J. DiNenno, written to Mr. Loren Caudill, which was dated December 3, 2003. If this decision and letter was not issued and handed down, Code Making Panle 3 would be asked to make revisoins or changes to the 2005 NFPA 70 that could be inconsistent with the current 2002 NFPA 90A Standard. The decision to maintain status quo for the upcoming 2005 NEC revision cycle and to wait for the completion of the NFPA 90A revision cycle was a wise and necessary decision. This decision will also enhance both NFPA 70 and NFPA 90A Standards to be harmonized and will add better clarity and understanding toward each document.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-190 Log #373 NEC-P03 **Final Action: Reject**
(725.61)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-171
Recommendation: Continue to accept this proposal in principle but change "other spaces used for environmental air" to "ceiling cavity plenums and raised floor plenums".
Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-133.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-191 Log #1468 NEC-P03 **Final Action: Accept**
(725.61)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals
Comment on Proposal No: 3-166
Recommendation: Continue rejecting this proposal.
Substantiation: • This comment recommends continued rejection of a subdivision of "plenums" or "other spaces used for environmental air" and continued rejection of granting priority to NFPA 90A on choices of wiring methods.
• The input from CMP 3 and from the NEC Technical Coordinating Committee makes it clear that the terminology used in 300.22 has served the NEC well and needs no change. It has also become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods.
• It has already been shown in detail by the fire hazard and fire risk analysis presented together with my original proposals (see for example the section on pages 2080-2091 of the NECROP of the substantiation for my proposal 3-130) that there is no need to change the requirements, or limit the application, for wiring methods in plenums, because the fire safety record is excellent.
• I understand that this comment represents a change in some of the concepts the submitter believed when the proposal was submitted, but "even old dogs can learn".
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-192 Log #1474 NEC-P03 **Final Action: Accept**
(725.61)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals
Comment on Proposal No: 3-171
Recommendation: Continue accepting this proposal in principle and retain the language accepted by CMP 3. Do not add the new categories of CL2D and CL3D cables as permitted cabling methods.
725.61 Applications of Listed Class 2, Class 3, and PLTC Cables. Class 2, Class 3, and PLTC cables shall comply with any of the requirements described in 725.61(A)
through (F).
(A) Plenum. Cables installed in ducts, plenums, and other spaces used for environmental air shall be Type ~~CL2D, CL3D~~, CL2P or CL3P. Listed wires and cables installed in compliance with 300.22 shall be permitted. Listed plenum signaling raceways shall be permitted to be installed in other spaces used for environmental air as described in 300.22(C). Only Type ~~CL2D, CL3D~~, CL2P or CL3P cable shall be permitted to be installed in these raceways.
(B) Riser. Cables installed in risers shall be as described in any of (1), (2), or (3):
(1) Cables installed in vertical runs and penetrating more than one floor, or cables installed in vertical runs in a shaft, shall be Type CL2R or CL3R. Floor penetrations requiring Type CL2R or CL3R shall contain only cables suitable for riser or plenum use. Listed riser signaling raceways shall be permitted to be installed in vertical riser runs in a shaft from floor to floor. Only Type CL2R, CL3R, ~~CL2D, CL3D~~, CL2P, or CL3P cables shall be permitted to be installed in these raceways.
(2) Other cables as covered in Table 725.61 and other listed wiring methods as covered in Chapter 3 shall be installed in metal raceways, or located in a fireproof shaft having firestops at each floor.
(3) Type CL2, CL3, CL2X, and CL3X cables shall be permitted in one- and two-family dwellings. Listed general purpose signaling raceways shall be permitted for use with Type CL2, CL3, CL2X and CL3X cables.
FPN: See 300.21 for firestop requirements for floor penetrations.
(C) Cable Trays. Cables installed in cable trays outdoors shall be Type PLTC. Cables installed in cable trays indoors shall be Types PLTC, ~~CL2D, CL3D~~, CL3P, CL3R, CL3, CL2P, CL2R, and CL2.
Listed signaling raceways shall be permitted for use with cable trays.
FPN: See 800.52(D) for cables permitted in cable trays.

Substantiation: This comment recommends rejection of the action taken by CMP 3 regarding adding the designations CL2D and CL3D. Any cable with CL2D or CL3D designation can also obtain a CL2P or CL3P (respectively) designation, since they are only a subset of plenum cables (see my substantiation for comment on proposal 3-169). The additional designation is not necessary.

This comment recommends a rejection of the concept of subdividing plenums and "other spaces used for environmental air". It has already been shown in detail by the fire hazard and fire risk analysis presented together with my original proposals (see for example the section on pages 20802091 of the NEC-ROP of the substantiation for my proposal 3-130) that there is no need to change the requirements, or limit the application, for wiring methods in plenums, because the fire safety record is excellent.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-193 Log #1519 NEC-P03 **Final Action: Accept**
(725.61)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-169
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.

The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.

There is no need for any additional environmental air space identifiers or cable type designators.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-194 Log #1644 NEC-P03 **Final Action: Accept**
(725.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-168
Recommendation: Continue to reject.
Substantiation: I agree with both the panel action and panel statement to reject Proposal 3-168. No technical substantiation has been provided that a change to the 2002 NEC language is needed or required. This comment rerpesents the official position of the International Brotherhood of Electrical Workers Code and Standards committee.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-195 Log #1712 NEC-P03 **Final Action: Accept**
(725.61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-168
Recommendation: Continue to reject.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

The task group agrees with Panel 3's action and statement.

By accepting the majority of the suggested changes in a submitted comment for Proposal 3-94, "Other Spaces for Environmental Air" has been further subdivided into two separate spaces, ceiling cavity and raised floor plenums but the Panel still has maintained the electrical industry terminology associated with these spaces. Providing this further subdivision will enhance the usability of the NEC by making it easier to determine what other spaces are being referenced in this section. It will also improve correlation between the NEC and NFPA 90A.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-196 Log #2290 NEC-P03 **Final Action: Accept**
(725.61)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-169
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.

The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking) the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).

In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.

By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-197 Log #2626 NEC-P03 **Final Action: Accept**
(725.61)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-168
Recommendation: Continue to reject this proposal.
Substantiation: CFRA agrees with the panel action.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-198 Log #2627 NEC-P03 **Final Action: Reject**
(725.61)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-169
Recommendation: Accept this proposal in principle by accepting the comment from CFRA on Proposal 3-194.
Substantiation: See the comment from CFRA on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-199 Log #2630 NEC-P03 **Final Action: Reject**
(725.61)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-190
Recommendation: Accept this proposal in principle by accepting the comment from CFRA on Proposal 3-194.
Substantiation: See the comment from CFRA on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-200 Log #2887 NEC-P03 **Final Action: Reject**
(725.61)

Submitter: Stanley Kaufman, CableSafe, Inc.
Comment on Proposal No: 3-171
Recommendation: Accept proposal 3-171 in principle by accepting the text shown below:
Change the last two sentences of 725.61(A) to:
Listed plenum signaling raceways shall be permitted to be installed in ceiling cavity plenums and raised floor plenums. Only Types CL3D, CL2D, CL3P and CL2P conductors and cables shall be permitted t be installed in these raceways.
Change the last two sentences of 725.61(B)(1) to:
Listed riser signaling raceways shall be permitted to be installed in vertical riser runs in a shaft from floor to floor. Only Types CL3D, CL2D, CL3P, CL2P CL3R and CL2R cables shall be permitted to be installed in these raceways.
Change the last sentence of 725.61(B)(3) to:
Listed general purpose signaling raceways shall be permitted. Only Types CL3D, CL2D, CL3P, CL2P CL3R, CL2R, PLTC, CL3 and CL2 cables shall be permitted to be installed in these raceways.
Change 725.61(C) to:
(C) Cable Trays. Cables installed in cable trays shall comply with any of (1) through (5).
1) Cables installed in cable trays outdoors shall be Type PLTC.
2) Cables installed in cable trays indoors shall be Types CL3D, CL2D, CL3P, CL2P, CL3R, CL2R, PLTC, CL3 and CL2.
3) Listed general purpose signaling raceways shall be permitted for use with cable trays. Only Types CL3D, CL2D, CL3P, CL2P CL3R, CL2R, PLTC, CL3 and CL2 cables shall be permitted to be installed in these general purpose raceways.
4) Listed riser signaling raceways shall be permitted for use with cable trays. Only Types CL3D, CL2D, CL3P, CL2P CL3R and CL2R cables shall be permitted to be installed in these riser raceways.
5) Listed plenum signaling raceways shall be permitted for use with cable trays. Only Types CL3D, CL2D, CL3P and CL2P cables shall be permitted to be installed in these plenum raceways.
Change 726.61(E)(7) to:
(7) Listed general purpose signaling raceways shall be permitted. Only Types CL3D, CL2D, CL3P, CL2P CL3R, CL2R, PLTC, CL3 and CL2 cables shall be permitted to be installed in these raceways.
Renumber section 725.61 to 725.154.
Substantiation: The renumbering task group has recommended renumbering section 725.61 to 725.154.
This comment assumes that the panel will accept the comment from the Technical Committee on Air Conditioning to change "other space use for environmental air" to "ceiling cavity plenums and raised floor plenums".
Wherever there are lists of cables in the text, higher performing cables always precede lower performing cables: class 3 before class 2, PLTC before class 3 and cables higher on the fire resistance hierarchy before cables lower on the hierarchy.
A revision to 725.61(C) is suggested. The submitter intended that all signaling raceways would be permitted to be used in cable trays. The text as submitted called for the appropriate cable to be used depending on whether plenum, riser or general purpose raceway was used. The suggested rewording clearly states which cables will be permitted to be used in each raceway. Permission to use plenum raceway in a cable tray is needed since cable trays are used in ceiling cavity plenums.
The submitter overlooked Type PLTC. In this suggested revision Type PLTC is permitted to be used wherever Type CL3 is permitted.
The submitter and the panel would have permitted Types CL3X and CL2X to be used in general purpose raceway. This suggested revision eliminates that provision to be consistent with the use of all of these raceways in Articles 770, 800 and 820. Those raceways are only permitted to contain cables of equal or greater fire rating.
The suggested revision to 726.61(E)(7) clarifies that the raceway is general purpose raceway.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-201 Log #3700 NEC-P03 **Final Action: Accept**
(725.61)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals**Comment on Proposal No:** 3-168
Recommendation: Continue rejecting this proposal and make no changes in the terminology of plenum spaces or of "other spaces used for environmental air".
Substantiation: The terminology in NEC 2002 is correct and needs no change. See also the substantiation for my comments on proposal 3-169.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-202 Log #3804 NEC-P03 **Final Action: Accept**
(725.61)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-169
Recommendation: *Reject this proposal.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.

This proposal should be rejected because, as stated by Mr. Paul Casparro in his negative, the NEC is not a product catalog nor is it a design manual and is not intended to contain an all-inclusive list of permitted products. CMP 3, appropriately, did not develop any applications where "duct cable" or "air duct cable" is required instead of plenum cable.

If this proposal were approved, it would create a new category of cable, CL2D or CL3D, which is simply a subset of the present category of plenum-rated cable (CL2P or CL3P) (since all cables listed to UL 2424-2002 have to meet the fire safety, mechanical and electrical requirements of traditional plenum cable), while limiting the application of the latter (traditional plenum-rated cable) without any justification based on fire hazard or fire risk. It has already been shown in detail by the fire hazard and fire risk analysis presented together with my original proposals (see for example the section on pages 2080-2091 of the NEC-ROP of the substantiation for my proposal 3-130) that there is no need to change the requirements, or limit the application, for wiring methods in plenums, because the fire safety record is excellent.

In fact, if CL2P and CL3P cables, i.e. traditional plenum cables meeting the requirements of NFPA 262, are to be limited in application, then cables contained in metal raceways must also be limited in application, since the work that led to the development of the requirements for plenum rated cables showed that they generate more smoke and flame spread than plenum cables meeting NFPA 262, as is clear from the following Table, containing data from the work conducted to justify the development of NFPA 262 (originally UL 910). All 11 plenum-rated cables had flame spread values not exceeding 5 ft and average optical densities not exceeding 0.15 and 10 of the 11 plenum-rated cables had peak optical densities not exceeding 0.50. On the other hand, 5 of the 17 cables in metal raceways tested had flame spread values exceeding 5 ft, 8 of the 17 cables in metal raceways tested had average optical densities exceeding 0.15 and 10 of the 17 cables in metal raceways tested had peak optical densities exceeding 0.50. This comment recognizes that cables in metal raceways are safe wiring methods for plenums. Therefore traditional plenum cables are also safe and suitable.

Furthermore, any reference to NFPA 90A is not appropriate in a Fine Print Note on fire safety characteristics of wiring methods, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.

This comment is one of a series of comments on Articles 300, 725, 760, 770, 800, 820 and 830, regarding "plenum cables". The philosophy behind all the comments is that the NEC is OK as published in 2002, but that 2 minor changes might represent improvements: (i) the clarification of the 6 inch extension of a wiring method into a more restricted environment and (ii) the clarification in the Fine Print Notes that a cable listed to NFPA 262 is listed both based on its "low-smoke" characteristics and its "low-flame-spread" characteristics, and that the two are not listed separately.

(table shown on following page)

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-203 Log #3807 NEC-P03 **Final Action: Accept**
(725.61)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-192
Recommendation: *Reject this proposal.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.

This proposal should be rejected because, as stated by Mr. Paul Casparro in his negative, the NEC is not a product catalog nor is it a design manual and is not intended to contain an all-inclusive list of permitted products. CMP 3, appropriately, did not develop any applications where "duct cable" or "air duct cable" is required instead of plenum cable. Moreover, as stated by Mr. Melvin Sanders in his negative "No technical documentation has been provided, such as fire loss data, as to why the existing type CL2P and CL3P plenum cable are not suitable for use in the environmental air handling spaces included in 300.22 (C)."

If this proposal were approved, it would create a new category of cable, CL2D or CL3D, which is simply a subset of the present category of plenum-rated cable (CL2P or CL3P) (since all cables listed to UL 2424-2002 have to meet the fire safety, mechanical and electrical requirements of traditional plenum cable), while limiting the application of the latter (traditional plenum-rated cable) without any justification based on fire hazard or fire risk. It has already been shown in detail by the fire hazard and fire risk analysis presented together with my original proposals (see for example the section on pages 2080-2091 of the NEC-ROP of the substantiation for my proposal 3-130) that there is no need to change the requirements, or limit the application, for wiring methods in plenums, because the fire safety record is excellent.

In fact, if CL2P and CL3P cables, i.e. traditional plenum cables meeting the requirements of NFPA 262, are to be limited in application, then cables contained in metal raceways must also be limited in application, since the work that led to the development of the requirements for plenum rated cables showed that they generate more smoke and flame spread than plenum cables meeting NFPA 262, as is clear from the following Table, containing data from the work conducted to justify the development of NFPA 262 (originally UL 910). All 11 plenum-rated cables had flame spread values not exceeding 5 ft and average optical densities not exceeding 0.15 and 10 of the 11 plenum-rated cables had peak optical densities not exceeding 0.50. On the other hand, 5 of the 17 cables in metal raceways tested had flame spread values exceeding 5 ft, 8 of the 17 cables in metal raceways tested had average optical densities exceeding 0.15 and 10 of the 17 cables in metal raceways tested had peak optical densities exceeding 0.50. This comment recognizes that cables in metal raceways are safe wiring methods for plenums. Therefore traditional plenum cables are also safe and suitable.

Furthermore, any reference to NFPA 90A is not appropriate in a Fine Print Note on fire safety characteristics of wiring methods, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.

This comment is one of a series of comments on Articles 300, 725, 760, 770, 800, 820 and 830, regarding "plenum cables". The philosophy behind all the comments is that the NEC is OK as published in 2002, but that 2 minor changes might represent improvements: (i) the clarification of the 6 inch extension of a wiring method into a more restricted environment and (ii) the clarification in the Fine Print Notes that a cable listed to NFPA 262 is listed both based on its "low-smoke" characteristics and its "low-flame-spread" characteristics, and that the two are not listed separately.

(table shown on following page)

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-204 Log #3840 NEC-P03 **Final Action: Accept**
(725.61)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-166
Recommendation: *Continue rejecting this proposal.*
Substantiation: This proposal would limit the application of plenum rated cable. It does so without presenting any data to justify this change based on fire hazard or fire risk of wiring in plenums.

It has already been shown in detail by the fire hazard and fire risk analysis presented together with my original proposals (see for example the section on pages 2080-2091 of the NEC-ROP of the substantiation for my proposal 3-130) that there is no need to change the requirements, or limit the application, for wiring methods in plenums, because the fire safety record is excellent.

It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods.

Also see comments from the chairman of the Technical Correlating Committee.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

Comment 3-202 (Log #3804) and Comment 3-203 (Log #3807)

Table 1. Flame Spread and Optical Density of Wiring Systems

Cable	Metal Raceway	Flame Spread (ft)	Peak Optical Density	Average Optical Density
Plenum Rated Coaxial Cable	None	3.0	0.12	0.015
Plenum Rated Coaxial Cable	None	3.0	0.25	0.067
Plenum Rated Coaxial Cable	None	3.0	0.45	0.13
Plenum Rated Coaxial Cable	None	3.0	0.60	0.15
Plenum Rated Fire Alarm Cable	None	3.0	0.10	0.028
Plenum Rated Fire Alarm Cable	None	3.0	0.15	0.043
Plenum Rated Inside Wiring	None	3.0	0.35	0.121
Plenum Rated Inside wiring	None	3.0	0.25	0.047
Plenum Rated Station Wire	None	3.5	0.08	0.069
Plenum Rated Station Wire	None	3.5	0.07	-
Plenum Rated Station Wire	None	3.5	0.08	-
Plenum Cable NFPA 262 Limits	None	5.0	0.50	0.15
Coaxial Cable	Steel EMT	7.0	1.85	0.37
Coaxial Cable	Steel EMT	4.5	1.00	0.11
Fire Alarm Cable	Steel EMT	4.0	0.70	0.17
Fire Alarm Cable	Steel EMT	3.5	0.50	0.09
Inside Wiring	Steel EMT	2.5	0.14	0.069
Inside Wiring	Steel EMT	2.5	0.38	0.094
Inside Wiring	Flexible Steel	2.0	0.06	0.008
Inside Wiring	Flexible Steel	2.0	0.04	0.005
Inside Wiring	Rigid Aluminum	2.0	0.20	0.045
Inside Wiring	Flexible Aluminum	2.5	0.56	0.084
Inside Wiring	Flexible Aluminum	2.5	0.31	0.051
Station Wire	Flexible Aluminum	3.5	0.85	0.222
Station Wire	Flexible Aluminum	3.5	0.66	0.157
Fire Alarm Cable	Flexible Aluminum	6.0	0.60	0.22
Fire Alarm Cable	Flexible Aluminum	5.5	1.20	0.19
Coaxial Cable	Flexible Aluminum	13.5	1.85	0.45
Coaxial Cable	Flexible Aluminum	19.5	2.15	0.32

3-205 Log #3681 NEC-P03 **Final Action: Reject**
(725.61, 725-71, Figure 725-61 and Tables 725-61 & 725-71)

Submitter: Sanford Egesdal, Egesdal Associates PLC
Comment on Proposal No: 3-194
Recommendation: Accept proposal 3-194 in principle by accepting the text shown below:

725.154 Applications of Listed Class 2, Class 3, and PLTC Cables. Class 2, Class 3, and PLTC cables shall comply with the requirements described in 725.154(A) through (F) or where cable substitutions are made as shown in 725.154(G).

(A) Air Ducts and Plenums Cables installed in air ducts and plenums shall comply with the applicable requirements of (1) or (2) below.

(1) Air Ducts. Cables installed in air ducts shall be Type CL3D or Type CL2D and shall be associated with the air duct system. Types CL3D, CL2D, CL3P, CL2P, CL3R, CL2R, PLTC, CL3, CL2, CL3X, and CL2X conductors and cables installed in compliance with Section 300.22(B) shall be permitted.

(2) Plenums. Cables installed in plenums shall comply with (a) or (b) below.

(a) Cables installed in plenums, other than ceiling cavity plenums and raised floor plenums, shall be Type CL3D or Type CL2D and shall be associated with the plenum system. Where installed in an air-handling unit room plenum, Type CL3D or Type CL2D cable shall be mechanically protected to a height of 7 feet above the floor. Types CL3D, CL2D, CL3P, CL2P, CL3R, CL2R, PLTC, CL3, CL2, CL3X, and CL2X conductors and cables installed in compliance with Section 300.22(B) shall be permitted.

(b) Cables installed in accessible ceiling cavity plenums and accessible raised floor plenums shall be Types CL3D, CL2D, CL3P or CL2P. Cables installed in inaccessible ceiling cavity plenums and inaccessible raised floor plenums shall be Type CL3D or Type CL2D. Types CL3D, CL2D, CL3P, CL2P, CL3R, CL2R, PLTC, CL3, CL2, CL3X, and CL2X conductors and cables installed in compliance with Section 300.22(C) shall be permitted. Listed plenum signaling raceways shall be permitted to be installed in ceiling cavity plenums and raised floor plenums. Only Types CL3D, CL2D, CL3P and CL2P conductors and cables shall be permitted to be installed in these raceways.

FPN: Plenums described in NFPA 90A-2002, *Standard for the Installation of Air-Conditioning and Ventilating Systems*, include air-handling unit room plenums, apparatus casing plenums, duct distribution plenums, ceiling cavity plenums, and raised floor plenums.

(B) Riser. Cables installed in risers shall comply with 725.154(B)(1), (B)(2) or (B)(2).

(1) Cables installed in vertical runs and penetrating more than one floor, or cables installed in vertical runs in a shaft, shall be Type CL3R or CL2R. Floor penetrations requiring Type CL3R or CL2R shall contain only cables suitable for air duct, plenum or riser use. Listed riser signaling raceways shall be permitted to be installed in vertical riser runs in a shaft from floor to floor. Only Types CL3D, CL2D, CL3P, CL2P, CL3R, CL2R, CL3X, and CL2X cables shall be permitted to be installed in these raceways.

(2) Other cables as covered in Table 725.154 and other listed wiring methods as covered in Chapter 3 shall be installed in metal raceways or located in a fireproof shaft having firestops at each floor.

(3) Type CL3, CL2, CL3X, and CL2X cables shall be permitted in one- and two-family dwellings. Listed general purpose signaling raceways shall be permitted. Only Types CL3D, CL2D, CL3P, CL2P CL3R, CL2R, PLTC, CL3 and CL2 cables shall be permitted to be installed in these raceways.

FPN: See 300.21 for firestop requirements for floor penetrations.

(C) Cable Trays. Cables installed in cable trays shall comply with any of (1) through (5).
(1) Cables installed in cable trays outdoors shall be Type PLTC.
(2) Cables installed in cable trays indoors shall be Types CL3D, CL2D, CL3P, CL2P, CL3R, CL2R, PLTC, CL3 and CL2.
(3) Listed general purpose signaling raceways shall be permitted for use with cable trays. Only Types CL3D, CL2D, CL3P, CL2P CL3R, CL2R, PLTC, CL3 and CL2 cables shall be permitted to be installed in these general purpose raceways.
(4) Listed riser signaling raceways shall be permitted for use with cable trays. Only Types CL3D, CL2D, CL3P, CL2P, CL3R and CL2R cables shall be permitted to be installed in these riser raceways.
(5) Listed plenum signaling raceways shall be permitted for use with cable trays. Only Types CL3D, CL2D, CL3P and CL2P cables shall be permitted to be installed in these plenum raceways.
FPN: See 800.55(D) for cables permitted in cable trays.

(D) Hazardous (Classified) Locations. Cables installed in hazardous locations shall be as described in 725.154(D)(1) through (D)(4).

(1) Type PLTC. Cables installed in hazardous (classified) locations shall be Type PLTC. Where the use of Type PLTC cable is permitted by 501.4(B), 502.4(B), and 504.20, the cable shall be installed in cable trays, in raceways supported by messenger wire, or otherwise adequately supported and mechanically protected by angles, struts, channels, or other mechanical means. The cable shall be permitted to be directly buried where the cable is listed for this use.
(2) Nonincendive Field Wiring. Wiring for Class 2 circuits as permitted by 501.4(B)(3) shall be permitted.
(3) Thermocouple Circuits. Conductors in Type PLTC cables used for Class 2 thermocouple circuits shall be permitted to be any of the materials used for thermocouple extension wire.
(4) In Industrial Establishments. In industrial establishments where the conditions of maintenance and supervision ensure that only qualified persons service the installation, and where the cable is not subject to physical damage, Type PLTC cable that complies with the crush and impact requirements of Type MC cable and is identified for such use shall be permitted as open wiring between cable tray and utilization equipment in lengths not to exceed 15 m (50 ft). The cable shall be supported and protected against physical damage using mechanical protection such as dedicated struts, angles, or channels. The cable shall be supported and secured at intervals not exceeding 1.75 m (6 ft).

(E) Other Wiring Within Buildings. Cables installed in building locations other than those covered in 725.154(A) through (D) shall be as described in any of (1) through (6).

(1) Type CL3 or CL2 shall be permitted.

(2) Type CL3X or CL2X shall be permitted to be installed in a raceway or in accordance with other wiring methods covered in Chapter 3.

(3) Cables shall be permitted to be installed in nonconcealed spaces where the exposed length of cable does not exceed 3 m (10 ft).

(4) Listed Type CL3X cables less than 6 mm (0.25 in.) in diameter and listed Type CL2X cables less than 6 mm (0.25 in.) in diameter shall be permitted to be installed in one- and two-family dwellings.

(5) Listed Type CL3X cables less than 6 mm (0.25 in.) in diameter and listed Type CL2X cables less than 6 mm (0.25 in.) in diameter shall be permitted to be installed in nonconcealed spaces in multifamily dwellings.

(6) Type CMUC undercarpet communications wires and cables shall be permitted to be installed under carpet.

(7) Listed general purpose signaling raceways shall be permitted. Only Types CL3D, CL2D, CL3P, CL2P CL3R, CL2R, PLTC, CL3 and CL2 cables shall be permitted to be installed in these raceways.

(F) Cross-Connect Arrays. Type CL3 or CL2 conductors or cables shall be used for cross-connect arrays.

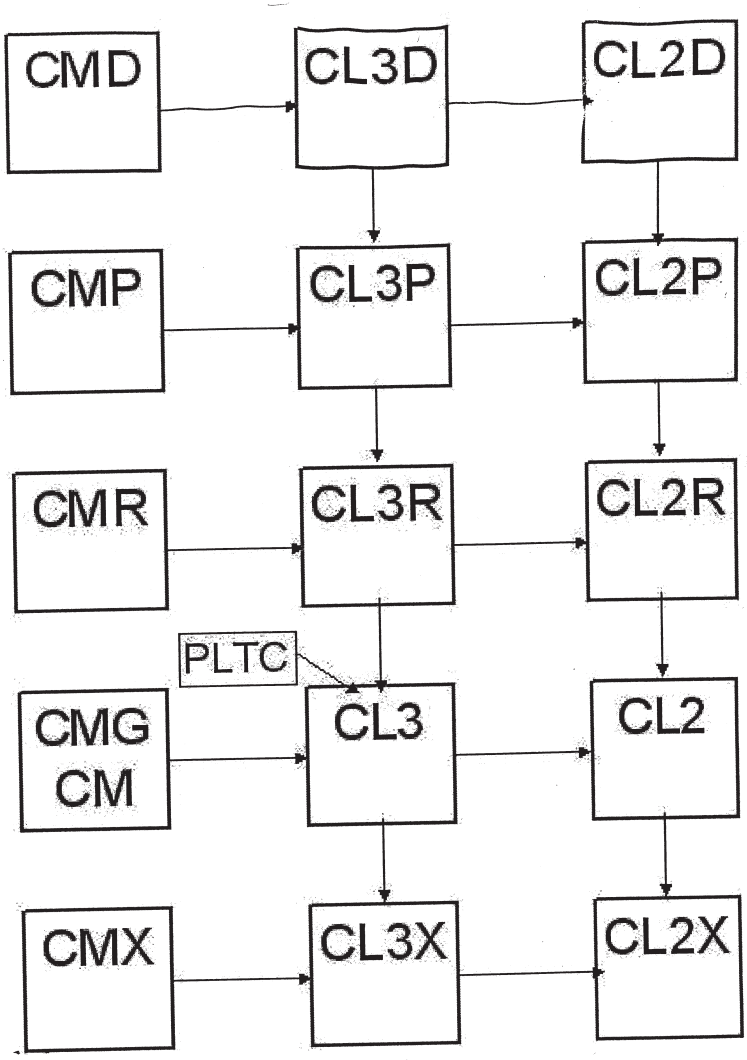
(G) Class 3 and Class 2 Cable Uses and Permitted Substitutions. The uses and permitted substitutions for Class 3 and Class 2 cables listed in Table 725.154 shall be considered suitable for the purpose and shall be permitted.

FPN: For information on Types CMP, CMR, CM, and CMX cables, see 800.179.

Table 725.154 Cable Substitutions

Cable Type	Permitted Substitutions
CL3D	CMD
CL2D	CMD, CL3D
CL3P	CMD, CL3D, CMP
CL2P	CMD, CL3D, CL2D, CMP, CL3P
CL3R	CMD, CL3D, CMP, CL3P, CMR
CL2R	CMD, CL3D, CL2D, CMP, CL3P, CL2P, CMR, CL3R
PLTC	none
CL3	CMD, CL3D, CMP, CL3P, CMR, CL3R, CMG, CM, PLTC
CL2	CMD, CL3D, CL2D, CMP, CL3P, CL2P, CMR, CL3R, CL2R, CMG, CM, PLTC, CL3
CL3X	CMD, CL3D, CMP, CL3P, CMR, CL3R, CMG, CM, PLTC, CL3, CMX
CL2X	CMD, CL3D, CL2D, CMP, CL3P, CL2P, CMR, CL3R, CL2R, CMG, CM, PLTC, CL3, CL2, CMX, CL3X

Comment 3-205 (Log #3681)



Type CM—Communications wires and cables
Type CL2 and CL3—Class 2 and Class 3 remote-control, signaling, and power-limited cables
Type PLTC—Power-limited tray cable
[A]→[B] Cable A shall be permitted to be used in place of cable B.

Figure 725.154 Cable Substitution Hierarchy

725.179 Listing and Marking of Class 2, Class 3, and Type PLTC Cables. Class 2, Class 3, and Type PLTC cables installed as wiring within buildings shall be listed as being resistant to the spread of fire and other criteria in accordance with 725.179(A) through (H) and shall be marked in accordance with 725.179(I).

(A) Types CL2D and CL3D. Types CL2D and CL3D air duct cable shall be listed as being suitable for use in ducts, plenums, and other space used for environmental air and shall also be listed as having a low potential heat value, low flame spread characteristics, and very low smoke-producing characteristics.

FPN: One method of defining a low potential heat cable is establishing an acceptable value of potential heat when tested in accordance with NFPA 259, Standard Test Method for Potential Heat of Building Materials, to a maximum potential heat value not exceeding 8141 kJ/kg (3500 BTU/lb). One method of defining low flame spread cable is establishing an acceptable value of flame spread when tested in accordance with NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials, to a maximum flame spread index of 25. Similarly, one method of defining very low smoke-producing cable is establishing an acceptable value when tested in accordance with NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials, to maximum smoke developed index of 50. These test methods and resultant values correlate with the requirements of NFPA 90A-2002, Standard for the Installation of Air-Conditioning and Ventilating System for materials installed in ducts and plenums.

(B) Types CL2P and CL3P. Types CL2P and CL3P plenum cable shall be listed as being suitable for use in ceiling cavity plenums and raised floor plenums and shall also be listed as having adequate fire-resistant and low smoke-producing characteristics.

> FPN: See section 4.3.10 of NFPA 90A-2002, Standard for the Installation of Air-Conditioning and Ventilating Systems for listing requirements for plenum cable.

(C) Types CL2R and CL3R. Types CL2R and CL3R riser cables shall be listed as being suitable for use in a vertical run in a shaft or from floor to floor and shall also be listed as having fire-resistant characteristics capable of preventing the carrying of fire from floor to floor.

> FPN: One method of defining fire-resistant characteristics capable of preventing the carrying of fire from floor to floor is that the cables pass the requirements of ANSI/UL 1666-1997, Test for Flame Propagation Height of Electrical and Optical-Fiber Cable Installed Vertically in Shafts.

(D) Types CL2 and CL3. *Types CL2 and CL3 cables shall be listed as being suitable for general-purpose use, with the exception of risers, ducts, plenums, and other space used for environmental air and shall also be listed as being resistant to the spread of fire*.

> FPN: One method of defining resistant to the spread of fire is that the cables do not spread fire to the top of the tray in the vertical tray flame test in ANSI/UL 1581-1991, Reference Standard for Electrical Wires, Cables and Flexible Cords.
>
> Another method of defining resistant to the spread of fire is for the damage (char length) not to exceed 1.5 m (4 ft 11 in.) when performing the CSA vertical flame test for cables in cable trays, as described in CSA C22.2 No. 0.3-M-1985, Test Methods for Electrical Wires and Cables.

(E) Types CL2X and CL3X. Types CL2X and CL3X limited-use cables shall be listed as being suitable for use in dwellings and for use in raceway and shall also be listed as being resistant to flame spread.
FPN: One method of determining that cable is resistant to flame spread is by testing the cable to the VW-1 (vertical-wire) flame test in ANSI/UL 1581-1991, Reference Standard for Electrical Wires, Cables and Flexible Cords.
(F) Type PLTC. Type PLTC nonmetallic-sheathed, power-limited tray cable shall be listed as being suitable for cable trays and shall consist of a factory assembly of two or more insulated conductors under a nonmetallic jacket. The insulated conductors shall be 22 AWG through 12 AWG. The conductor material shall be copper (solid or stranded). Insulation on conductors shall be suitable for 300 volts. The cable core shall be either (1) two or more parallel conductors, (2) one or more group assemblies of twisted or parallel conductors, or (3) a combination thereof. A metallic shield or a metallized foil shield with drain wire(s) shall be permitted to be applied either over the cable core, over groups of conductors, or both. The cable shall be listed as being resistant to the spread of fire. The outer jacket shall be a sunlight- and moisture-resistant nonmetallic material.

Exception No. 1: Where a smooth metallic sheath, continuous corrugated metallic sheath, or interlocking tape armor is applied over the nonmetallic jacket, an overall nonmetallic jacket shall not be required. On metallic-sheathed cable without an overall nonmetallic jacket, the information required in 310.11 shall be located on the nonmetallic jacket under the sheath.

Exception No. 2: Conductors in PLTC cables used for Class 2 thermocouple circuits shall be permitted to be any of the materials used for thermocouple extension wire.

> FPN: One method of defining resistant to the spread of fire is that the cables do not spread fire to the top of the tray in the vertical tray flame test in ANSI/UL 1581-1991, Reference Standard for Electrical Wires, Cables and Flexible Cords.
>
> Another method of defining resistant to the spread of fire is for the damage (char length) not to exceed 1.5 m (4 ft 11 in.) when performing the CSA vertical flame test for cables in cable trays, as described in CSA C22.2 No. 0.3-M-1985, Test Methods for Electrical Wires and Cables.

(G) Class 2 and Class 3 Cable Voltage Ratings. Class 2 cables shall have a voltage rating of not less than 150 volts. Class 3 cables shall have a voltage rating of not less than 300 volts.

(H) Class 3 Single Conductors. Class 3 single conductors used as other wiring within buildings shall not be smaller than 18 AWG and shall be Type CL3. Conductor types described in 725.27(B) that are also listed as Type CL3 shall be permitted.

> FPN: One method of defining resistant to the spread of fire is that the cables do not spread fire to the top of the tray in the vertical tray flame test in ANSI/UL 1581-1991, Reference Standard for Electrical Wires, Cables and Flexible Cords.
>
> Another method of defining resistant to the spread of fire is for the damage (char length) not to exceed 1.5 m (4 ft 11 in.) when performing the CSA vertical flame test for cables in cable trays as described in CSA C22.2 No. 0.3-M-1985, Test Methods for Electrical Wires and Cables.

Table 725.179 Cable Markings

Cable Marking	Type
CL3D	Class 3 air duct cable
CL2D	Class 2 air duct cable
CL3P	Class 3 plenum cable
CL2P	Class 2 plenum cable
CL3R	Class 3 riser cable
CL2R	Class 2 riser cable
PLTC	Power-limited tray cable
CL3	Class 3 cable
CL2	Class 2 cable
CL3X	Class 3 cable, limited use
CL2X	Class 2 cable, limited use

Substantiation: The sections have been renumbered to use the numbering scheme proposed by the renumbering task group that was established in response to the TCC directive on proposals 3-126 and 3-223.

This proposal includes the changes proposed by the technical committee on air conditioning in the following proposals:

3-214, which recommended changing the fine print notes for plenum cable listing to reference NFPA 90A. The panel accepted this proposal and this comment assumes that the panel will accept their comment to substitute alternate text.

3-174, which recommended changing the permitted applications of "P" type plenum cable to restrict them to ceiling cavity and raised floor plenums only. The panel rejected this proposal. The comment incorporates the recommended changes on the assumption that the panel will accept a comment to accept the proposal.

3-213, which recommended changing the listing requirements for "P" type plenum cable to list them for use in ceiling cavity and raised floor plenums only. The panel rejected this proposal. The comment incorporates the recommended changes on the assumption that the panel will accept a comment to accept the proposal.

This comment also includes changes recommended in proposals 3-270, 3-271 and 3-272 which require the use of air duct cable in newly built inaccessible ceiling cavity plenums and newly built inaccessible raised floor plenums. The panel rejected these proposals. The comment incorporates the recommended changes on the assumption that the panel will accept comments to accept the proposals.

The panel accepted the listing of duct cable in its action on proposal 3-192 and 3-286. The name of the cable should be changed from "duct cable" to "air duct cable" to correlate with the actions of panel 16 of proposals 16-37, 16-112 and 16-177. Panel 16 changed the name to avoid confusion with telephone duct cable which is an unlisted outside plant cable used in telephone ducts (conduit).

This comment also includes the signaling raceway accepted in proposals 3-171 and 3-210 with the application of plenum raceways limited to ceiling cavity plenums and raised floor plenums on the assumption that the panel will accept a comment from the Technical Committee on Air conditioning on 3-171. It is also assumed the panel will accept Stan Kaufman's comment on 3-171 that makes additional changes to the use of signaling raceway.

Acceptance of proposals 3-174 & 3-213 leaves users without a wiring method, other than metal raceway, for air ducts, duct distribution plenums, apparatus casing plenums and air-handling unit plenums. Wring should be excluded from these air-handling spaces unless it is associated with the air distribution system. This proposal provides a wiring method that correlates with the requirements of NFPA 90A for supplementary materials in air handling spaces. Furthermore, providing listing and applications for "air duct" cables correlates with the NFPA 90A requirements for listing of limited combustible cable.

The basis of the requirement for mechanical protection up to 7 feet in an air-handling room plenum is that fire alarm wiring installed in air-handling room plenums is required to be protected to a height of 7 feet. See 760.52(B)(2).

Wherever there are lists of cables in the text, higher performing cables always precede lower performing cables: class 3 before class 2, PLTC before class 3 and cables higher on the fire resistance hierarchy before cables lower on the hierarchy.

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-206 Log #1402 NEC-P03 **Final Action: Reject**
(725.61, 725.71)

Submitter: Paul Neveux, OFS
Comment on Proposal No: 3-190
Recommendation: Continue to accept these proposals in principle, but extend the principle by accepting the applications for duct cable in addition to retaining the listings previously accepted.
Substantiation: Proposals 3-190 and 3-284 were part of a series of proposals submitted to establish duct cable in the National Electrical Code. The panel action to accept proposals 3-192 and 3-284 in principle established listing requirements for duct cable and appears to be the basis of the panel reporting its actions on proposals 3-190 and 3-284 as "accept in principle". The panel should continue to accept the listing of duct cable in Articles 725 and 760.

These proposals, like all the others that were submitted to establish duct cable, assumed that Panels 3 and 16 would accept the proposals submitted by the Technical Committee on Air Conditioning to harmonize the terminology and requirements of the NEC with NFPA 90A. Panel 16 accepted these proposals and Panel 3 did not.

I have provided an advertisement for NFPA 5000-2003, Building Construction and Safety Code. Please note the section of the ad that states:

NFPA 5000 works with codes and standards that are already universally accepted!

Fully harmonized with the NEC, Life Safety Code, National Fire Alarm Code, NFPA 1: Uniform Fire Code and the NFC, NFPA 5000 forms an integral part of C3, the only integrated set of consensus-based code and standards developed by NFPA, IAPMO, ASHRAE and WFCA.

Unfortunately, the statement in the ad isn't fully realized. It's up to the NFPA Technical Committees to implement the goal of having a fully integrated set of codes and standards. Panel 3 should accept the proposals from the Technical Committee on Air Conditioning. Once that is done, the Panel 3 should no longer reject the applications of duct cable in ceiling cavity plenums and raised floor plenums.

Panel 3 should accept proposals 3-190 and 3-172 as we submitted them or accept them in principle by accepting broader Proposals 3-194 and 3-288 that include all the changes in 3-190 and 3-172.

Please note that OFS fully supports the current designations of plenum spaces and that both plenum rated cable (as currently defined) and duct cable (as proposed) can coexist to meet the needs of both fire safety and consumer demand.

Note: Supporting material is available for review at NFPA Headquarters.

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-207 Log #2272 NEC-P03 **Final Action: Accept**
(725.61, 725.71)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-202
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.

The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking) the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).

In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.

By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-208 Log #2273 NEC-P03 **Final Action: Accept**
(725.61, 725.71)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-203
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.

The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking) the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).

In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.

By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-209 Log #2278 NEC-P03 **Final Action: Accept**
(725.61, 725.71)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-194
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.

The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking) the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).

In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.

By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-210 Log #2279 NEC-P03 **Final Action: Accept**
(725.61, 725.71)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-196
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.

The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking)

the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).

In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.

By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-211 Log #3805 NEC-P03 **Final Action: Accept**
(725.61, 725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-190
Recommendation: *Reject this proposal - Also reject the reference to NFPA 90A.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.

Furthermore, the reference to NFPA 90A is not appropriate in the Fine Print Note, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.

See further information in the comment I made to recommend rejection of proposal 3-169.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-212 Log #3806 NEC-P03 **Final Action: Accept**
(725.61, 725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-191
Recommendation: *Reject this proposal - Also reject the reference to NFPA 90A.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.

Furthermore, the reference to NFPA 90A is not appropriate in the Fine Print Note, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.

See further information in the comment I made to recommend rejection of proposal 3-169.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-213 Log #3811 NEC-P03 **Final Action: Accept**
(725.61, 725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-196
Recommendation: *Reject this proposal - Also reject the reference to NFPA 90A.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.

Furthermore, the reference to NFPA 90A is not appropriate in the Fine Print Note, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.

See further information in the comment I made to recommend rejection of proposal 3-169.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-214 Log #3812 NEC-P03 **Final Action: Accept**
(725.61, 725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-198
Recommendation: *Reject this proposal - Also reject the reference to NFPA 90A.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.

Furthermore, the reference to NFPA 90A is not appropriate in the Fine Print Note, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.

See further information in the comment I made to recommend rejection of proposal 3-169.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-215 Log #3813 NEC-P03 **Final Action: Accept**
(725.61, 725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-199
Recommendation: *Reject this proposal - Also reject the reference to NFPA 90A.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.

Furthermore, the reference to NFPA 90A is not appropriate in the Fine Print Note, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.

See further information in the comment I made to recommend rejection of proposal 3-169.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-216 Log #3814 NEC-P03 **Final Action: Accept**
(725.61, 725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-200
Recommendation: *Reject this proposal - Also reject the reference to NFPA 90A.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.

Furthermore, the reference to NFPA 90A is not appropriate in the Fine Print Note, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.

See further information in the comment I made to recommend rejection of proposal 3-169.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-217 Log #3815 NEC-P03 **Final Action: Accept**
(725.61, 725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-201
Recommendation: *Reject this proposal - Also reject the reference to NFPA 90A.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.

Furthermore, the reference to NFPA 90A is not appropriate in the Fine Print Note, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.

See further information in the comment I made to recommend rejection of proposal 3-169.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-218 Log #3816 NEC-P03 **Final Action: Accept**
(725.61, 725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-202
Recommendation: *Reject this proposal - Also reject the reference to NFPA 90A.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.
Furthermore, the reference to NFPA 90A is not appropriate in the Fine Print Note, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.
See further information in the comment I made to recommend rejection of proposal 3-169.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-219 Log #3817 NEC-P03 **Final Action: Accept**
(725.61, 725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-203
Recommendation: *Reject this proposal - Also reject the reference to NFPA 90A.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.
Furthermore, the reference to NFPA 90A is not appropriate in the Fine Print Note, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.
See further information in the comment I made to recommend rejection of proposal 3-169.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-220 Log #3818 NEC-P03 **Final Action: Accept**
(725.61, 725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-204
Recommendation: *Reject this proposal - Also reject the reference to NFPA 90A.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.
Furthermore, the reference to NFPA 90A is not appropriate in the Fine Print Note, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.
See further information in the comment I made to recommend rejection of proposal 3-169.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-221 Log #3819 NEC-P03 **Final Action: Accept**
(725.61, 725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-205
Recommendation: *Reject this proposal - Also reject the reference to NFPA 90A.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.
Furthermore, the reference to NFPA 90A is not appropriate in the Fine Print Note, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.
See further information in the comment I made to recommend rejection of proposal 3-169.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-222 Log #3820 NEC-P03 **Final Action: Accept**
(725.61, 725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-206
Recommendation: *Reject this proposal - Also reject the reference to NFPA 90A.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.

Furthermore, the reference to NFPA 90A is not appropriate in the Fine Print Note, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.

See further information in the comment I made to recommend rejection of proposal 3-169.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-223 Log #3821 NEC-P03 **Final Action: Accept**
(725.61, 725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-207
Recommendation: *Reject this proposal - Also reject the reference to NFPA 90A.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.

Furthermore, the reference to NFPA 90A is not appropriate in the Fine Print Note, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.

See further information in the comment I made to recommend rejection of proposal 3-169.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-224 Log #3824 NEC-P03 **Final Action: Accept**
(725.61, 725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-209
Recommendation: *Reject this proposal - Also reject the reference to NFPA 90A.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.

Furthermore, the reference to NFPA 90A is not appropriate in the Fine Print Note, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.

See further information in the comment I made to recommend rejection of proposal 3-169.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-225 Log #2888 NEC-P03 **Final Action: Reject**
(725.61, 725.71 Figure 725.61 and Tables 725.61 & 725.71)

Submitter: Stanley Kaufman, CableSafe, Inc.
Comment on Proposal No: 3-194
Recommendation: Accept this proposal in principle with the proposed text revised as follows:

Change the name of the cable from “duct cable” to “air duct cable”.

Change the fine print note for plenum cable listing to:

FPN: See section 4.3.10 of NFPA 90A-2002, Standard for the Installation of Air-Conditioning and Ventilating Systems for listing requirements for plenum cable.

Substantiation: This comment includes the changes proposed by the Technical Committee on Air Conditioning in the following proposals:

3-214, which recommended changing the fine print notes for plenum cable listing to reference NFPA 90A. The panel accepted this proposal. The recommended revision to the fine print note for plenum cable is from a comment submitted by the Technical Committee on Air Conditioning.

3-174, which recommended changing the permitted applications of “P” type plenum cable to restrict them to ceiling cavity and raised floor plenums only. The panel rejected this proposal. The proposal and comment incorporate the recommended changes on the assumption that the panel will accept a comment to accept the proposal.

3-213, which recommended changing the listing requirements for “P” type plenum cable to list them for use in ceiling cavity and raised floor plenums only. The panel rejected this proposal. The proposal and comment incorporate the recommended changes on the assumption that the panel will accept a comment to accept the proposal.

This proposal and comment also include changes recommended in proposals 3-270, 3-271 and 3-272 which require the use of air duct cable in newly built inaccessible ceiling cavity plenums and newly built inaccessible raised floor plenums. The panel rejected these proposals. The proposal and comment incorporate the recommended changes on the assumption that the panel will accept comments to accept the proposals.

The panel accepted the listing of duct cable in its action on proposal 3-192 and 3-286. The name of the cable should be changed from “duct cable” to “air duct cable” to correlate with the actions of panel 16 of proposals 16-37, 16-112 and 16-177. Panel 16 changed the name to avoid confusion with telephone duct cable which is an unlisted outside plant cable used in telephone ducts (conduit).

Acceptance of proposals 3-174 & 3-213 leaves users without a wiring method, other than metal raceway, for air ducts, duct distribution plenums, apparatus casing plenums and air-handling unit plenums. Wring should be excluded from these air-handling spaces unless it is associated with the air distribution system. This proposal provides a wiring method that correlates with the requirements of NFPA 90A for supplementary materials in air handling spaces. Furthermore, providing listing and applications for “air duct” cables correlates with the NFPA 90A requirements for listing of limited combustible cable.

The basis of the requirement for mechanical protection up to 7 feet in an air-handling room plenum is that fire alarm wiring installed in air-handling room plenums is required to be protected to a height of 7 feet. See 760.52(B)(2).

The substantiation for the statement “abandoned cables shall not be permitted to remain” is that these statements were an error that was corrected by panel acceptance of proposal 3-173.

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-226 Log #3833 NEC-P03 **Final Action: Accept**
(725.61, 760.30, 760.61)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-174
Recommendation: *Continue rejecting this proposal.*
Substantiation: There is no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.
See further information in the comment I made to recommend rejection of proposal 3-213.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-227 Log #1508 NEC-P03 **Final Action: Accept**
(725.61 and 725-71)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-190
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.
The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.
There is no need for any additional environmental air space identifiers or cable type designators.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-228 Log #1509 NEC-P03 **Final Action: Accept**
(725.61 and 725-71)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-193
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.
The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.
There is no need for any additional environmental air space identifiers or cable type designators.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-229 Log #1510 NEC-P03 **Final Action: Accept**
(725.61 and 725-71)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-201
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.
The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.
There is no need for any additional environmental air space identifiers or cable type designators.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-230 Log #1512 NEC-P03 **Final Action: Accept**
(725.61 and 725-71)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-191
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.
The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.
There is no need for any additional environmental air space identifiers or cable type designators.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-231 Log #1524 NEC-P03 **Final Action: Accept**
(725.61 and 725-71)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-198
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.
The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.
There is no need for any additional environmental air space identifiers or cable type designators.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-232 Log #3004 NEC-P03 **Final Action: Accept in Part**
(725.61 and 725-71)

Submitter: Ray R. Keden, Erico, Inc.
Comment on Proposal No: 3-194
Recommendation: Delete listing requirements for "duct cable". Modify to read: "Cables shall not be directly placed in air ducts."
Substantiation: • Air systems are generally designed with supply ducts that feed the occupied area with returns built into the structure (ceiling space, floor). When a fire is detected, smoke dampers close and divert smoke and toxic gases to the building's exterior. Duct cable is not noncombustible, rather it is a fuel source. There are no provisions for a listed device to detect a toxic burning "duct cable" in the supply duct. Additionally, the toxic smoke would have to emanate from the air outlets within the building causing an unsafe environment until the smoke detector sensor could actuate the smoke dampers into action. Placing this cable directly in the duct is unsafe to the occupants of the building and fire rescue personnel that may be dispatched to the incident. Rather than place this added fuse into a duct, the cable should be placed in noncombustible conduit and routed to the device within the duct.
• All buildings that are built have a certain risk factor. Listed plenum cables currently installed within buildings have not been shown to raise the risk factor as there are no incidents substantiated in any proposals to warrant a change.
• Air flow, per code, is difficult to achieve in many buildings. The addition of toxic cable will deter what can be delivered. There are no proposals that offer the amount of these toxic cables that can occupancy an air duct. Additionally, the installation of cable within an air duct, depending upon the velocity of the air, will cause noise in the environment and unsafe working conditions.
• Cables placed in ducts will cause fire dampers to be restricted from closing. This is not only restricting a fire damper's use, it causes an unsafe environment for occupants in buildings during a fire emergency.
• Cables in air ducts are subject to damage by installers that use sheet metal screws when maintaining air ducts. These screws are very sharp and will penetrate the sheath causing an electrical arc and possible fire from dust accumulation in air duct.
• Air ducts will not be able to be cleaned without damaging cables placed within the air duct.
• Air distribution is specified in 4.3 of NFPA 90A and includes 4.3.10 for plenums. These plenums include ceiling cavity plenums (4.3.10.2), duct distribution plenum (4.3.10.3), apparatus casing plenum (4.3.10.4), air handling unit room plenum (4.3.10.5), and raised floor plenum (4.3.10.6). While requirements are specified for cable placed in ceiling cavity plenums and raised floor plenums (noncombustible or limited combustible with smoke requirements per NFPA 262), there are no like requirements for duct distribution plenum, or apparatus casing plenum, or air handling unit room plenum - rather they specify NFPA 255 for testing building materials. As for other areas specified in 4.3, Air Distribution, there are no requirements for cable placement in the air distribution system. Following back to 4.1, General Requirements for Equipment, paragraph 4.1.4 specifies "electrical wiring and equipment shall be installed in accordance to NFPA 70, National Electrical Code". Seems like NFPA 90A realizes that NFPA 70 is sufficient for their need.
• The NFPA 90A scope is specified for buildings that are 25,000 cubic feet or 3 stories in height. The NEC does not have this restriction. Harmonizing the code to this standard is inappropriate.
Panel Meeting Action: Accept in Part
Accept the part to delete duct cable but reject modification "Cables shall not be directly placed in air ducts."
Panel Statement: The panel has accepted the part to delete air duct cable but rejects the modification about placing cables directly into the air ducts since there was no technical substantiation to prohibit their installation in air ducts.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-233 Log #2271 NEC-P03 **Final Action: Accept**
(725.61 and 725.71)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-191
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.
The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking) the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).
In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.
By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-234 Log #2274 NEC-P03 **Final Action: Accept**
(725.61 and 725.71)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-199
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.
The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking) the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).
In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a

person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.

By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-235 Log #2276 NEC-P03 **Final Action: Accept**
(725.61 and 725.71)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-200
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.

The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking) the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).

In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.

By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-236 Log #2277 NEC-P03 **Final Action: Accept**
(725.61 and 725.71)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-201
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.

The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking) the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).

In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.

By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-237 Log #2280 NEC-P03 **Final Action: Accept**
(725.61 and 725.71)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-195
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.

The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking) the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).

In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.

By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-238 Log #2281 NEC-P03 **Final Action: Accept**
(725.61 and 725.71)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-204
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.

The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking) the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).

In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.

By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-239 Log #2282 NEC-P03 **Final Action: Accept**
(725.61 and 725.71)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-207
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.

The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking) the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).

In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork

needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.

By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-240 Log #2284 NEC-P03 **Final Action: Accept**
(725.61 and 725.71)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-205
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.

The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking) the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).

In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.

By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-241 Log #2287 NEC-P03 **Final Action: Accept**
(725.61 and 725.71)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-209
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.

The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking) the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).

In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.

By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-242 Log #2292 NEC-P03 **Final Action: Accept**
(725.61 and 725.71)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-198
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.

The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking) the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).

In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.

By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-243 Log #2293 NEC-P03 **Final Action: Accept**
(725.61 and 725.71)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-206
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.

The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking) the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).

In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.

By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-244 Log #2299 NEC-P03 **Final Action: Accept**
(725.61 and 725.71)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-190
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.

The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking) the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).

In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork

needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.

By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-245 Log #3809 NEC-P03 **Final Action: Accept**
(725.61 and 725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-194
Recommendation: *Reject this proposal - Also reject the reference to NFPA 90A.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.

Furthermore, the reference to NFPA 90A is not appropriate in the Fine Print Note, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.

See further information in the comment I made to recommend rejection of proposal 3-169.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-246 Log #3810 NEC-P03 **Final Action: Accept**
(725.61 and 725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-195
Recommendation: *Reject this proposal - Also reject the reference to NFPA 90A.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.

Furthermore, the reference to NFPA 90A is not appropriate in the Fine Print Note, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.

See further information in the comment I made to recommend rejection of proposal 3-169.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-247 Log #2658 NEC-P03 **Final Action: Reject**
(725.61 and 760-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-166
Recommendation: Accept in principle, based on the task group's recommendation of Proposal 3-194.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-248 Log #194 NEC-P03 **Final Action: Reject**
(725.61 and 760.61)

Submitter: Stanley Kaufman, CableSafe, Inc.
Comment on Proposal No: 3-167
Recommendation: Accept this proposal in principle. Make the following additional changes:

Revise the FPN in 726.61 and 760.61(D) to read as follows:

FPN: For information on communications cables, Types CMD, CMP, CMR, CM and CMX, see 800.51.

Substantiation: Panel 16 action on proposal 16-104 and panel 3 action on proposal 3-280 eliminated multipurpose cables. Panel 16 action on proposal 16-112 established Type CMD. With the elimination of multipurpose cables, these fire print notes for Articles 725 and 760 can be and should be editorially consistent.

Note - Section 800.51 has been renumbered.

Note - The current fine print note in 725.61(G) has a typographical error. "CH" should be "CM".

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-249 Log #1643 NEC-P03 **Final Action: Accept**
(725.61 and 760.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-166
Recommendation: Continue to reject.
Substantiation: We agree with both the panel action and panel statement to reject Proposal 3-166. No technical substantiation has been provided. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-250 Log #2886 NEC-P03 **Final Action: Reject**
(725.61, and 760.61)

Submitter: Stanley Kaufman, CableSafe, Inc.
Comment on Proposal No: 3-167
Recommendation: Accept this proposal in principle. Make the following additional changes:

Revise the FPN in 726.61 and 760.61(D) to read as follows:

FPN: For information on communications cables, Types CMD, CMP, CMR, CM and CMX, see 800.51.

Substantiation: Panel 16 action on proposal 16-104 and panel 3 action on proposal 3-280 eliminated multipurpose cables. Panel 16 action on proposal 16-112 established Type CMD. With the elimination of multipurpose cables these fine print notes for Articles 725 and 760 can be and should be editorially consistent.

Note - Section 800.51 has been renumbered.

Note- The current fine print note in 725.61(G) has a typographical error. "CH" should be "CM".

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-251 Log #1305 NEC-P03 **Final Action: Accept**
(725.61, Table 725-61 and Figure 725-61)

Submitter: Wayne G. Carson, Carson Assoc. Inc.
Comment on Proposal No: 3-169
Recommendation: Reject Proposal 3-169 (Log #2554).
Substantiation: The substantiation of committee member Mr. Easter lists several reasons why this proposal should be rejected and I concur. There is no need for an additional cable category and no substantiation provided by the committee. This new category of cable refers to testing under NFPA 255 and 259 which reference "building materials" and the Standards Council has stated that wire and cable is not considered building material.

See also my comment submitted on Proposal 3-126.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-252 Log #2552 NEC-P03 **Final Action: Accept**
(725.61, Table 725-61 and Figure 725-61)

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-169
Recommendation: Reject this proposal.
Substantiation: See our companion proposal on 3-192.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-253 Log #2692 NEC-P03 **Final Action: Reject**
(725.61, Table 725-61 and Figure 725-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-169
Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group's comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-254 Log #1645 NEC-P03 **Final Action: Accept**
(725.61, Table 725.61 and Figure 725.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-169
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter, and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-255 Log #2518a NEC-P03 **Final Action: Accept**
(725.61, Table 725.61, Figure 725.61,)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-169
Recommendation: Reject this proposal.
Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-256 Log #1480 NEC-P03 **Final Action: Accept**
(725.61(A))

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals
Comment on Proposal No: 3-174
Recommendation: Continue rejecting this proposal.
Substantiation: • This comment recommends continued rejection of a subdivision of "other spaces used for environmental air" and continued rejection of granting priority to NFPA 90A on choices of wiring methods.
• The input from CMP 3 and from the NEC Technical Coordinating Committee makes it clear that the terminology used in 300.22 has served the NEC well and needs no change. It has also become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods.
• It has already been shown in detail by the fire hazard and fire risk analysis presented together with my original proposals (see for example the section on pages 2080-2091 of the NEC-ROP of the substantiation for my proposal 3-130) that there is no need to change the requirements, or limit the application, for wiring methods in plenums, because the fire safety record is excellent.
• I understand that this comment represents a change in some of the concepts the submitter believed when the proposal was submitted, but "even old dogs can learn".
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-257 Log #3863 NEC-P03 **Final Action: Reject**
(725.61(A))

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-173
Recommendation: *There is no consistency in the NEC on the removal of abandoned cables. This is primarily an issue with cables in Articles 645, 725, 760, 770, 800, 820 and 830. The wording should be as follows consistently: "Abandoned [cable type] cables shall be removed." It should also be contained in the section on applications of cables.*
725.61 Applications of Listed Class 2, Class 3, and PLTC Cables. Class 2, Class 3, and PLTC cables shall comply with any of the requirements described in 725.61(A) through (F).
(A) Plenum. Cables installed in ducts, plenums, and other spaces used for environmental air shall be Type CL2P or CL3P. Abandoned cables shall be removed. Listed wires and cables installed in compliance with 300.22 shall be permitted.
Substantiation: The issue here is the interpretation of the action required with respect to what is accessible. The issue of "accessible" cables creates confusion that makes the enforcement of the removal of abandoned cable "dicey" because it is unclear what "accessible" means. The NEC defines the following terms in Article 100:
Accessible (as applied to equipment). Admitting close approach; not guarded by locked doors, elevation, or other effective means.
Accessible (as applied to wiring methods). Capable of being removed or exposed without damaging the building structure or finish or not permanently closed in by the structure or finish of the building.
Accessible, Readily (Readily Accessible). Capable of being reached quickly for operation, renewal, or inspections without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders, and so forth.
The phrase "the accessible portion of abandoned cables" is much vaguer than the definitions in the code, because the term "accessible portion" is not defined. Therefore, accessible portion is probably considered that length of cable that is within a few feet of the opening, and that can be cut off by reaching in. That is clearly not the intent of the code provision: the entire length of cable that can be pulled out should be removed.
Another possible interpretation is that this refers to excluding from removal those cables installed in the areas that CMP 16 calls "inaccessible ceiling cavity plenums and inaccessible raised floor plenums". The concept of those "inaccessible areas" was rejected by CMP 3 as inappropriate because there is no known fire safety problem with the present type of wiring methods, but it was approved by CMP 16. If this concept is approved, and the wording of "abandoned cables" includes the "accessible portion" concept, it would clearly mean that the NEC would permit some cables to be left permanently in place once abandoned. This was soundly rejected by the membership several times, in a concept upheld by Standards Council.
It is pretty obvious that the concept of removal of abandoned cable is not one where someone should try to tear down a building or cause structural damage to it just to remove cables "permanently closed in by the structure or finish of the building". I believe that we must trust in the intelligence of our code officials and electrical inspectors that they will not demand such actions. If there is a feeling that this is a possibility (which I cannot believe), it might be worth adding a Fine Print Note to the effect that removal of abandoned cables should not cause structural damage to the building. An example follows:
FPN: Removal of abandoned cables is not intended to cause structural damage to buildings.
Clearly, "the accessible portion of abandoned cables" is a misleading phrase which can lead to abundant misinterpretation. It should be eliminated in favor of the simpler "abandoned cables".
Panel Meeting Action: Reject
Panel Statement: The requirements to remove abandoned cables have been relocated to 725.3(B) to provide consistency within Article 725.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-258 Log #3865 NEC-P03 **Final Action: Reject**
(725.61(A))

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-175
Recommendation: *There is no consistency in the NEC on the removal of abandoned cables. This is primarily an issue with cables in Articles 645, 725, 760, 770, 800, 820 and 830. The wording should be as follows consistently: "Abandoned [cable type] cables shall be removed." It should also be contained in the section on applications of cables.*
725.61 Applications of Listed Class 2, Class 3, and PLTC Cables. Class 2, Class 3, and PLTC cables shall comply with any of the requirements described in 725.61(A) through (F).
(A) Plenum. Cables installed in ducts, plenums, and other spaces used for environmental air shall be Type CL2P or CL3P. Abandoned cables shall be removed. Listed wires and cables installed in compliance with 300.22 shall be permitted.
Substantiation: The issue here is the interpretation of the action required with respect to what is accessible. The issue of "accessible" cables creates confusion that makes the enforcement of the removal of abandoned cable "dicey" because it is unclear what "accessible" means. The NEC defines the following terms in Article 100:
Accessible (as applied to equipment). Admitting close approach; not guarded by locked doors, elevation, or other effective means.
Accessible (as applied to wiring methods). Capable of being removed or exposed without damaging the building structure or finish or not permanently closed in by the structure or finish of the building.
Accessible, Readily (Readily Accessible). Capable of being reached quickly for operation, renewal, or inspections without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders, and so forth.

The phrase "the accessible portion of abandoned cables" is much vaguer than the definitions in the code, because the term "accessible portion" is not defined. Therefore, accessible portion is probably considered that length of cable that is within a few feet of the opening, and that can be cut off by reaching in. That is clearly not the intent of the code provision: the entire length of cable that can be pulled out should be removed.

Another possible interpretation is that this refers to excluding from removal those cables installed in the areas that CMP 16 calls "inaccessible ceiling cavity plenums and inaccessible raised floor plenums". The concept of those "inaccessible areas" was rejected by CMP 3 as inappropriate because there is no known fire safety problem with the present type of wiring methods, but it was approved by CMP 16. If this concept is approved, and the wording of "abandoned cables" includes the "accessible portion" concept, it would clearly mean that the NEC would permit some cables to be left permanently in place once abandoned. This was soundly rejected by the membership several times, in a concept upheld by Standards Council.

It is pretty obvious that the concept of removal of abandoned cable is not one where someone should try to tear down a building or cause structural damage to it just to remove cables "permanently closed in by the structure or finish of the building". I believe that we must trust in the intelligence of our code officials and electrical inspectors that they will not demand such actions. If there is a feeling that this is a possibility (which I cannot believe), it might be worth adding a Fine Print Note to the effect that removal of abandoned cables should not cause structural damage to the building. An example follows:

FPN: Removal of abandoned cables is not intended to cause structural damage to buildings.

Clearly, "the accessible portion of abandoned cables" is a misleading phrase which can lead to abundant misinterpretation. It should be eliminated in favor of the simpler "abandoned cables".

Panel Meeting Action: Reject
Panel Statement: See the panel statement on Comment 3-257.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-259 Log #1646 NEC-P03 **Final Action: Reject**
(725.61(A), 725.61(B)(1), 760.61(A), and 760.61(B)(1))

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-173
Recommendation: This proposal should be rejected and do not delete the sentence "Abandoned cables shall not be permitted to remain" in Sections 725.61(A), 725.61(B)(1), 760.61(A), and 760.61(B)(1).
Substantiation: A review of the comments from the 2002 ROP/ROCs cited in Proposal 3-173, specifically comments 2001 ROC 16-64 and 2001 ROC 16-87 and their panel actions do not indicate any errors on the part of the submitters. It was clear in reviewing the proposals, comments and panel actions that the intent was to remove abandoned cable not intended for future use. What is not clear is the introduction of the wording/phrase "The accessible portion of" abandoned (cable type) shall not be permitted to remain. The statement "Abandoned cables shall not be permitted to remain" in 725.61(A), 725.61(B)(1), 760.61(A), and 760.61(B)(1) and is very clear; you shall remove the abandoned cables. The statement "The accessible portion of" abandoned (cable type) shall not be permitted to remain is not as clear. What is the interpretation of accessible portion? Does the definition of Accessible (as applied to wiring methods) in Article 100 applied to 725.3(B), and 760.3(A) adequately require every effort be made to remove abandoned cable. To remove the statement "Abandoned cables shall not be permitted to remain" from 725.61(A), 725.61(B)(1), 760.61(A) and 760.61(B)(1) leaves 725.3(B), and 760.3(A) wide open to interpretation as to what the accessible portion of abandoned cables is. To remove "Abandoned cables shall not be permitted to remain" should require a rewrite of 800.3(A), 820.3(A) and 830.3(A) to better clarify what is meant by "The accessible portion of abandoned cables" and perhaps an update to the definition of Accessible. The necessary text in 725.3(B), and 760.3(A) is not in place to address what is meant by accessible portion of abandoned cable. There is no technical substantiation to leave the nonassessable portion of the abandoned cable in plenums and riser areas and, therefore, should not be allowed to remain. Every effort should be made to remove abandoned cables.

This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.

Panel Meeting Action: Reject
Panel Statement: See the panel statement on Comment 3-257.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-260 Log #493 NEC-P03 **Final Action: Reject**
(725.61(A), 760-30(B)(2) & 760-61(A))

Submitter: Allen C. Weidman, The Society of the Plastics Industry, Inc.
Comment on Proposal No: 3-174
Recommendation: Accept this proposal.
Substantiation: Continued acceptance of this proposal will prohibit the installation of unlimited quantities of combustible plenum cable in ducts, which is clearly an unsafe practice. It will also promote the harmonization of the NFPA Family of codes and standards by using the terms "ceiling cavity plenum" and "raised floor plenum" instead of "other spaces used for environmental air", a term which is unique to the NEC and is vague and undefined.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-261 Log #719 NEC-P03 **Final Action: Reject**
(725.61(A), 760-30(B)(2) & 760-61(A))

Submitter: Paula Hubbard, 3M
Comment on Proposal No: 3-174
Recommendation: Accept this proposal.
Substantiation: The proposal is needed to harmonize terminology with NFPA by using the terms "ceiling cavity plenum" and "raised floor plenum", instead of "other space for environmental air". Terminology should be consistent across the board to eliminate later confusion and arbitrary interpretation of the codes. Furthermore, acceptance of this proposal will greatly enhance fire safety by prohibiting the use of combustible plenum cables in ducts.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-262 Log #3679 NEC-P03 **Final Action: Reject**
(725.61(A), 760-30(B)(2) and 760-61(A))

Submitter: Sanford Egesdal, Egesdal Associates PLC
Comment on Proposal No: 3-174
Recommendation: Accept the proposal.
Substantiation: The Standards Council ruled that the Technical Committee on Air Conditioning Committee has jurisdiction over combustibles in the air distribution system. Also, see the NEC TCC note preceding Proposal 3-89, which supports the Standards Council's decision.

The NEC does not define "other space used for environmental air" so it seems reasonable to use air distribution terms from the Air Conditioning Committee to provide requirements for plenum cable.

"…CL2P and CL3P, and plenum signaling raceways shall not be installed in ducts or plenums, but only in other spaces used for environmental air." The preceding quote is from the Panel 3 Statement on Proposal 3-133, which provides substantiation for limiting the application of plenum cable.

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-263 Log #3612 NEC-P03 **Final Action: Reject**
(725.61(A)760-61(A) (as appropriate))

Submitter: Charles D. Marion, II, Marion Fiber Splice Inc.
Comment on Proposal No: 3-171
Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air <u>(ceiling and raised floor cavities)</u>, add the following clarification related to the requirements for cables placed in such spaces:

<u>Replace Section 725.61(A) and 760.61(A) as appropriate:</u>

Note: The relevant cables types need to be inserted in place of OFNP/OFCP and OFND/OFCD as appropriate for each Article.

• 725: **CL2P/CL3P and CL2D/CL3D**
• 760: **FPLP** and **FPLD**
With:

(A) Ducts or Plenums. Used for Environmental Air. The requirements of 300.22(B) for electric wiring shall also apply to installations of optical fiber cables and raceways where they are installed in ducts or plenums used for environmental air. Type CL2D and CL3D cables shall be permitted when associated with the operation of the duct or plenum to include the sensing, monitoring, handling, or control of environmental air with the duct or plenum, as well as supporting the associated equipment such as fire alarm and suppression.

(B) Other Spaces Used for Environmental Air. The requirements of 300.22(C) for electric wiring shall also apply to installations of optical fiber cables and raceways where they are installed in other space used for environmental air, such as ceiling cavities and raised floor cavities. Type **CL2P** and **CL3P** cables and plenum optical fiber raceways shall be permitted. Other listed cable types installed in compliance with 300.22 shall be permitted. Listed plenum optical fiber raceways shall be permitted to be installed in other spaces used for environmental air as described in 300.22(C). Types **CL2P** and **CL3P** cables shall be permitted to be installed in these raceways.

Substantiation: In regards to structured cabling supporting intrabuilding telecommunications systems, it is imperative to avoid making changes that directly or indirectly effect, or which otherwise set the stage for, the development of unnecessary and extraneous requirements that severely and negatively affect, and or unnecessarily limit, viable solutions to real-world requirements. To do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

– Significantly complicate intrabuilding structured cabling requirements with no substantive, definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).

– Critically limit the availably product sets compliant to the revised requirements or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.

– Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser), resulting in significant delays in realizing improvements to endusers' Quality-of-Life and access to on-demand services.

– Limit the flexibility and upgrade potential of newer structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as:

• Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

– Such cables have a proven track record for safety

– The report on an investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Reiterate that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums unless specifically associated with the operation of the duct or plenum, to include the sensing, monitoring, handling, or control of environmental air within the duct or plenum, or with the associated systems such as fire alarm and suppression.

• Encourage the NFPA to recognize that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications supporting sprawling business complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• No significant consideration has apparently been given to what alternative viable structured cabling solutions may exist or can be developed, if any

Comment Discussion

The purpose of this comment, and associated comments, is improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding, wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document (see link below).

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
• Eliminating or correcting erroneous definitions
• Consolidating definitions in Article 100.

2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)

3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
– Plenums and air ducts, vs.
– Other spaces used for environmental air
– ceiling cavities and raised floor cavities

4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)
– Plenums and ducts, vs.
– Other spaces used for environmental air
– ceiling cavities and raised floor cavities

5. Allow substitution hierarchy to be employed as appropriate, by avoiding redundant requirements in the sections addressed above.

– The use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they would be needed, when such products exist. This flexibility is allowed per the NEC substitution hierarchy.

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-264 Log #250 NEC-P03 **Final Action: Reject**
(725.61(A), 760.30(B)(2), & 760.61(A))

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-174
Recommendation: Accept this proposal.
Substantiation: This is the key proposal submitted to panel 3 by the Technical Committee on Air Conditioning.

Purpose of this proposal and comment

The Technical Committee on Air Conditioning submitted proposal 3-174 to resolve a conflict between NFPA 70, *National Electrical Code* and NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems* and to resolve a conflict within NFPA 5000-2003, *Building Construction and Safety Code*.

The application requirements for Type FPLP power limited fire alarm cable, Type CL2P class 2 plenum cable, CL3P class 3 plenum cable and the applications of "P" type plenum cables in NFPA 90A-2002 are in conflict. The NEC permits unrestricted quantities of CL2P, CL3P and FPLP plenum cables to be installed in ducts, plenums and other space used for environmental air. NFPA 90A restricts plenum cables to ceiling cavity and raised floor plenums only.

NFPA 90A requirements for cables in air ducts and plenums

NFPA 90A-2002 recognizes five types of plenums that are part of an air conditioning system.

Ceiling cavity plenums
Raised floor plenums
Duct distribution plenums
Apparatus casing plenums
Air-handling unit room plenums

The air conditioning committee purposely differentiates between different types of plenums and air ducts in the requirements for the materials permitted in them. For air ducts, duct distribution plenums, apparatus casing plenums and air-handling unit room plenums, the materials in them are required to be associated with the air distribution system. Furthermore, the materials are limited to those having a flame spread of 25 maximum and a smoke developed index of 50 maximum because of their proximity to air handling equipment and/or the relatively small size of the space itself, they can convey hot smoke and gases to the rest of the building. The requirements for materials that can go into ceiling cavity plenums and raised floor plenums are less stringent because these plenums they are larger and further away from the air handling equipment. Also ceiling cavity plenums and raised floor plenums are required to have smoke detectors. The basic requirements for materials exposed to the airflow in ceiling cavity plenums and raised floor plenums is that they must be noncombustible or limited combustible with a maximum smoke developed index of 50. NFPA 90A-2002 contains relaxed requirements (from the basic requirements) for a variety of building services to be installed in ceiling cavity plenums and raised floor plenums.

Electrical wiring in metal raceway conforms to the requirements of NFPA 90A because the wiring is not exposed to the airflow.

There are additional reasons for the NFPA 90A restrictions on wiring in air ducts and plenums. The purpose of the HVAC system is heating and air conditioning. Placing unrestricted amounts of cabling in these ducts and plenums, other than ceiling cavity plenums and raised floor plenums, could interfere with the air conditioning and ventilating system function. Think of a duct or duct distribution plenum choked with cable! Consider a damper in a duct with cables running through it!

The restrictions on wiring in ducts and plenums in NFPA 90A correlate well with the provisions of sections 300.22(B), which states " Equipment and devices shall be permitted within such ducts or plenum chambers only if necessary for their direct action upon, or sensing of, the contained air". Clearly wiring should be treated the same as equipment. The only wiring that should be allowed in a duct, duct distribution plenum, apparatus casing plenum or an air-handling unit room plenum, is wiring associated with the function of the duct or plenum.

Other space used for environmental air

The term "other space used for environmental air" is an undefined term. Also, the term is not used in NFPA 90A or NFPA 5000. The fine print note in section 300.22(C), states:

FPN: The space over a hung ceiling used for environmental air-handling purposes is an example of the type of other space to which this section applies.

This fine print note makes it clear that "other space used for environmental air" includes ceiling cavity plenums. It is not clear whether a raised floor plenum is a part of "other space used for environmental air". The fine print note in section 640.3(B), shown below, indicates that 'other space used for environmental air" is synonymous with "ceiling cavity plenum". Raised floor plenums are not mentioned in either the fine print note in 300.22(C) or the fine print note in 640.3(B).

Section 640.3(B), "FPN: NFPA 90A-1999, Standard for the Installation of Air Conditioning and Ventilation Systems, 2-3.10.2(a), Exception No. 3, permits loudspeakers, loudspeaker assemblies, and their accessories listed in accordance with UL 2043-1996, Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces, to be installed in other spaces used for environmental air (ceiling cavity plenums)."

The use of raised floor plenums is not confined to computer rooms. They are widely used beneath clean rooms in an electronic and fiber optics manufacturing facilities.

Definitions

Plenum is defined identically in Article 100 and in NFPA 90A.

Plenum. A compartment or chamber to which one or more air ducts are connected and that forms part of the air distribution system.

The terms "ceiling cavity plenums" and "raised floor plenums" are clearly defined in our proposal 1-69, which we have urged panel 1 to accept. The definition of these plenums was accepted in proposal 16-9. We urge the panel to accept the same definitions in proposal 3-127.

In order to bring about complete correlation between the NEC and NFPA 90A, both standards need to use the same terms.

Use of the term ceiling cavity in the NEC

The term ceiling cavity is not a new concept to the NEC. Besides section 640.3(B), discussed above, section 300.11(A) covers the securing of wiring in the cavity of fire rated and non-fire-rated floor–ceiling or roof–ceiling assemblies. Likewise, section 314.23(D)(2) covers support wires "within the ceiling cavity".

Why is the Technical Committee on Air Conditioning submitting comments?

In action 80- 60, the Standards Council assigned primary jurisdiction for combustibles in plenums to the Technical Committee on Air Conditioning and directed it to seek the cooperation of the committees on Fire Tests, National Electrical Code and Safety to Life. The Technical Committee on Air Conditioning has been cooperating with the National Electrical Code Committee by submitting a series of proposals for the 2005 NEC. It now continues that cooperation by commenting on all proposals dealing with combustibles in plenums. The purpose of the proposals and comments is to bring about correlation between NFPA 70, *National Electrical Code* and NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*. The Technical Committee on Air Conditioning established consensus on these comments through a letter ballot.

The NEC Technical Correlating Committee has acknowledged the responsibility of the Technical committee on Air Conditioning. The TCC Action on this proposal states:

"The Technical Correlating Committee understands that the Standards Council has given primary responsibility to the Technical Committee on Air-Conditioning for combustible materials in plenums in cooperation with other committees including the National Electrical Code Committee. The Chair of the Technical Correlating Committee will work with the Chair of the Technical Committee on Air-Conditioning and appoint a Task Group to review the proposals affecting correlation between Code-Making Panels 3, 16, and the Technical Committee on Air-Conditioning. In addition, the Technical Correlating Committee directs that this proposal be referred to the NFPA Committee on Air-Conditioning for comment."

NFPA 5000-2003 Building Construction and Safety Code, in Chapter 52, requires electrical systems and equipment to be designed and constructed in accordance with NFPA 70. Likewise, in Chapter 50, it requires air-conditioning and ventilating systems to be designed and constructed in accordance with NFPA 90A. NFPA 5000 has conflicting provisions for wiring in air handling spaces because of conflicts between NFPA 70 and NFPA 90A. Many of the proposals and comments from the Committee on Air-Conditioning to the National Electrical Code Committee are intended to eliminate these conflicts. These proposals and comments are part of the implementation of the Standards Council's recently issued *Scope Coordination Policy for NFPA Documents* that has the "goal of having a coordinated set of documents for the built environment". NFPA 5000 uses the terms ceiling plenum and raised floor plenum, so the proposed changes will harmonize the NEC with NFPA 5000.

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-265 Log #1789 NEC-P03 **Final Action: Reject**
(725.61(A), 760.30(B)(2), 760.61(A))

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-174
Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group's comment on proposals 3-194 3-243, and 271.

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-266 Log #1825 NEC-P03 **Final Action: Reject**
(725.61(A), 760.30(B)(2) & 760.61(A))

Submitter: Thomas P. Hammerberg, Automatic Fire Alarm Association
Comment on Proposal No: 3-174
Recommendation: Accept this proposal.
Substantiation: The Automatic Fire Alarm Association understands the Air Conditioning Committee has jurisdiction over materials installed in or on air ducts and plenums. Accepting the proposed text provides correlation between the NEC and NFPA 90A-2002.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-267 Log #1426 NEC-P03 **Final Action: Accept in Part**
(725.61(A), 760.30(B)(2) and 760.61(A))

Submitter: Technical Correlating Committee on Signaling Systems for the Protection of Life and Property
Comment on Proposal No: 3-174
Recommendation: Accept this proposal in principle by accepting all the text as proposed, except delete the sentence "Abandoned cables shall not be permitted to remain", in each section.
Substantiation: Signaling Systems for the Protection of Life and Property TCC supports this proposal from the Technical Committee on Air Conditioning for the following reasons:

Safety

Sections 725.61(A), 760.61(A), 770.53(A), 800.53(A), 820.53(A) and 830.55(B) of the 2002 NEC permit unlimited amounts of cables in air ducts. Placing unlimited amounts of fuel in an air duct is clearly an unsafe practice. It also has the potential of interfering with the function of the air handling system that could be used for smoke exhaust in case of a fire.

These same sections permit unlimited amounts of wiring in plenums. We have the same concerns for wiring in duct distribution plenums as in air ducts.

While the above-mentioned sections permit plenum cables to be installed in "ducts, plenums and other spaces used for environmental air", section 760.30(B)(2) permits non-power-limited fire alarm cable to be installed in

"other spaces used for environmental air" and does not permit their installation in "ducts and plenums". This is a safer installation practice than all the other plenum cables. We're not sure how much safer it is because we do not know which air handling spaces are included in "other spaces used for environmental air".

Harmonization of terminology

Section 3.2.1 of the 2003 NEC Style Manual states, "The *NEC* shall not contain references or requirements that are unenforceable or vague." The term "other spaces used for environmental air" is undefined. It is also vague. While the fine print note in section 300.22(C) clearly indicates "other space used for environmental air" includes ceiling cavity plenums, it is not clear what else it includes. Does it include raised floor plenums? The fine print note in section 640.3(B) indicates that "other space used for environmental air" = "ceiling cavity plenum" and therefore does not include raised floor plenums. Besides ceiling cavity plenums and possibly raised floor plenums, what other air handling spaces are included in "other space used for environmental air"? It's unknown because the term is vague and undefined.

The air conditioning committee has proposed replacing "other space used for environmental air" with "ceiling cavity plenum and raised floor plenum" and has also proposed defining these terms in proposal 1-69. The definitions were accepted when panel 16 accepted proposal 16-9. Panel 3 should accept the same definitions in proposal 3-127.

NFPA Code conflicts

NFPA 5000-2003 *Building Construction and Safety Code*, in Chapter 52, requires electrical systems and equipment to be designed and constructed in accordance with NFPA 70. Likewise, in Chapter 50, it requires air-conditioning and ventilating systems to be designed and constructed in accordance with NFPA 90A. NFPA 5000 has conflicting provisions for wiring in air handling spaces because of conflicts between NFPA 70 and NFPA 90A. The conflict is that NFPA 90A permits "P" type plenum cables to be installed in ceiling cavity plenums and raised floor plenums only, while the NEC permits these cables to be installed in air ducts, all types of plenums and other space used for environmental air. Acceptance of this proposal will eliminate a major conflict. Furthermore, NFPA 5000 does not use the term "other spaces used for environmental air". It uses the terms ceiling plenum and raised floor plenum.

NFPA system of codes and standards

In the substantiation for this proposal, the Technical Committee on Air Conditioning mentioned that the NFPA Standards Council has assigned it "primary jurisdiction for the limitations of combustible materials used in and ducts and plenum spaces." The NEC Technical Correlating Committee, in its action on this proposal, recognized their responsibility by stating:

"The Technical Correlating Committee understands that the Standards Council has given primary responsibility to the Technical Committee on Air-Conditioning for combustible materials in plenums in cooperation with other committees including the National Electrical Code Committee."

This proposal is one of a series submitted by the Technical Committee on Air Conditioning to improve fire safety of wiring in ducts and plenums and to harmonize the requirements of NFPA 70, *National Electrical Code* with NFPA 90A-2002, Standard for the Installation of Air-Conditioning and Ventilating Systems and NFPA 5000-2003 *Building Construction and Safety Code*.

NFPA 90A-2002, having jurisdiction over materials installed in or on the air distribution system, defines the listing requirements for plenum cable. NFPA 90A-2002 permits plenum cable to be installed in ceiling cavity plenums and raised floor plenums, only. Using NFPA 90A-2002 terms harmonizes both requirements and terminology.

The Standards Council has instructed all technical committees to process changes to bring about the complete harmonization of the NFPA family of Codes and Standards and standards. This proposal must be accepted as submitted or accepted in principle with modifications that accomplish the goal of harmonization. Panel 16 accepted companion proposal 16-64 which made the same changes in its articles. Accepting the proposal without change will correlate Articles 725 and 760 with Articles 770, 800, 820 and 830.

Coordinating with proposal 3-173.

Deletion of "Abandoned cables shall not be permitted to remain" is necessary to coordinate the action on this proposal with the panel action on proposal 3-173.

This comment is one in a series of comments including: 3-174, 3-213, 16-46 and 16-64.

Panel Meeting Action: Accept in Part

Accept the deletion of the sentence "Abandoned cables shall not be permitted to remain." Reject the remainder of the comment

Panel Statement: The panel is acting on this and other comments based on the Standards Council decision dated November 13, 2003 that is identified as Number 03-10-25 plus a subsequent letter by the Standards Council Chairman, Philip J. DiNenno, dated December 3, 2003. This decision states, in pertinent part as follows:

"The Council believes, that the best course of action for the NEC project is to generally refrain, unless absolutely necessary, from making revisions that interrelate with the NFPA 90A in advance of completion of the latest revision cycle of NFPA 90A, and instead to maintain the status quo in the NEC project on the applicable technical subjects pending the completion of the NFPA 90A revision cycle."

This action does not constitute agreement or disagreement with any of the substantiations submitted for the affected comments.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-268 Log #1647 NEC-P03 **Final Action: Accept**

(725.61(A) 760.30(B)(2) and 760.61(A))

Submitter: Michael I. Callanan, IBEW

Comment on Proposal No: 3-174

Recommendation: Continue to reject.

Substantiation: We agree with both the panel action and panel statement to reject Proposal 3-174. No technical substantiation as been provided. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.

Panel Meeting Action: Accept

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-269 Log #2628 NEC-P03 **Final Action: Accept in Part**

(725.61(A), 760.30(B)(2) and 760.61(A))

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association

Comment on Proposal No: 3-174

Recommendation: Accept this proposal in principle by accepting all the text as proposed, except delete the sentence "Abandoned cables shall not be permitted to remain," in each section.

Substantiation: CFRA supports this proposal from the Technical Committee on Air Conditioning for the following reasons:

Safety Sections 725.61(A), 760.61(A), 770.53(A), 800.53(A), 820.53(A) and 830.55(B) of the 2002 NEC permit unlimited amounts of cables in air ducts. Placing unlimited amounts of fuel in an air duct is clearly an unsafe practice. It also has the potential of interfering with the function of the air handling system that could be used for smoke exhaust in case of a fire.

These same sections permit unlimited amounts of wiring in plenums. We have the same concerns for wiring in duct distribution plenums as in air ducts.

While the above-mentioned sections permit plenum cables to be installed in "ducts, plenums, and other spaces used for environmental air", section 760.30(B)(2) permits non-power-limited fire alarm cable to be installed in "other spaces used for environmental air" and does not permit their installation in "ducts and plenums". This is a safer installation practice than all the other plenum cables. We're not sure how much safer it is because we do not know which air handling spaces are included in 'other spaces used for environmental air".

Harmonization of terminology Section 3.2.1 of the 2003 NEC Style Manual states, "The NEC shall not contain references or requirements that are unenforceable or vague." The term "other spaces used for environmental air" is undefined. It is also vague. While the fine print note in section 300.22(C) clearly indicates "other space used for environmental air" includes ceiling cavity plenums, it is not clear what else it includes. Does it include raised floor plenums? The fine print note in section 640.3(B) indicates that "other space used for environmental air" = "ceiling cavity plenums", and, therefore, does not include raised floor plenums. Besides ceiling cavity plenums and possibly raised floor plenums, what other air handling spaces are included in "other space used for environmental air"? It's unknown because the term is vague and undefined.

The air conditioning committee has proposed replacing "Other space used for environmental air" with "ceiling cavity plenum and raised floor plenum" and has also proposed defining these terms in Proposal 1-69. The definitions were accepted when panel 16 accepted Proposal 16-9. Panel 3 should accept the same definitions in Proposal 3-127.

NFPA Code conflicts NFPA 5000-2003 Building Construction and Safety Code, in Chapter 52, requires electrical systems and equipment to be designed and constructed in accordance with NFPA 70. Likewise, in Chapter 50, it requires air-conditioning and ventilating systems to be designed and constructed in accordance with NFPA 90A. NFPA 5000 has conflicting provisions for wiring in air handling spaces because of conflicts between NFPA 70 and NFPA 90A. The conflict is that NFPA 90A permits "P" type plenum cables to be installed in ceiling cavity plenums and raised floor plenums only, while the NEC permits these cables to be installed in air ducts, all types of plenums and other space used for environmental air. Acceptance of this proposal will eliminate a major conflict. Furthermore, NFPA 5000 does not use the term "Other spaces used for environmental air". It uses the terms ceiling plenum and raised floor plenum.

NFPA system of codes and standards In the substantiation for this proposal, the Technical Committee on Air Conditioning mentioned that the NFPA Standards Council has assigned it "primary jurisdiction for the limitations of combustible materials used in ducts and plenum spaces." The NEC Technical Correlating Committtee, in its action on this proposal, recognized their responsibility by stating: "The Technical Correlating Committee understands that the Standards Council has given primary responsibility to the Technical Committee on Air-Conditioning for combustible materials in plenums in cooperation with other committees including the National Electrical Code Committee."

CFRA supports the NFPA through its participation in the development of codes and standards. We understand the need for a harmonized family of NFPA documents. This proposal is one of a series submitted by the Technical Committee on Air Conditioning to improve fire safety of wiring in ducts and plenums and to harmonize the requirements of NFPA 70, National Electrical Code with NFPA 90A-2002, Standard for the Installation of Air-Conditioning and Ventilating Systems and NFPA 5000-2003 Building Construction and Safety Code. NFPA-90A-2002, having jurisdiction over materials installed in or on the air distribution systems, defines the listing requirements for plenum cable. NFPA 90A-2002 permits plenum cable to be installed in ceiling cavity plenums and raised floor plenums, only. Using NFPA 90A-2002 terms harmonizes both requirements and terminology.

Coordinating with proposal 3-173

Deletion of "Abandoned cables shall not be permitted to remain" is necessary to coordinate the action on this proposal with the panel action on Proposal 3-173.

Panel Meeting Action: Accept in Part
Panel Statement: See panel action and statement on Comment 3-267.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-270 Log #3591 NEC-P03 **Final Action: Reject**
(725.61(A), 760.30(B)(2) and 760.61(A))

Submitter: William E. Koffel, Koffel Assoc., Inc.
Comment on Proposal No: 3-174
Recommendation: Accept this proposal.
Substantiation: The Panel Statement was non responsive to the issues raised by the submitter of Proposal 3-174. For some reason, the Panel fails to see the need to correlate with the requirements of NFPA 90A and NFPA 5000. The submitter of Proposal 3-174 admits in the substantiation that the Technical Committee on Air Conditioning may need to further evaluate the use of cables in ducts. In addition to the properties of such cables, other issues such as obstruction of air flow and obstructions to fire and smoke dampers must be considered. Such issues are within the purview of the Technical Committee on Air Conditioning and not this Panel. As noted by the submitter of Proposal 3-174, "other spaces used for environmental air" is not a defined phrase and the Fine Print Note to in Section 300.22 would imply that it refers to spaces general referred to in Mechanical Codes, Building Codes, and NFPA 90A as plenums.

While not apparent if one reads the first printing of NFPA 5000, the provisions of Section 7.2.3.2.16 of NFPA 5000 are intended to correlate with NFPA 90A. What is very clear is the Building Code Technical Correlating Committee note on Public Comment 5000-429 in which the TCC directs that the language be consistent with NFPA 90A-2002. A Public Proposal has been submitted to NFPA 5000 to change the text of the section to be extracted from NFPA 90A in accordance with the Extract Policy. Since NFPA 5000 also references NFPA 70, if NPFA 70 and NFPA 90A are not correlated, NFPA 5000 will have an internal conflict.

It is clear that the Committee responsible for NFPA 5000 and NFPA 90A have attempted to achieve correlation between the two documents. It is not clear why the Panel responsible for the provisions in Article 725 and 760 of NFPA 70 has chosen not to correlate with NFPA 90A and NFPA 5000 especially since Panel 16 accepted Proposal 16-64 which proposed identical changes in Article 770, 800 and 820. While the Technical Correlating Committee note on Proposal 3-89 indicates the intent to appoint a joint Task Group, it would appear as if the correlation can be achieved now by accepting the original Public Proposal.

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-271 Log #3446 NEC-P03 **Final Action: Reject**
(725.61(A)& 760.6(A))

Submitter: Frederic B. Clarke, Benjamin Clarke Assoc., Inc.
Comment on Proposal No: 3-194
Recommendation: Accept proposal 3-194. This would restrict the applications for air duct cable to those associated with the air duct system.
Substantiation: NEC sections 725.61(A) and 760.61(A) permit unrestricted quantities of CL2P, CL3P and FPLP plenum cables to be installed in ducts* — a bad idea. Proposal 3-174 would withdraw this permission by changing the language of those sections.

Permitting unrestricted quantities of combustible plenum cable in an air duct is an unsafe practice. Not only is such a practice in violation of NFPA 90A, it is inconsistent with other parts of the NEC itself. Specifically, NEC section 300.22(B), states, "Equipment and devices shall be permitted within such ducts or plenum chambers only if necessary for their direct action upon, or sensing of, the contained air". Surely, the NEC does not intend to treat wiring differently than equipment. The only wiring that should be allowed in a duct is wiring associated with the function of the duct.

In order for this to come about, two things are necessary:

1. Proposal 3-194 must be adopted. The changes it proposes in NEC 726.61(A)(1) would require duct cable (renamed "air duct cable") to be associated with the air duct system.
2. Proposal 3-174 must be adopted. This would remove ducts as a venue for plenum cable, regardless of its purpose.

A companiion comment, advocating acceptance of Proposal 3-174 is also being filed.

Why is air duct cable different than plenum cable? NFPA 90A differentiates among different types of plenums and air ducts in the requirements for the materials permitted in them. Materials found in air ducts, duct distribution plenums, apparatus casing plenums and air-handling unit room plenums are required to be associated with the air distribution system. Furthermore, such materials must have a flame spread of 25 maximum and a smoke developed index of 50 maximum because of their proximity to air andling equipment. The basic requirements for materials exposed to the airflow in ceiling cavity plenums and raised floor plenums are similar: they must be noncombustible or limited combustible with a maximum smoke developed index of 50. NFPA 90A-2002 contains relaxed requirements (from the basic requirements) for a variety of building services, including low-voltage data and communication cables, in ceiling cavity plenums and raised floor plenums. The reason they are presently less stringent is because: (1) materials associated with these services are assumed to present in relatively small amounts; (2) these plenums are larger and farther away from the air handling equipment; and (3) ceiling cavity plenums and raised floor plenums are required to have smoke detectors.

*as well as in "plenums and other space used for environmental air"

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-272 Log #3448 NEC-P03 **Final Action: Reject**
(725.61(A) & 760.61(A))

Submitter: Frederic B. Clarke, Benjamin Clarke Assoc., Inc.
Comment on Proposal No: 3-174
Recommendation: Accept proposal 3-174. This would repeal the current permission to place unlimited quantities of CL2P, CL3P and FPLP cables in air ducts.
Substantiation: NEC sections 725.61(A) and 760.61(A) permit unrestricted quantities of CL2P, CL3P and FPLP plenum cables to be installed in ducts* — a bad idea. Proposal 3-174 would withdraw this permission by changing the language of those sections.

Permitting unrestricted quantities of combustible plenum cable in an air duct is an unsafe practice. Not only is such a practice in violation of NFPA 90A, it is inconsistent with other parts of the NEC itself. Specifically, NEC section 300.22(B), states, "Equipment and devices shall be permitted within such ducts or plenum chambers only if necessary for their direct action upon, or sensing of, the contained air". Surely, the NEC does not intend to treat wiring differently than equipment. The only wiring that should be allowed in a duct is wiring associated with the function of the duct.

In order for this to come about, two things are necessary:

1. Proposal 3-174 must be adopted. This would remove ducts as a venue for plenum cable, regardless of its purpose.

2. Proposal 3-194 must also be adopted. The changes it proposes in NEC 726.6(A)(1) would require duct cable to be associated with the air duct system.

A companion comment, advocating acceptance of Proposal 3-194 is also provided.

*as well as in "plenums and other space used for environmental air"

Panel Meeting Action: Reject

Panel Statement: See the panel action and statement on Comment 3-109.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-273 Log #3338 NEC-P03 **Final Action: Accept in Part**

(725.61(A), 760.61(A) 7 760.61(A) and Tables & figures 725.61 and 760.61)

Submitter: Grant P. Watkins, Confluent Photonics Corporation

Comment on Proposal No: 3-171

Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace current Sections 725.61(C) & 760.61(A) as appropriate:

Note:

The relevant cables types need to be inserted in the text below as appropriate for each Article. For

725: **CL2P** and **CL3P**

760: **FPLP**

Replace Section 725.61(A) & 760.61(A) with all of the following:

(A) Ducts or Plenums. The requirements of 300.22(B) shall apply for elctric wire and cable where installed in ducts or plenums used for environmental air.

(B) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Type **CL2P** and **CL3P** cables shall be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities. Other listed cable types installed in compliance with 300.22 shall also be permitted.

Tables, and Figures 725.61 and 760.61

Delete references to listed "duct cables" as follows and

- 725.61: CMD, CL3D, and CL2D
- 760.61: FPLD

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended included:

1. Harmonize on appropriate definitions, as well as:
   - Eliminating or correcting erroneous definitions
   - Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises end users (i.e., fiber-to-the-end user). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

- Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
  - Such cables have a proven track record for safety
  - Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
  - The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).
- Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.
- Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).
- Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.
- Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part

Accept the deletion of duct cables. Reject the remainder of the recommendation.

Panel Statement: The panel is acting on this and other comments based on the Standards Council decision dated November 13, 2003 that is identified as Number 03-10-25 plus a subsequent letter by the Standards Council Chairman, Philip J. DiNenno, dated December 3, 2003. This decision states, in pertinent part as follows:

"The Council believes, that the best course of action for the NEC project is to generally refrain, unless absolutely necessary, from making revisions that interrelate with the NFPA 90A in advance of completion of the latest revision cycle of NFPA 90A, and instead to maintain the status quo in the NEC project on the applicable technical subjects pending the completion of the NFPA 90A revision cycle."

This action does not constitute agreement or disagreement with any of the substantiations submitted for the affected comments.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-274 Log #3322 NEC-P03 **Final Action: Accept in Part**

(725.61(A), 760.61(A) and Table s & Figures 725.61 and 760.61)

Submitter: Robert Pollock, Corning Cable Systems

Comment on Proposal No: 3-171

Recommendation: With respect to cabling in ducts, plenums and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace current Sections 725.61(A) & 760.61(A) as indicated below:

Notes:
1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. for
• 725: **CL2P** and **CL3P** (as is below)
• 760: **FPLP**
2) Renumber Sections as appropriate.
Replace Section 725.61(A) & 760.61(A) with all of the following:
(A) Ducts or Plenums. The requirements of 300.22(B) shall apply for electric wire and cable where installed in ducts or plenums used for environmental air.
(B) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cable where they are installed in other spaces used for environmental air. Type **CL2P** and **CL3P** cables and shall be permitted to be installed in other spaces used for environmental air, to include ceiling caviites and raised floor cavities. Other listed cable types installed in compliance with 300.22 shall also be permitted.
Text, Tables, and Figures 725.61, 760.61, etc
Delete all other references to listed "duct cables" as follows and including any other references not explicitly listed below:
• 725.61: CMD, CL3D, and CL2D
• 760.61: FPLD

Substantiation: Comment Discussion
The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.
Specific actions recommended include:
1. Harmonize on appropriate definitions, as well as:
• Eliminating or correcting erroneous definitions
• Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cables in spaces used for handling environmental air. (###.82)
Comment Rationale
In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefit. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:
- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises end users (i.e., fiber-to-the-end user). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.
The primary objectives of this comment, and associated comments, can be summarized as the needs to:
• Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).
• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.
• Reinterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kband for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).
• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.
• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However: "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, three are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.
Panel Meeting Action: Accept in Part
Panel Statement: See the panel action and statement on Comment 3-273.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-275 Log #3062 NEC-P03 **Final Action: Accept in Part**
(725.61(A), 760.61 (A) and Tables and Figures 725.61 and 760.61)

Submitter: James Walter Clark, Timberland Mechanical Services
Comment on Proposal No: 3-171
Recommendation: Replace Section 725.61(A) & 760.61(A) as approriate
Note: The relevant cables types need to be inserted in the text below as approprate for each Article. For
• 725: **CL2P** and **CL3P**
• 760: **FPLP**
With all of:
(A) Ducts or Plenums. The requirements of 300.22(B) shall apply for electric wire and cable where installed in ducts or plenums used for environmental air.
(B) Other Spaces Uses for Environmental Air. The requirments of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Type **CL2P** and **CL3P** cables and shall be permitted to be installed in otehr spaces used for environmental air, to include ceiling cavities and raised floor cavities. Other listed cable types installed in compliance with 300.22 shall also be permitted.
Tables and Figures 725.61 and 760.61.
Delete references to listed "duct cables" as follows:
• 725.61: CMD, CL3D, and CL2D
• 760.61: FPLD
Substantiation: Comment Discussion
The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.
Specific actions recommended include:
1. Harmonize on appropriate definitions, as well as:
- Eliminating or correcting erroneous definitions
- Consolidating definitions in Article 100.

2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding communications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety.
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary. Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
   - Eliminating or correcting erroneous definitions
   - Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding communications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety.
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part
Panel Statement: See the panel action and statement on Comment 3-273.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-276 Log #2808 NEC-P03 **Final Action: Accept in Part**
(725.61(A), & 760.61(A) and Tables & figures 725.61 and 760.61)

Submitter: Paul Schmugge, Pirelli Cables & Systems North America
Comment on Proposal No: 3-171
Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace current Sections 725.61(A) and 760.61(A) as indicated below:
Notes:
1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For
• 725: **CL2P** and **CL3P** (as is below)
• 760: **FPLP**
2) Renumber Sections as appropriate.
Replace Section 725.61(A) and 760.61(A) with all of the following:
(A) Ducts or Plenums. The requirements of 300.22(B) shall apply for electric wire and cable where installed in ducts or plenums used for environmental air.
(B) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Type **CL2P** and **CL3P** cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities. Other listed cable types installed in compliance with 300.22 shall also be permitted.
Text, Tables, and Figures 725.61, 760.61, etc.
Delete all other references to listed "duct cables" as follows and including any other references not explicitly listed below
• 725.61: CMD, CL3D, and CL2D
• 760.61: FPLD
Substantiation: Comment Discussion
The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.
Specific actions recommended include:
1. Harmonize on appropriate definitions, as well as:
- Eliminating or correcting erroneous definitions
- Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)
Comment Rationale
In regards to structured cabling installations that support intrabuilding communications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:
- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.
The primary objectives of this comment, and associated comments, can be summarized as the needs to:
• Maintain viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety.
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).
• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.
• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).
• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.
• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary. Comment Discussion
The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.
Specific actions recommended include:
1. Harmonize on appropriate definitions, as well as:
- Eliminating or correcting erroneous definitions
- Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)
Comment Rationale
In regards to structured cabling installations that support intrabuilding communications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).

- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.

- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.

- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

- Such cables have a proven track record for safety.

- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.

- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part

Panel Statement: See the panel action and statement on Comment 3-273.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-277 Log #3042 NEC-P03 **Final Action: Accept in Part**
(725.61(A), 760.61(A) and Tables & Figures 725.61 and 760.61)

Submitter: William Tenkate, EIS Wire & Cable Co.

Comment on Proposal No: 3-171

Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace current Sections 725.61(A) and 760.61(A) as indicated below:

Notes:

1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For

• 725: **CL2P** and **CL3P** (as is below)

• 760: **FPLP**

2) Renumber Sections as appropriate.

Replace Section 725.61(A) and 760.61(A) with all of the following:

(A) Ducts or Plenums. The requirements of 300.22(B) shall apply for electric wire and cable where installed in ducts or plenums used for environmental air.

(B) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Type **CL2P** and **CL3P** cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities. Other listed cable types installed in compliance with 300.22 shall also be permitted.

Text, Tables, and Figures 725.61, 760.61, etc.

Delete all other references to listed "duct cables" as follows and including any other references not explicitly listed below

• 725.61: CMD, CL3D, and CL2D

• 760.61: FPLD

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
   - Eliminating or correcting erroneous definitions
   - Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding communications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).

- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.

- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.

- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

- Such cables have a proven track record for safety.

- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.

- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote

telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part
Panel Statement: See the panel action and statement on Comment 3-273.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-278 Log #3320 NEC-P03 **Final Action: Accept in Part**
(725.61(A), 760.61(A) and Tables & Figures 725.61 and 760.61)

Submitter: Donald G. Ouellette, Teknor Apex Co.
Comment on Proposal No: 3-171
Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace current Sections 725.3(C) & 760.3(B) as indicated below:
Notes:
1) The relevant cables types need to be changed in the revised main text below (see **BOLD)** for each Article. For
725: **CL2P** and **CL3P** (as is below)
760: **FPLP**
2) Renumber Sections as appropriate.
Replace Section 725.61(A) & 760.61(A) with all of the following:
(A) Ducts or Plenums. The requirements of 300.22(B) shall apply for elctric wire and cable where installed in ducts or plenums used for environmental air.
(B) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Type CL2P and CL3P cables and shall be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities. Other listed cable types installed in compliance with 300.22 shall also be permitted.
Text, Tables, and Figures 725.61, 760.61, etc
Delete all other references to listed "duct cables" as follows and including any other references not explicitly listed below
725.61:CMD, CL3D, and CL2D
760.61:FPLD
Substantiation: In the mid 1970's the NFPA 255 test, (referred to at that time as the ASTM E-84), was deemed inappropriate for wire and cables because there was no provision for mounting cables in this test designed for building materials. The NFPA 255 test then known as ASTM E-84, Steiner Tunnel Test was modified to accommodate testing wires and cables and as a result a steel ladder suspended in the approximate center of the fire rig to simulate a horizontal cable tray. The modified ASTM E-84 was then named UL-190, Steiner Tunnel Fire Test. In addition to cable mounting differences there also remains another very important difference in comparing the NFPA 255 to the UL-910 (now known as NFPA 262). This very important difference is the test time duration. The proposed NFPA 255 has a test duration time of 10 minutes. The test time duration of the UL-910 (NFPA 262 test) is 20 minutes. This is important because fluoropolymer insulating and jacketing materials do not begin to burn until temperatures reach > 1100°F. Furthermore, Underwriters Laboratories has since issued a new UL standard, UL 2424, and is now accepting applications to list Limited Combustible, CMD Cables. The UL 2424 standard has omitted NFPA 262, a 20-minute duration test, in favor of NFPA 255, a 10-minute duration test.

The effects of favoring NFPA 255 (10 minute test) versus NFPA 262 (20 minute test) have not been studied across all plenum cable designs. If the NFPA 255 test protocol is to be the test method for wires and cables then consideration must be given to extend the test time of NFPA 255 for wires and cables to 20 minutes.

In 1998 the Fire Protection Research Foundation, FPRF, conducted a study called "International Limited Combustible Plenum Cable Fire Test Project". Teknor Apex Company participated in this research project. The final report to this project was printed in March 2001. The cable samples consisted of only 4 UTP, unshielded twisted pairs made from various insulating and jacketing materials. The decision to use NFPA 255 and NFPA 259 building materials test methods was not a consensus decision. The facts are that NFPA 255 and NFPA 259 are clearly described as: NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials - NFPA 259, Standard Method for Potential Heat of Building Materials. Despite objections from a minority of sponsors the project moved forward utilizing these test methods previously deemed inappropriate during a time period when 4 pair UTP consisting of cables made of all fluoropolymer materials already existed.

Panel Meeting Action: Accept in Part
Panel Statement: See the panel action and statement on Comment 3-273.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-279 Log #3373 NEC-P03 **Final Action: Accept in Part**
(725.61(A) & 760.61(A) and Tables & Figures 725.61 and 760.61)

Submitter: Randy Harris, Day One Communications Inc.
Comment on Proposal No: 3-171
Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace current Sections 725.61(C) & 760.61(A) as appropriate:
Note:
The relevant cables types need to be inserted in the text below as appropriate for each Article. For
725: **CL2P** and **CL3P**
760: **FPLP**
Replace Section 725.61(A) & 760.61(A) with all of the following:
(A) Ducts or Plenums. The requirements of 300.22(B) shall apply for elctric wire and cable where installed in ducts or plenums used for environmental air.
(B) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Type **CL2P** and **CL3P** cables shall be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities. Other listed cable types installed in compliance with 300.22 shall also be permitted.
Tables, and Figures 725.61 and 760.61
Delete references to listed "duct cables" as follows and
- 725.61: CMD, CL3D, and CL2D
- 760.61: FPLD

Substantiation: Comment Discussion
The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.
Specific actions recommended included:
1. Harmonize on appropriate definitions, as well as:
   - Eliminating or correcting erroneous definitions
   - Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale
In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured

cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

• Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).

• Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements

• Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises end users (i.e., fiber-to-the-end user). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.

• Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

- Such cables have a proven track record for safety
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part

Panel Statement: See the panel action and statement on Comment 3-273.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-280 Log #3379 NEC-P03 **Final Action: Accept in Part**

(725.61(A), 760.61(A), and Tables & Figures 725.61 and 760.61)

Submitter: Matt Brown, US Conec

Comment on Proposal No: 3-171

Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace current Sections 725.61(A) & 760.61(A) as indicated below:

Notes:

1) The relevant cables types need to be changed in the revised main text below (see **BOLD)** for each Article. For

- 725: **CL2P and CL3P** (as is below)
- 760: **FPLP**

2) Renumber Sections as appropriate.

Replace Section 725.61(A) & 760.61(A) with all of the following:

(A) Ducts or Plenums. The requirements of 300.22(B) shall apply for electric wire and cable where installed in ducts or plenums used for environmental air.

(B) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Type **CL2P** and **CL3P** cables shall be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities. Other listed cable types installed in compliance with 300.22 shall also be permitted.

Text, Tables, and Figures 725.61, 760.61, etc.

Delete all other references to listed "duct cables" as follows and including any other references not explicitly listed below

- 725.61: CMD, CL3D, and CL2D
- 760.61: FPLD

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended included:

1. Harmonize on appropriate definitions, as well as:
   - Eliminating or correcting erroneous definitions
   - Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

• Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).

• Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements

• Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises end users (i.e., fiber-to-the-end user). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.

• Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

- Such cables have a proven track record for safety
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part

Panel Statement: See the panel action and statement on Comment 3-273.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-281 Log #3553 NEC-P03 **Final Action: Accept in Part**

(725.61(A), 760.61(A) and Tables & Figures 725.61 and 760.61)

Submitter: Michael J. McLear, Madison Cable Corporation

Comment on Proposal No: 3-171

Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace current Sections 725.61(A) and 760.61(A) as indicated below:

Notes:

1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For

• 725: **CL2P** and **CL3P** (as is below)

• 760: **FPLP**

2) Renumber Sections as appropriate.

Replace Section 725.61(A) and 760.61(A) with all of the following:

(A) Ducts or Plenums. The requirements of 300.22(B) shall apply for electric wire and cable where installed in ducts or plenums used for environmental air.

(B) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Type **CL2P** and **CL3P** cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities. Other listed cable types installed in compliance with 300.22 shall also be permitted.

Text, Tables, and Figures 725.61, 760.61, etc.

Delete all other references to listed "duct cables" as follows and including any other references not explicitly listed below

• 725.61: CMD, CL3D, and CL2D

• 760.61: FPLD

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
   - Eliminating or correcting erroneous definitions
   - Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding communications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety.
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary. Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain require-

ments that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
   - Eliminating or correcting erroneous definitions
   - Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding communications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain viability of listed “plenum” (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety.
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building’s exterior. However, “duct cable” can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning “duct cable” in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part
Panel Statement: See the panel action and statement on Comment 3-273.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-282 Log #3560 NEC-P03 **Final Action: Accept in Part**
(725.61(A), 760.61(A) and Tables & Figures 725.61 and 760.61)

Submitter: Doug Coleman, Corning Cable Systems
Comment on Proposal No: 3-171
Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace current Sections 725.61(A) and 760.61(A) as indicated below:

Notes:

1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For
• 725: **CL2P** and **CL3P** (as is below)
• 760: **FPLP**

2) Renumber Sections as appropriate.

Replace Section 725.61(A) and 760.61(A) with all of the following:

(A) Ducts or Plenums. The requirements of 300.22(B) shall apply for electric wire and cable where installed in ducts or plenums used for environmental air.

(B) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Type **CL2P** and **CL3P** cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities. Other listed cable types installed in compliance with 300.22 shall also be permitted.

Text, Tables, and Figures 725.61, 760.61, etc.

Delete all other references to listed “duct cables” as follows and including any other references not explicitly listed below
• 725.61: CMD, CL3D, and CL2D
• 760.61: FPLD

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in “other places used for environmental air,” such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
   - Eliminating or correcting erroneous definitions
   - Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding communications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The

result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.

- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

- Such cables have a proven track record for safety.
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary. Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
   - Eliminating or correcting erroneous definitions
   - Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding communications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

- Such cables have a proven track record for safety.
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part

Panel Statement: See the panel action and statement on Comment 3-273.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-283 Log #3888 NEC-P03 **Final Action: Accept in Part**

(725.61(A), 760.61(A) and Tables & Figures 725.61 and 760.61)

Submitter: John A. Jay, Corning

Comment on Proposal No: 3-171

Recommendation: Replace Section 725.61(A) & 760.61(A) as approriate

Note: The relevant cables types need to be inserted in the text below as approprate for each Article. For

• 725: **CL2P** and **CL3P**

• 760: **FPLP**

With all of:

(A) Ducts or Plenums. The requirements of 300.22(B) shall apply for electric wire and cable where installed in ducts or plenums used for environmental air.

(B) Other Spaces Uses for Environmental Air. The requirments of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Type **CL2P** and **CL3P** cables and shall be permitted to be installed in otehr spaces used for environmental air, to include ceiling cavities and raised floor cavities. Other listed cable types installed in compliance with 300.22 shall also be permitted.

Tables and Figures 725.61 and 760.61.

Delete references to listed "duct cables" as follows:

• 725.61: CMD, CL3D, and CL2D

• 760.61: FPLD

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
   - Eliminating or correcting erroneous definitions
   - Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding communications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety.
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary. Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
   - Eliminating or correcting erroneous definitions
   - Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding communications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety.
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers

in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part

Panel Statement: See the panel action and statement on Comment 3-273.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-284 Log #3597 NEC-P03 **Final Action: Accept in Part**

(725.61(A), 760.61(A) and Tables & Figures 725.61 and 760.61 (as appropriate))

Submitter: Alfred D. Messineo, Calm Technologies Inc.

Comment on Proposal No: 3-171

Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace current Sections 725.61(C) & 760.61(A) as appropriate:

Note:

The relevant cables types need to be inserted in the text below as appropriate for each Article. For

725: **CL2P** and **CL3P**

760: **FPLP**

Replace Section 725.61(A) & 760.61(A) with all of the following:

(A) Ducts or Plenums. The requirements of 300.22(B) shall apply for elctric wire and cable where installed in ducts or plenums used for environmental air.

(B) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Type **CL2P** and **CL3P** cables shall be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities. Other listed cable types installed in compliance with 300.22 shall also be permitted.

Tables, and Figures 725.61 and 760.61

Delete references to listed "duct cables" as follows and

- 725.61: CMD, CL3D, and CL2D
- 760.61: FPLD

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended included:

1. Harmonize on appropriate definitions, as well as:
   - Eliminating or correcting erroneous definitions
   - Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises end users (i.e., fiber-to-the-end user). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

- Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
  - Such cables have a proven track record for safety
  - Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
  - The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).
- Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.
- Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).
- Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.
- Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part

Panel Statement: See the panel action and statement on Comment 3-273.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-285 Log #2976 NEC-P03 **Final Action: Accept in Part**

(725.61(A), 760.61(A) and Tables & Figures 725.61, and 760.71)

Submitter: Sean Foley, AFL Telecommunications

Comment on Proposal No: 3-171

Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace current Sections 725.61(A) and 760.61(A) as indicated below:

Notes:

1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For

- 725: **CL2P** and **CL3P** (as is below)
- 760: **FPLP**

2) Renumber Sections as appropriate.

Replace Section 725.61(A) and 760.61(A) with all of the following:

(A) Ducts or Plenums. The requirements of 300.22(B) shall apply for electric wire and cable where installed in ducts or plenums used for environmental air.

(B) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Type **CL2P** and **CL3P** cables shall also be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities. Other listed cable types installed in compliance with 300.22 shall also be permitted.

Text, Tables, and Figures 725.61, 760.61, etc.

Delete all other references to listed "duct cables" as follows and including any other references not explicitly listed below

• 725.61: CMD, CL3D, and CL2D

• 760.61: FPLD

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
   - Eliminating or correcting erroneous definitions
   - Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding communications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety.
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary. Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
   - Eliminating or correcting erroneous definitions
   - Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding communications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety.
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part

Panel Statement: See the panel action and statement on Comment 3-273.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-286 Log #3349 NEC-P03 **Final Action: Accept in Part**

(725.61(A), 760.61(A) Tables & Figures 725.61 and 760.61)

Submitter: Jean Baer, Supeiror Essex

Comment on Proposal No: 3-171

Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace current Sections 725.3(C) & 760.3(B) as indicated below:

Notes:

1) The relevant cables types need to be changed in the revised main text below (see **BOLD)** for each Article. For

725: **CL2P** and **CL3P** (as is below)

760: **FPLP**

2) Renumber Sections as appropriate.

Replace Section 725.61(A) & 760.61(A) with all of the following:

(A) Ducts or Plenums. The requirements of 300.22(B) shall apply for elctric wire and cable where installed in ducts or plenums used for environmental air.

(B) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Type CL2P and CL3P cables and shall be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities. Other listed cable types installed in compliance with 300.22 shall also be permitted.

Text, Tables, and Figures 725.61, 760.61, etc

Delete all other references to listed "duct cables" as follows and including any other references not explicitly listed below

725.61:CMD, CL3D, and CL2D

760.61:FPLD

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended included:

1. Harmonize on appropriate definitions, as well as:
   - Eliminating or correcting erroneous definitions
   - Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

• Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).

• Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements

• Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises end users (i.e., fiber-to-the-end user). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.

• Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

- Such cables have a proven track record for safety
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part

Panel Statement: See the panel action and statement on Comment 3-273.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-287 Log #2186 NEC-P03 **Final Action: Accept in Part**
(725.61(A) and 760.61(A) and Tables and Figures 725.61 and 760.61 (as appropriate))

Submitter: Ken Chauvin, Corning Cable Systems
Comment on Proposal No: 3-171
Recommendation: With respect to cabling in ducts, plenums and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace current Sections 725.61(A) & 760.61(A) as indicated below:
Notes:
1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For
• 725: **CL2P** and **CL3P** (as is below)
• 760: **FPLP**
2) Renumber Sections as appropriate.
Replace Section 725.61(A) & 760.61(A) with all of the following:
(A) Ducts or Plenums. The requirements of 300.22(B) shall apply for electric wire and cable where installed in ducts or plenums used for environmental air.
(B) Other Spaces Used for Environmental Air. The requirements of 300.22(C) apply to installations for electric wire and cables where they are installed in other spaces used for environmental air. Type **CL2P** and **CL3P** cables shall be permitted to be installed in other spaces used for environmental air, to include ceiling cavities and raised floor cavities. Other listed cable types installed in compliance with 300.22 shall also be permitted.
Text, Tables, and Figures 725.61, 760.61, etc.
Delete all other references to listed "duct cables" as follows and including any other references not explicitly listed below
• 725.61: CMD, CL3D, and CL2D
• 760.61: FPLD
Substantiation: Comment Discussion
The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.
Specific actions recommended included:
1. Harmonize on appropriate definitions, as well as:
• Eliminating or correcting erroneous definitions
• Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)
Comment Rationale
In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:
• Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
• Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements
• Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises end users (i.e., fiber-to-the-end user). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
• Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.
The primary objectives of this comment, and associated comments, can be summarized as the needs to:
• Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).
• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.
• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).
• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.
• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.
Panel Meeting Action: Accept in Part
Panel Statement: See the panel action and statement on Comment 3-273.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-288 Log #3866 NEC-P03 **Final Action: Reject**
(725.61(B))

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-176
Recommendation: *There is no consistency in the NEC on the removal of abandoned cables. This is primarily an issue with cables in Articles 645, 725, 760, 770, 800, 820 and 830. The wording should be as follows consistently: "Abandoned [cable type] cables shall be removed." It should also be contained in the section on applications of cables.*
725.61 Applications of Listed Class 2, Class 3, and PLTC Cables. Class 2, Class 3, and PLTC cables shall comply with any of the requirements described in 725.61(A) through (F).
(A) Plenum. Cables installed in ducts, plenums, and other spaces used for environmental air shall be Type CL2P or CL3P. Abandoned cables shall be removed. Listed wires and cables installed in compliance with 300.22 shall be permitted.
(B) Riser. Cables installed in risers shall be as described in any of (1), (2), or (3):
(1) Cables installed in vertical runs and penetrating more than one floor, or cables installed in vertical runs in a shaft, shall be Type CL2R or CL3R. Floor penetrations requiring Type CL2R or CL3R shall contain only cables suitable for riser or plenum use. Abandoned cables shall be removed.
By analogy, for consistency, put the same wording in 725.61 (E):

(E) Other Wiring Within Buildings. Cables installed in building locations other than those covered in 725.61(A) through (D) shall be as described in any of (1) through (6). Abandoned cables in hollow spaces shall ~~not be permitted to remain~~ be removed.

Substantiation: The issue here is the interpretation of the action required with respect to what is accessible. The issue of "accessible" cables creates confusion that makes the enforcement of the removal of abandoned cable "dicey" because it is unclear what "accessible" means. The NEC defines the following terms in Article 100:

Accessible (as applied to equipment). Admitting close approach; not guarded by locked doors, elevation, or other effective means.

Accessible (as applied to wiring methods). Capable of being removed or exposed without damaging the building structure or finish or not permanently closed in by the structure or finish of the building.

Accessible, Readily (Readily Accessible). Capable of being reached quickly for operation, renewal, or inspections without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders, and so forth.

The phrase "the accessible portion of abandoned cables" is much vaguer than the definitions in the code, because the term "accessible portion" is not defined. Therefore, accessible portion is probably considered that length of cable that is within a few feet of the opening, and that can be cut off by reaching in. That is clearly not the intent of the code provision: the entire length of cable that can be pulled out should be removed.

Another possible interpretation is that this refers to excluding from removal those cables installed in the areas that CMP 16 calls "inaccessible ceiling cavity plenums and inaccessible raised floor plenums". The concept of those "inaccessible areas" was rejected by CMP 3 as inappropriate because there is no known fire safety problem with the present type of wiring methods, but it was approved by CMP 16. If this concept is approved, and the wording of "abandoned cables" includes the "accessible portion" concept, it would clearly mean that the NEC would permit some cables to be left permanently in place once abandoned. This was soundly rejected by the membership several times, in a concept upheld by Standards Council.

It is pretty obvious that the concept of removal of abandoned cable is not one where someone should try to tear down a building or cause structural damage to it just to remove cables "permanently closed in by the structure or finish of the building". I believe that we must trust in the intelligence of our code officials and electrical inspectors that they will not demand such actions. If there is a feeling that this is a possibility (which I cannot believe), it might be worth adding a Fine Print Note to the effect that removal of abandoned cables should not cause structural damage to the building. An example follows:

FPN: Removal of abandoned cables is not intended to cause structural damage to buildings.

Clearly, "the accessible portion of abandoned cables" is a misleading phrase which can lead to abundant misinterpretation. It should be eliminated in favor of the simpler "abandoned cables".

Panel Meeting Action: Reject

Panel Statement: The requirements to remove abandoned cables have been relocated to 725.3(B) to provide consistency within Article 725.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 13

3-289 Log #899 NEC-P03 **Final Action: Accept**
(725.61(D)(2))

Submitter: Noel Williams, Noel Williams Consulting

Comment on Proposal No: 3-179

Recommendation: This proposal should continue to be accepted with the following correction. Change (3) to (2).

Substantiation: This change will help resolve an apparent conflict in the present code language. The error in numbering was in the original proposal and should be corrected to match the section being revised.

Panel Meeting Action: Accept

Number Eligible to Vote: 13

Ballot Results: Affirmative: 13

3-290 Log #454 NEC-P03 **Final Action: Accept in Principle**
(725.61(D)(4))

Submitter: Gerald Lee Dorna, Belden Wire & Cable

Comment on Proposal No: 3-182

Recommendation: Accept Proposal 3-181.

Substantiation: The submitter feels that the panel statement for Proposal 3-182 does not comply with the guidance provided in the meeting notice, which requires panel "statements must be sufficiently detailed so as to convey the panel's exact justification for its action. This will assist members of the Association in their deliberations at the Annual Meeting of the Association and permit the submitter to develop additional material for rebuttal if so desired." The panel did not identify restrictions imposed or data required for reconsideration and acceptance of the proposal. Without a detailed technical substantiation for rejecting the proposal, the submitter has a difficulty responding to the panel's action. If the panel would supply the submitter with the technical justification which supports the 50-foot limit, then the submitter would be able to justify the removal of the 50-foot limit. The submitter believes the deletion of the "50 foot maximum distance" is justified by the original substantiation which states that the cable in question meets the crush and impact resistance of Type MC and is continuously protected against physical damage using mechanical protection such as dedicated struts, angles, or channels and is supported and secured at intervals not exceeding 1.8 m (6 ft).

Panel Meeting Action: Accept in Principle

Panel Statement: See the panel action on Comment on 3-296, which addresses the submitter's concerns.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 13

3-291 Log #972 NEC-P03 **Final Action: Accept**
(725.61(D)(4))

Submitter: Dorothy Kellogg, American Chemistry Council

Comment on Proposal No: 3-180

Recommendation: The panel should have accepted the change from "open wiring" to "exposed". The panel should have accepted the addition of the words "or device" and should have addressed the same in the panel statement. The panel should have accepted the deletion of the 50 foot maximum distance.

Substantiation: The reason for removing the term "open wiring' is that 1) it is undefined (as opposed to the term "open wiring on insulators" that is defined) and 2) the words "open wiring", therefore, means different things to different people. This causes confusion, such as often being understood to be uninsulated. The attempt here is to use the term "exposed" rather than "open wiring" which is better understood in the field. This change should have been accepted by the panel. The change from "open" to "exposed" was accepted by this panel through its actions and panel statements on Proposal 3-218, 3-220, 3-221, and 3-222. The same logic, reasoning, and substantiation apply here as well.

The submitter's addition of the words "or device" was not addressed by the panel action. These words do not add or restrict, rather they should be added to better clarify the requirement.

The deletion of the 50 foot maximum distance requirement is justified in that the balance of the proposal adds the requirement that the cable be "continuously" supported and secured at intervals not exceeding 6 feet. If the cable is continuously supported and secured not exceeding 6 feet, there is no technical reason to limit the distance. If Types PLTC and TC cables meet the same crush and impact requirements, and are identified for use in "open (exposed) wiring", then both should perform the same when subjected to identical conditions in the field. Type TC designs have no length restrictions between the cable tray and the utilization equipment.

Panel Meeting Action: Accept

Number Eligible to Vote: 13

Ballot Results: Affirmative: 13

3-292 Log #973 NEC-P03 **Final Action: Accept**
(725.61(D)(4))

Submitter: Dorothy Kellogg, American Chemistry Council

Comment on Proposal No: 3-181

Recommendation: The panel should have accepted the change from "open wiring" to "exposed". The panel should have accepted the addition of the words "or device" and should have addressed the same in the panel statement. The panel should have accepted the deletion of the 50 foot maximum distance.

Substantiation: The reason for removing the term "open wiring' is that 1) it is undefined (as opposed to the term "open wiring on insulators" that is defined) and 2) the words "open wiring", therefore, means different things to different people. This causes confusion, such as often being understood to be uninsulated. The attempt here is to use the term "exposed" rather than "open wiring" which is better understood in the field. This change should have been accepted by the panel. The change from "open" to "exposed" was accepted by this panel through its actions and panel statements on Proposal 3-218, 3-220, 3-221, and 3-222. The same logic, reasoning, and substantiation apply here as well.

The submitter's addition of the words "or device" was not addressed by the panel action. These words do not add or restrict, rather they should be added to better clarify the requirement.

The deletion of the 50 foot maximum distance requirement is justified in that the balance of the proposal adds the requirement that the cable be "continuously" supported and secured at intervals not exceeding 6 feet. If the cable is continuously supported and secured not exceeding 6 feet, there is no technical reason to limit the distance. If Types PLTC and TC cables meet the same crush and impact requirements, and are identified for use in "open (exposed) wiring", then both should perform the same when subjected to identical conditions in

the field. Type TC designs have no length restrictions between the cable tray and the utilization equipment.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-293 Log #974 NEC-P03 **Final Action: Accept**
(725.61(D)(4))

Submitter: Dorothy Kellogg, American Chemistry Council
Comment on Proposal No: 3-182
Recommendation: The panel should have accepted the deletion of the 50 foot maximum distance.
Substantiation: The deletion of the 50 foot maximum distance requirement is justified in that the balance of the proposal adds the requirement that the cable be "continuously" supported and secured at intervals not exceeding 6 feet. If the cable is continuously supported and secured not exceeding 6 feet, there is no technical reason to limit the distance. If Types PLTC and TC cables meet the same crush and impact requirements, and are identified for use in "open (exposed) wiring" then both should perform the same when subjected to identical conditions in the field. Type TC designs have no length restrictions between the cable tray and the utilization equipment.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-294 Log #975 NEC-P03 **Final Action: Accept**
(725.61(D)(4))

Submitter: Dorothy Kellogg, American Chemistry Council
Comment on Proposal No: 3-183
Recommendation: The panel should have accepted the change from "open wiring" to "exposed". The panel should have accepted the addition of the words "or device" and should have addressed same in the panel statement. The panel should have accepted the deletion of the 50 foot maximum distance.
Substantiation: The reason for removing the term "open wiring" is that 1) is it undefined (as opposed to the term "open wiring on insulators" that is defined) and 2) the words "open wiring", therefore, mean different things to different people. This causes confusion, such as often being understood to be uninsulated. The attempt here is to use the term "exposed" rather than "open wiring" which is better understood in the field. This change should have been accepted by the panel. The change from "open" to "exposed" was accepted by this panel through its actions and panel statements on Proposals 3-218, 3-220, 3-221, and 3-222. The same logic, reasoning, and substantiation apply here as well.

The submitter's addition of the words "or device" was not addressed by the panel action. These words do not add or restrict, rather they should be added to better clarify the requirement.

The deletion of the 50 foot maximum distance requirement is justified in that the balance of the proposal adds the requirement that the cable be "continuously" supported and secured at intervals not exceeding 6 feet. If the cable is continuously supported and secured not exceeding 6 feet, there is no technical reason to limit the distance. If Types PLTC and TC cables meet the same crush and impact requirements, and are identified for use in "open" (exposed) wiring, then both should perform the same when subjected to identical conditions in the field. Type TC designs have no length restrictions between the cable tray and the utilization equipment.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-295 Log #1253 NEC-P03 **Final Action: Reject**
(725.61(D)(4))

Submitter: Charles M. Trout, Maron Electric Co. Inc.
Comment on Proposal No: 3-184
Recommendation: This proposal should be Accepted in Principle. Do not delete (4) as the proposal suggests but rather add a second and third paragraph to 725-61(D)(4) to read:

The name(s) of the qualified person(s) shall be kept in a permanent record at the office of the establishment in charge of the completed installation and at the office of the Authority Having Jurisdiction. Notification of any changes in the employment of the designated qualified person(s) shall be made to the office of the Authority Having Jurisdiction.

A person designated as a qualified person shall possess the skills and knowledge related to the construction and operation of the electrical equipment and installation and shall have received documented safety training on the hazards involved. Documentation of their qualifications shall be on file with the office of the Authority Having Jurisdiction and the office of the establishment in charge of the completed installation.

Substantiation: It was not necessarily my desire to have the wording in 725.61(D)(4) deleted, if the wording could be changed to include prescriptive requirements that could ensure that qualified persons are actually performing the maintenance and supervision as required by 725.61(D)(4). The National Electrical Code is a prescriptive code and it is the technical committees' responsibility to ensure that prescriptive requirements are present for the Authority Having Jurisdiction to use. The only way to appropriately apply 725.61(D)(4) is to provide prescriptive requirements that the Authority Having Jurisdiction can use to enforce the intent.

It is difficult to understand how it is possible to relax requirements for safety in a Code that tells us in 90.1(B), "this Code contains provisions that are considered NECESSARY for safety." This section further states that "Compliance therewith and proper maintenance will result in an installation that is ESSENTIALLY free from hazard but NOT NECESSARILY efficient, convenient, or ADEQUATE for good service or future expansion of electrical use." It appears to me that this tells us that these requirements are the MINIMUM requirements for safety and anything less will result in an installation that is NOT FREE FROM HAZARD.

Proponents of this travesty, knowing the truth in this, attempt to circumvent the obvious degradation of safety by using phraseology such as "the installation is under engineering supervision" or "a qualified person will monitor the system." What is monitoring the installation? What does engineering supervision mean?

I have submitted several proposals to delete these exceptions to requirements for safety but they were all rejected. Perhaps in the comment stage, enough persons will comment in favor of accepting these proposals or at least accepting them in a manner where some prescriptive requirements will be added to accurately describe what "engineering supervision" entails. What does "monitoring" the installation mean, what type of record keeping is necessary to assure compliance, what is a "monitor" or what is a "qualified person?" How is documentation of the qualifications and presence of a "qualified person" accomplished by the Authority Having Jurisdiction?

Without these prescriptive requirements, these exceptions to the requirements for safety appear to be "just another subterfuge to avoid compliance with the safety requirements of the National Electrical Code without regard to putting persons and equipment at risk."
Panel Meeting Action: Reject
Panel Statement: Text, as suggested in the recommendation, may have a place in NFPA 70E, the Electrical Safety Requirements for Employee Workplaces, or in Article 80 in the NEC but does not belong in Article 725. There are many locations in the United States that are in unincorporated towns or counties where there are not any AHJs. This text would make it mandatory for all installations of Class 2 and 3 to keep records of the qualified persons, even where there are no AHJs.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-296 Log #2370 NEC-P03 **Final Action: Accept**
(725.61(D)(4))

Submitter: James M. Daly, General Cable
Comment on Proposal No: 3-180
Recommendation: The Proposal should have been Accepted.
Substantiation: See Mr. Pace's Negative comment.

The majority of the Code Panels accepted the change from "open wiring" to "exposed".

The addition of "or device" was added by Panel 7 at the request of the users since they said that the cable may not always go to the utilization equipment but may go to a control device. I would think that this additional clarification would be even more important for the application of cables under Article 725.

If the cable is continuously supported and protected, there is no justification for a length limit.

The changes proposed are identical to those in 336.12(7) for 600 V TC cable. If the Class 2, Class 3, and PLTC cables, which are operated at much lower power, meet the same mechanical requirements as the TC cable, it does not seem logical to not have the same installation requirements.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-297 Log #3417 NEC-P03 **Final Action: Accept**
(725.61(D)(4))

Submitter: H. R. Stewart, HRS Consulting
Comment on Proposal No: 3-180
Recommendation: This proposal should be accepted as written.
Substantiation: Code Panel 7 has made it very clear that the cable should not be used as "open wiring". This should also apply to PLTC in this paragraph as well as Paragraph 725-61(E)(7) which covers the same issue.

Use of PLTC as open wire without continuous support is an unsafe installation.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-298 Log #29 NEC-P03 **Final Action: Accept**
(725.61(E))

Submitter: Stanley Kaufman, CableSafe, Inc.
Comment on Proposal No: 3-173
Recommendation: Continue to accept Proposal 3-173 in principle. In Section 725.61(E), delete the last sentence of the first paragraph "Abandoned cables in hollow spaces shall not be permitted to remain."
Substantiation: This section appears to have been overlooked by the submitter. This comment to change 725.61(E) is consistent with the changes made in Proposal 3-173.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-299 Log #976 NEC-P03 **Final Action: Accept**
(725.61(E)(7))

Submitter: Dorothy Kellogg, American Chemistry Council
Comment on Proposal No: 3-186
Recommendation: The panel should have accepted the change from "open wiring" to "exposed". The panel should have accepted the deletion of the 50 foot maximum distance.
Substantiation: The reason for removing the term "open wiring" is that 1) is it undefined (as opposed to the term "open wiring on insulators" that is defined) and 2) the words "open wiring", therefore, mean different things to different people. This causes confusion, such as often being understood to be uninsulated. The attempt here is to use the term "exposed" rather than "open wiring" which is better understood in the field. This change should have been accepted by the panel. The change from "open" to "exposed" was accepted by this panel through its actions and panel statements on Proposals 3-218, 3-220, 3-221, and 3-222. The same logic, reasoning, and substantiation apply here as well.

The deletion of the 50 foot maximum distance requirement is justified in that the balance of the proposal adds the requirement that the cable be "continuously" supported and secured at intervals not exceeding 6 feet. If the cable is continuously supported and secured not exceeding 6 feet, there is no technical reason to limit the distance. If Types PLTC and TC cables meet the same crush and impact requirements, and are identified for use in "open" (exposed) wiring, then both should perform the same when subjected to identical conditions in the field. Type TC designs have no length restrictions between the cable tray and the utilization equipment.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-300 Log #3419 NEC-P03 **Final Action: Accept**
(725.61(E)(7))

Submitter: H. R. Stewart, HRS Consulting
Comment on Proposal No: 3-186
Recommendation: Accept the proposal as written.
Substantiation: The panel did not accept in principal as it did not include "continuously supported". If this proposal is accepted, the 50 foot limit can be removed.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13

3-301 Log #30 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: Stanley Kaufman, CableSafe, Inc.
Comment on Proposal No: 3-210
Recommendation: Continue to accept Proposal 3-210 in principle. Add fine print notes to the listing requirements for riser and general-purpose raceways.

For riser raceways use the same fine print note as accepted by Panel 16 in Proposal 16-50 and shown below:

"FPN: One method of defining fire-resistant characteristics capable of preventing the carrying of fire from floor to floor is that the raceways pass the requirements of the Test for Flame Propagation (Riser) in UL 2024, Standard for Optical Fiber Cable Raceway."

For general-purpose raceways use the same fine print note as accepted by Panel 16 in Proposal 16-53 and shown below:

"FPN: One method of defining resistance to the spread of fire is that the raceways pass the requirements of the Vertical-Tray Flame Test (General use) in UL 2024, Standard for Optical Fiber Cable Raceway."
Substantiation: Accepting the fine print notes for riser and general-purpose raceways will correlate similar sections in Articles 725, 770, 800 and 820.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.

3-302 Log #223 NEC-P03 **Final Action: Reject**
(725.71)

Note: See the Panel Action on Comment 3-301.
Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-210
Recommendation: Continue to accept this proposal in principle but change "other space used for environmental air" to "ceiling cavity plenums and raised floor plenums" and add a fine print note for plenum raceway as follows:

For a definition of "adequate fire-resistant and low smoke-producing characteristics" refer to section 4.3.10 of NFPA 90A-2002, Standard for the Installation of Air-Conditioning and Ventilating Systems. Its listing requirements for optical fiber and communications plenum raceways, effectively define raceways having "adequate fire-resistant low and smoke-producing characteristics" as raceways having a maximum flame spread distance of 5 ft (1.5 m) or less, a maximum peak optical density of 0.5 or less and an average optical density of 0.15 or less when tested in accordance with UL 2024, Standard for Safety Optical-Fiber Cable Raceway.
Substantiation: The Technical Committee on Air Conditioning agrees with the panel action to prohibit the installation of these raceways in ducts and plenums because doing so would have created a conflict with NFPA 90A. Restricting their use to "other space used for environmental air" comes close to correlating with NFPA 90A but we can't be sure because "other space used for environmental air is a vague, undefined term. The terms "ceiling cavity plenums" and "raised floor plenums" are clearly defined in proposals we have made to panels 1, 3 and 16. In order to bring about complete correlation between the NEC and NFPA 90A, both standards need to use the same terms. Accepting the fine print note in Proposal 16-49 for plenum raceway will bring about correlation between NFPA 90A and NFPA 70 as well as correlation between Articles 725 and Articles 700, 800, and 820.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-303 Log #267 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-197
Recommendation: Continue to reject this proposal.
Substantiation: The Technical Committee on Air Conditioning agrees with the panel action. Acceptance of this proposal would have created a conflict with NFPA 90A. "P" type plenum cables are permitted in ceiling cavity plenums and raised floor plenums but not in duct distribution plenums, apparatus casing plenums and air-handling unit room plenums.

This comment is one in a series of comments including 3-89, 3-90, 3-130, 3-169, 3-197, 3-228, 3-242, 3-251, 3-267, and 3-291.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.

3-304 Log #284 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-192
Recommendation: Accept this proposal in principle by accepting the text as proposed and changing the name of the cable to "air duct cable".
Substantiation: See the comments from the Technical Committee on Air Conditioning on proposals 3-174 and 3-213.

The name of the cable should be changed to "air duct cable" to correlate with the actions of panel 16 on proposals 16-37, 16-112, and 16-177. Panel 16 changed the name to avoid confusion with telephone duct cable which is an unlisted outside plant cable used in telephone ducts (conduit).

Why is the Technical Committee on Air Conditioning submitting comments?

In action 80-60, the Standards Council assigned primary jurisdiction for combustibles in plenums to the Technical Committee on Air Conditioning and directed it to seek the cooperation of the committees on Fire Tests, National Electrical Code and Safety to Life. The Technical Committee on Air Conditioning has been cooperating with the National Electrical Code Committee by submitting a series of proposals for the 2005 NEC. It now continues that cooperation by commenting n all proposals dealing with combustibles in plenums. The purpose of the proposals and comments is to bring about correlation between NFPA 70, National Electrical Code and NFPA 90A, Standard for the Installation of Air-Conditioning and Ventilating Systems. The Technical Committee on Air Conditioning established consensus on these comments through a letter ballot.

The NEC Technical Correlating Committee has acknowledged the responsibility of the Technical Committee on Air Conditioning. The TCC action on this proposal states:

"The Technical Correlating Committee understands that the Standards Council has given primary responsibility to the Technical Committee on Air-Conditioning for combustible materials n plenums in cooperation with other committees including the National Electrical Code Committee. The Chair of the Technical Correlating Committee will work with the Chair of the Technical Committee on Air-Conditioning and appoint a Task Group to review the proposals affecting correlation between Code-Making Panels 3, 16, and the Technical Committee on Air-Conditioning. In addition, the Technical Correlating Committee directs that this proposal be referred to the NFPA Committee on Air-Conditioning for comment."

NFPA 5000-2003 Building Construction and Safety Code, in Chapter 52, requires electrical systems and equipment to be designed and constructed in accordance with NFPA 70. Likewise, in Chapter 50, it requires air-conditioning and ventilating systems to be designed and constructed in accordance with NFPA 90A. NFPA 5000 has conflicting provisions for wiring in air handling spaces because of conflicts between NFPA 70 and NFPA 90A. Many of the proposals and comments from the Committee on Air-Conditioning to the National Electrical Code Committee are intended to eliminate these conflicts. These proposals and comments are part of the implementation of the Standards Council's recently issued Scope Coordination Policy for NFPA documents for the built environment.

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-305 Log #294 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-194
Recommendation: Accept this proposal in principle by accepting the text as proposed and changing the name of the cable from "duct cable" to "air duct cable" and changing the fine print note per our comment 3-214.
Substantiation: This proposal includes the changes proposed by the technical committee on air conditioning in the following proposals:

3-214, which recommended changing the fine print notes for plenum cable listing to reference NFPA 90A. The panel accepted this proposal and we submitted a separate comment urging acceptance in principle.

3-174, which recommended changing the permitted applications of "P" type plenum cable to restrict them to ceiling cavity and raised floor plenums only and thereby remove a conflict with NFPA 90A. The panel rejected this proposal. We submitted a separate comment urging that the panel to accept it.

3-213, which recommended changing the listing requirements for "P" type plenum cable to list them for use in ceiling cavity and raised floor plenums only and thereby remove a conflict with NFPA 90A. The panel rejected this proposal. We submitted a separate comment urging that the panel to accept it.

This proposal also includes changes recommended in proposals 3-270, 3-271 and 3-272 which require the use of air duct cable in newly built inaccessible ceiling cavity plenums and newly built inaccessible raised floor plenums. The panel rejected these proposals. We submitted separate comments urging that the panel to accept them.

The panel accepted the listing of duct cable in its action on proposal 3-192 and 3-286. The name of the cable should be changed from "duct cable" to "air duct cable" to correlate with the actions of panel 16 of proposals 16-37, 16-112 and 16-177. Panel 16 changed the name to avoid confusion with telephone duct cable which is an unlisted outside plant cable used in telephone ducts (conduit).

The technical committee on air conditioning recognizes that acceptance of its proposals to restrict the listing and use of "P" type plenum cable (3-174 & 3-213) leaves users without a wiring method, other than metal raceway, for air ducts, duct distribution plenums, apparatus casing plenums and air-handling unit plenums. Wring should be excluded from these air-handling spaces unless it is associated with the air distribution system. This proposal provides a wiring method that correlates with the requirements of NFPA 90A for supplementary materials in air handling spaces.

Furthermore, providing listing and applications for "air duct" cables correlates with the NFPA 90A requirements for listing of limited combustible cable.

The acceptance of this proposal, beyond removing conflicts, will Improve correlation between NFPA 90A and NFPA 70 and provide a needed wiring method for wiring in air handling spaces other that ceiling cavity plenums and raised floor plenums. It is a model for future revision of NFPA 90A.

Why is the Technical Committee on Air Conditioning submitting comments?

In action 80-60, the Standards Council assigned primary jurisdiction for combustibles in plenums to the Technical Committee on Air Conditioning and directed it to seek the cooperation of the committees on Fire Tests, National Electrical Code and Safety to Life. The Technical Committee on Air Conditioning has been cooperating with the National Electrical Code Committee by submitting a series of proposals for the 2005 NEC. It now continues that cooperation by commenting on all proposals dealing with combustibles in plenums. The purpose of the proposals and comments is to bring about correlation between NFPA 70, *National Electrical Code* and NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*. The Technical Committee on Air Conditioning established consensus on these comments through a letter ballot.

The NEC Technical Correlating Committee has acknowledged the responsibility of the Technical committee on Air Conditioning. The TCC Action on this proposal states:

"The Technical Correlating Committee understands that the Standards Council has given primary responsibility to the Technical Committee on Air-Conditioning for combustible materials in plenums in cooperation with other committees including the National Electrical Code Committee. The Chair of the Technical Correlating Committee will work with the Chair of the Technical Committee on Air-Conditioning and appoint a Task Group to review the proposals affecting correlation between Code-Making Panels 3, 16, and the Technical Committee on Air-Conditioning. In addition, the Technical Correlating Committee directs that this proposal be referred to the NFPA Committee on Air-Conditioning for comment."

NFPA 5000-2003 Building Construction and Safety Code, in Chapter 52, requires electrical systems and equipment to be designed and constructed in accordance with NFPA 70. Likewise, in Chapter 50, it requires air-conditioning and ventilating systems to be designed and constructed in accordance with NFPA 90A. NFPA 5000 has conflicting provisions for wiring in air handling spaces because of conflicts between NFPA 70 and NFPA 90A. Many of the proposals and comments from the Committee on Air-Conditioning to the National Electrical Code Committee are intended to eliminate these conflicts. These proposals and comments are part of the implementation of the Standards Council's recently issued *Scope Coordination Policy for NFPA Documents* that has the "goal of having a coordinated set of documents for the built environment".

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-306 Log #297 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-199
Recommendation: Accept this proposal in principle by accepting the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-307 Log #301 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-191
Recommendation: Accept this proposal in principle by accepting the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-308 Log #312 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-208
Recommendation: Accept this proposal in principle by accepting the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-309 Log #327 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-193
Recommendation: Accept this proposal in principle by accepting the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-310 Log #331 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-196
Recommendation: Accept this proposal in principle by accepting the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Substantiation: See the comment from the Technical Committee on Air Conditioning on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-311 Log #338 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-207
Recommendation: Accept this proposal in principle by accepting the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-312 Log #343 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-195
Recommendation: Accept this proposal in principle by accepting the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-313 Log #349 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-209
Recommendation: Accept this proposal in principle by accepting the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-314 Log #354 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-198
Recommendation: Accept this proposal in principle by accepting the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-315 Log #360 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-200
Recommendation: Accept this proposal in principle by accepting the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-316 Log #361 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-201
Recommendation: Accept this proposal in principle by accepting the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-317 Log #362 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-202
Recommendation: Accept this proposal in principle by accepting the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-318 Log #363 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-203
Recommendation: Accept this proposal in principle by accepting the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-319 Log #364 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-204
Recommendation: Accept this proposal in principle by accepting the comment from the Technical Committee on Air Conditioning on proposal 3-194.

Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-320 Log #365 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-205
Recommendation: Accept this proposal in principle by accepting the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-321 Log #366 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-206
Recommendation: Accept this proposal in principle by accepting the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-322 Log #367 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-211
Recommendation: Accept this proposal in principle by accepting the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Substantiation: See the comment from the Technical Committee on Air Conditioning on proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-323 Log #494 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Allen C. Weidman, The Society of the Plastics Industry, Inc.
Comment on Proposal No: 3-192
Recommendation: Accept this proposal in principle by accepting the text as proposed, and changing the name of the cable to "air duct cable".
Substantiation: See our Comments on Proposals 3-174 and 3-213.
The name of the cable should be changed to "air duct cable" to correlate with the actions of Code-Making Panel 16 on Proposals 16-37, 16-112, and 16-177.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-324 Log #495 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Allen C. Weidman, The Society of the Plastics Industry, Inc.
Comment on Proposal No: 3-194
Recommendation: Accept this proposal.
Substantiation: The panel Accepted the listing of duct cable in its actions on Proposals 3-192 and 3-286. Acceptance of Proposals 3-174 and 3-213 leaves users without a wiring method, other than metal raceway, for plenums, other than ceiling cavity plenums and raised floor plenums, and air ducts. The acceptance of this proposal will provide a safe and appropriate wiring method for those portions of the air distribution system.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-325 Log #1306 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Wayne G. Carson, Carson Assoc. Inc.
Comment on Proposal No: 3-210
Recommendation: Reject Proposal 3-210.
Substantiation: The explanation of negative votes by committee members Mr. Easter and Mr. Keden are clear and concise. There is no need for an additional cable category and no committee substantiation provided. This new category of cable refers to testing under NFPA 255 and 259 which both reference building materials only in their scope. The Standards Council has made it clear that wire and cable is not considered building materials.
See my comment submitted on Proposal 3-126.
Panel Meeting Action: Reject
Panel Statement: The substantiation does not seem to match the text in Proposal 3-210. There are no negative votes by Mr. Easter or Mr. Keden.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.

3-326 Log #1428 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Technical Correlating Committee on Signaling Systems for the Protection of Life and Property
Comment on Proposal No: 3-194
Recommendation: Accept this proposal.
Substantiation: The panel accepted the listing of duct cable in its action on proposals 3-192 and 3-286.
Acceptance of the proposals to restrict the listing and use of "P" type plenum cable (3-174 & 3-213) leaves users without a wiring method, other than metal raceway, for air ducts, duct distribution plenums, apparatus casing plenums and air-handling unit plenums. Wiring should be excluded from these air-handling spaces unless it is associated with the air distribution system. This proposal provides a wiring method that correlates with the requirements of NFPA 90A for supplementary materials in air handling spaces. Furthermore, providing listing and applications for "air duct" cables correlates with the NFPA 90A requirements for listing of limited combustible cable.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-327 Log #1507 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-199
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.
The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.
There is no need for any additional environmental air space identifiers or cable type designators.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-328 Log #1511 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-211
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.
The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.

There is no need for any additional environmental air space identifiers or cable type designators.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-329 Log #1513 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-200
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.
The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.
There is no need for any additional environmental air space identifiers or cable type designators.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-330 Log #1514 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-202
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.
The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.
There is no need for any additional environmental air space identifiers or cable type designators.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-331 Log #1515 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-203
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.
The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.
There is no need for any additional environmental air space identifiers or cable type designators.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-332 Log #1516 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-206
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.
The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.
There is no need for any additional environmental air space identifiers or cable type designators.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-333 Log #1517 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-207
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.
The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.
There is no need for any additional environmental air space identifiers or cable type designators.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-334 Log #1518 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-208
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.

The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.

There is no need for any additional environmental air space identifiers or cable type designators.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-335 Log #1520 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-196
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.

The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.

There is no need for any additional environmental air space identifiers or cable type designators.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-336 Log #1521 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-195
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.

The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.

There is no need for any additional environmental air space identifiers or cable type designators.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-337 Log #1522 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-204
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.

The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.

There is no need for any additional environmental air space identifiers or cable type designators.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-338 Log #1523 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-209
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.

The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.

There is no need for any additional environmental air space identifiers or cable type designators.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-339 Log #1525 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-194
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.

The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.

There is no need for any additional environmental air space identifiers or cable type designators.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-340 Log #1526 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-205
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.

The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.

There is no need for any additional environmental air space identifiers or cable type designators.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-341 Log #1652 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-194
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter, and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-342 Log #1655 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-197
Recommendation: Continue to reject.
Substantiation: I agree with the panel action and panel statement to reject Proposal 3-197. No technical substantiation has been provided that a change to the 2002 NEC language is needed or required. This comment represents the official position of the International Brotherhood of Electrical Workers Code and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-343 Log #1663 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-205
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-344 Log #1713 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-197
Recommendation: Continue to reject.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

The task group agrees with Panel 3's action and statement.

By accepting the majority of the suggested changes in a submitted comment for Proposal 3-94, "Other Spaces for Environmental Air" has been further subdivided into two separate spaces, ceiling cavity and raised floor plenums but the Panel still has maintained the electrical industry terminology associated with these spaces. Providing this further subdivision will enhance the usability of the NEC by making it easier to determine what other spaces are being referenced in this section. It will also improve correlation between the NEC and NFPA 90A.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.

3-345 Log #1843 NEC-P03
Final Action: Reject
(725.71)

Submitter: Thomas P. Hammerberg, Automatic Fire Alarm Association
Comment on Proposal No: 3-194
Recommendation: Accept this proposal.
Substantiation: The Automatic Fire Alarm Association understands the Air Conditioning Committee has jurisdiction over materials installed in or on air ducts and plenums. Accepting the proposed text provides correlation between the NEC and NFPA 90A-2002.
Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-346 Log #2014 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Gerald Lee Dorna, Belden Wire & Cable
Comment on Proposal No: 3-191
Recommendation: Accept my proposal 3-191 in principle by accepting the broader proposal 3-209 which includes all the changes in my proposal 3-191.
Substantiation: I submitted proposal 3-191, which was part of a series of proposals submitted to establish air duct cable in the NEC. CMP-3 should have accepted the proposal 3-174 submitted by the Technical Committee on Air Conditioning to harmonize the terminology and requirements of the NEC with NFPA 90A. I encourage and support CMP-3 to change its position on proposal 3-174 after they have reviewed the comments submitted to support proposal 3-174.

The requirement for the mechanical protection up to 7 (seven) ft in air handling room plenum is due to the fact that the fire alarm wiring installed in air handling room plenums is required to be protected to a height of 7 (seven) ft. Look up Article 760.52(B)(2).

Belden Wire & Cable wishes to continue to show its support for the addition of air duct cable in the NEC and by doing so show its support for fire safety of cables.

Panel Meeting Action: Reject
Panel Statement: See the panel action and statement on Comment 3-109.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-347 Log #2275 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-193
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.

The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking) the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).

In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.

By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-348 Log #2283 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-208
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.

The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking) the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).

In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.

By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-349 Log #2341 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: Frank Bisbee, Communication Planning Corporation
Comment on Proposal No: 3-211
Recommendation: Reject this proposal.
Substantiation: In recognizing the use of "duct cable" or "limited combustible cable," the proposal fails to consider toxicity of the newly specified product and the relative incapacitation factor presented by the chemical constituents of the polymer in new cable design. A recent study by the NFPA Fire Protection Research Foundation has advanced an international effort to make certain that people can escape a burning building before being incapacitated (overcome by smoke or gases generated by thermal decomposition). The work is part of a revolution in fire safety in which codes and standards are beginning to address how much smoke, or gases generated by thermal decomposition, will incapacitate people, rather than how much will kill them.

The jacketing and insulating materials used in duct cable and limited combustible cable are subject to heat decomposition and the emission of sub-lethal toxic fumes. Some of these fumes can incapacitate (blinding and choking) the building occupants. The requirements for using "duct cable" have failed to recognize toxicity or emissions that are essentially colorless (i.e. hydrogen fluoride, which converts to hydrofluoric acid upon contact with any moisture, and other toxic gases may be generated).

In 2002, the ISO (International Organization for Standardization), a network of the industrial-standards institutes of 147 countries, put forth a new standard calling for attention to the "sub-lethal" effects of smoke - when the heat, the thickness of smoke, and the toxic gases in smoke will block vision, make a person choke or tear up, or render a person unconscious. Because of this new ISO standard, these effects of smoke are supposed to be taken into account when regulating the size and placement of exits and the types of materials allowed in buildings. But to meet the standard, one needs to know more about the smoke produced by burning various materials. Working with the National Institute of Standards and Technology, the FPRF is laying the scientific groundwork needed to put the new standard into practice. The foundation recently completed the project's second phase of its International study of the Sub-lethal Effects of Fire Smoke on Survivability and Health. In the most recent phase of the study, the foundation's researchers performed three tests: They burned a sofa made of upholstered cushions on a steel frame, some particle board bookcases, and some household cable. In each case, the materials were burned in a room with a long adjacent corridor. The researchers measured the toxic gases emitted by each item, and how quickly the gases filled the room and moved down the corridor. They determined when and where in the room and in the hallway people would have to stop because of the smoke or the heat. Fire-test laboratories and manufacturers are expected to use this data to develop smaller-scale tests that can be done in a laboratory, so they won't need to set a room on fire every time they test a product. FPRF is uniquely equipped to conduct such studies, and NFPA officials expect more lives to be saved because of the new fire-safety standards that will emerge from this work.

By allowing and specifying the use of "duct cable," this proposal supports the use of materials counter to the findings already available in the public domain regarding sub-lethal toxicity of hydrogen fluoride and through the NFPA Fire Protection Research Foundation regarding incapacitation factors. Polymers used in duct cable and other limited combustible cable materials far exceed the incapacitation factor of other materials used in various cable construction both in generation of sub-lethal constituents and in hypertoxicity.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-350 Log #2536 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-194
Recommendation: Reject this proposal.
Substantiation: • The submitter states that the TC on Air Conditioning (NFPA 90A) "has primary responsibility for fire protection in ducts and plenums." In 90A, Chapter 4 (HVAC Systems), Section 4.1.4 mandates that "Electrical wiring and equipment shall be installed in accordance with NFPA 70, National Electrical Code," Chapter 6 (Controls) Section 6.1 states that "The installation of electrical wiring and equipment associated with the operation and control of air-conditioning and ventilating systems shall be in accordance with NFPA 70, National Electrical Code." Through these two sections, 90A defers to the NEC for wiring in these spaces.

• The 2002 edition of NFPA 90A lists requirements for electrical wires and cables and optical fiber cables in ceiling cavity plenums and raised floor plenums: "...they shall be listed as noncombustible or limited combustible or meet the requirements of NFPA 262 (plenum cables)". When this language was appealed to the Standards Council in 2002, the Standards Council denied the appeal but directed the Technical Committee to "harmonize the fire flammability and smoke production test requirements for plenum cables so as to produce a single minimum acceptable performance level." We understand that during an August 2003 meeting, the 90A Technical Committee accomplished this directive by developing a proposal to require the fire characteristics of the "air duct" (limited combustible) cables - and not the cables listed to NFPA 262 - in the raised floor plenums and ceiling cavity plenums. If NFPA 90A does have jurisdiction over this issue, it is premature for the NEC to be acting on these proposals when the matter is still unsettled in 90A. The next revision cycle for 90A is 2005. The 90A Technical Committee proposal will require comments from the public. Comments are not due until October 1, 2004 and NFPA 90A is not voted on until May, 2005, one year after the NEC. No changes should be made in the NEC until this matter is settled in 90A and until the Standards Council clarifies who really has jurisdiction over this matter.

• The submitter also states that 90A only mentions "electrical wires and cables and optical fiber cables" for use in ceiling cavity plenums and raised floor plenums and that there is a need for wires and cables in various other plenums and air ducts. The implication is that the proponent is introducing a new cable for these spaces in order to correlate with material requirements in 90A. If there is a need for a cable for these spaces and if 90A truly has jurisdiction, why were proposals not submitted to 90A during the 2002 cycle? Perhaps the reason that non-metallic cable material requirements are not listed in other types of plenums covered in 90A is that non-metallic cables do not belong in these spaces. Dividing plenums into different type spaces and then adding air ducts has been a marketing strategy that clouds the issue of where "plenum cables" have historically been permitted. This does not serve either the public or existing plenum cable producers well.

• The submitter of the proposal was a Panel 16 member during the 2002 NEC cycle when these cables were called "limited combustible" cables. He submitted the following affirmative comment in his vote on Comment 16-88 (May 2001 ROC): "In the panel discussion of limited combustible cables, some panel members were concerned that establishing these cables was a first step and that in later code cycles these cables would be required. Their concern obviously involved the added cost of the high-performance materials currently used in limited combustible cables. I have confidence that panel 16 will not accept any proposals requiring limited combustible cables unless presented with compelling safety issues that we have not yet heard." We still have not heard any compelling safety issue justifying the requirement for this cable - just statements concerning jurisdictional and correlation issues. There has been no technical substantiation to require this cable.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-351 Log #2594 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-206
Recommendation: Reject this proposal.
Substantiation: See our companion proposal on 3-192.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-352 Log #2631 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-191
Recommendation: Accept this proposal in principle by accepting the comment from CFRA on Proposal 3-194.
Substantiation: See the comment from CFRA on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: The panel is acting on this and other comments based on the Standards Council decision dated November 13, 2003 that is identified as Number 03-10-25 plus a subsequent letter by the Standards Council Chairman, Philip J. DiNenno, dated December 3, 2003. This decision states, in pertinent part as follows:
"The Council believes, that the best course of action for the NEC project is to generally refrain, unless absolutely necessary, from making revisions that interrelate with the NFPA 90A in advance of completion of the latest revision cycle of NFPA 90A, and instead to maintain the status quo in the NEC project on the applicable technical subjects pending the completion of the NFPA 90A revision cycle."
This action does not constitute agreement or disagreement with any of the substantiations submitted for the affected comments.

Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-353 Log #2632 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-192
Recommendation: Accept this proposal in principle by accepting the text as proposed and changing the name of the cable to "air duct cable".
Substantiation: See the CFRA comments on Proposals 3-174 and 3-213.
The name of the cable should be changed to "air duct cable" to correlate with the actions on panel 16 of Proposals 16-37, 16-112 and 1-177.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-354 Log #2637 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-193
Recommendation: Accept this proposal in principle by accepting the comment from CFRA on Proposal 3-194.
Substantiation: See the comment from CFRA on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-355 Log #2638 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-194
Recommendation: Accept this proposal in principle by accepting the text as proposed and changing the name of the cable from "duct cable" to "air duct cable".
Substantiation: The panel accepted the listing of duct cable in its action on Proposals 3-192 and 3-286. The name of the cable should be changed from "duct cable" to "air duct cable" to correlate with the actions of Panel 16 on Proposals 16-37, 16-112 and 16-177.
Acceptance of the proposals to restrict the listing and use of "P" type plenum cable (3-174 and 3-213) leaves users without a wiring method, other than metal raceway, for air ducts and plenums, other than ceiling cavity plenums and raised floor plenums. Acceptance of this proposal addresses that issue through the use of air duct cable.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-356 Log #2639 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-195
Recommendation: Accept this proposal in principle by accepting the comment from CFRA on Proposal 3-194.
Substantiation: See the comment from CFRA on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-357 Log #2640 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-196
Recommendation: Accept this proposal in principle by accepting the comment from CFRA on Proposal 3-194.
Substantiation: See the comment from CFRA on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-358 Log #2641 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-197
Recommendation: Continue to reject this proposal.
Substantiation: CFRA agrees with the panel action.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.

3-359 Log #2642 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-198
Recommendation: Accept this proposal in principle by accepting the comment from CFRA on Proposal 3-194.
Substantiation: See the comment from CFRA on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-360 Log #2643 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-199
Recommendation: Accept this proposal in principle by accepting the comment from CFRA on Proposal 3-194.
Substantiation: See the comment from CFRA on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-361 Log #2644 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-200
Recommendation: Accept this proposal in principle by accepting the comment from CFRA on Proposal 3-194.
Substantiation: See the comment from CFRA on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-362 Log #2645 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-201
Recommendation: Accept this proposal in principle by accepting the comment from CFRA on Proposal 3-194.
Substantiation: See the comment from CFRA on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-363 Log #2646 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-202
Recommendation: Accept this proposal in principle by accepting the comment from CFRA on Proposal 3-194.
Substantiation: See the comment from CFRA on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-364 Log #2647 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-203
Recommendation: Accept this proposal in principle by accepting the comment from CFRA on Proposal 3-194.
Substantiation: See the comment from CFRA on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-365 Log #2648 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-204
Recommendation: Accept this proposal in principle by accepting the comment from CFRA on Proposal 3-194.
Substantiation: See the comment from CFRA on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-366 Log #2649 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-205
Recommendation: Accept this proposal in principle by accepting the comment from CFRA on Proposal 3-194.
Substantiation: See the comment from CFRA on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-367 Log #2650 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-206
Recommendation: Accept this proposal in principle by accepting the comment from CFRA on Proposal 3-194.
Substantiation: See the comment from CFRA on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-368 Log #2651 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-207
Recommendation: Accept this proposal in principle by accepting the comment from CFRA on Proposal 3-194.
Substantiation: See the comment from CFRA on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-369 Log #2652 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-208
Recommendation: Accept this proposal in principle by accepting the comment from CFRA on Proposal 3-194.
Substantiation: See the comment from CFRA on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-370 Log #2653 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-209
Recommendation: Accept this proposal in principle by accepting the comment from CFRA on Proposal 3-194.
Substantiation: See the comment from CFRA on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-371 Log #2654 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-211
Recommendation: Accept this proposal in principle by accepting the comment from CFRA on Proposal 3-194.
Substantiation: See the comment from CFRA on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-372 Log #2721 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-206
Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group's comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-373 Log #2890 NEC-P03 **Final Action: Accept in Part**
(725.71)

Submitter: Stanley Kaufman, CableSafe, Inc.
Comment on Proposal No: 3-210
Recommendation: Continue to accept proposal 3-210 in principle. Renumber 725.71 to 725.179 and change the text of (H) to:

(H) Plenum Signaling Raceways. Plenum signaling raceways shall be listed as having adequate fire-resistant and low smoke-producing characteristics.

FPN: For a definition of "adequate fire-resistant and low smoke-producing characteristics" refer to section 4.3.10 of NFPA 90A-2002, Standard for the Installation of Air-Conditioning and Ventilating Systems. Its listing requirements for optical fiber and communications plenum raceways, effectively define raceways having "adequate fire-resistant low and smoke-producing characteristics" as raceways having a maximum flame spread distance of 5 ft (1.5 m) or less, a maximum peak optical density of 0.5 or less and an average optical density of 0.15 or less when tested in accordance with UL 2024, Standard for Safety Optical-Fiber Cable Raceway.
Substantiation: Section 725.71 is a listing section. Only listing requirements should be in it. Application requirements should be in 726.61. See section 770.51(E) that has listing requirements for plenum optical fiber raceway. The fine print note is from a comment from the Technical Committee on Air Conditioning.

The renumbering task group has recommended renumbering section 725.71 to 725.179.
Panel Meeting Action: Accept in Part

The panel accepts the recommended change to (H) in the comment and to continue to accept the panel action on the proposal with that change. Reject the remainder of the comment.
Panel Statement: The panel has accepted the recommended change to (H) in the comment since 725.71 is only dealing with listing and marking, and not with application issues. The remainder of the comment is rejected since the fine print note in the comment is dealing with optical fiber and communication plenum raceways.

Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-374 Log #2518rr NEC-P03 **Final Action: Accept**
(725.71)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-206
Recommendation: Reject this proposal.
Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-375 Log #3033 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Frank Peri, Communications Design Corporation
Comment on Proposal No: 3-198
Recommendation: Accept in principle by accepting the comment from the Technical Committee on Air Conditioning on Proposal 3-194.
Substantiation: I am a member of NFPA 90A and urge the action recommended in the comment from the Technical Committee on Air Conditioning on Proposal 3-194.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-376 Log #3094 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: Loren M. Caudill, DuPont Electronic & Comunication Technologies
Comment on Proposal No: 3-194
Recommendation: Continue to accept this proposal in principle.
Substantiation: This allows correlation with other NFPA Standards such as NFPA 90A, NFPA 13 and NFPA 5000.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-377 Log #3575 NEC-P03 **Final Action: Reject**
(725.71)

Submitter: James R. Hoover, DuPont, Electronic & Communication Technologies
Comment on Proposal No: 3-194
Recommendation: Continue to accept this proposal in principle. Add a Fne Print Note to 725.71(A) as follows:
FPN: See 8.14.1.5 of NFPA 13 (2002), Installation of Sprinkler Systems, for requirements for sprinklers in concealed spaces containing exposed combustibles.
Substantiation: Section 8.14.1.5 of NFPA 13 (2002), Installation of Sprinkler Systems states:

8.14.1.5 Localized Protection of Exposed Combustible Construction or Exposed Combustibles. In concealed spaces having exposed combustible construction, or containing exposed combustibles, in localized areas, the combustibles shall be protected as follows:

(1) If the exposed combustibles are in the vertical partitions or walls around all or a portion of the enclosure, a single row of sprinklers spaced not over 12 ft (3.7 m) apart nor more than 6 ft (1.8 m) from the inside of the partition shall be permitted to protect the surface. The first and last sprinklers in such a row shall not be over 5 ft (1.5 m) from the ends of the partitions.

(2) If the exposed combustibles are in the horizontal plane, the area of the combustibles shall be permitted to be protected with sprinklers on a light hazard spacing. Additional sprinklers shall be installed no more than 6 ft (1.8 m) outside the outline of the area and not more than 12 ft (1.8 m) on center along the outline. When the outline returns to a wall or other obstruction, the last sprinkler shall not be more than 6 ft (1.8 m) from the wall or obstruction.

The definition of combustible, from NFPA 5000 is:

3.3.340.2 Combustible (Material). A material that, in the form in which it is used and under the conditions anticipated, will ignite and burn; a material that does not meet the definition of noncombustible or limited-combustible.

3.3.340.10* Limited-Combustible (Material). Refers to a building construction material not complying with the definition of noncombustible material (see 3.3.340.11) that, in the form in which it is used, has a potential heat value not exceeding 3500 Btu/lb (8141 kJ/kg), where tested in accordance with NFPA 259 and includes (1) materials having a structural base of noncombustible material, with a surfacing not exceeding a thickness of 1.8 in. (3.2 mm) that has a flame spread index not greater than 50; and (2) materials, in the form and thickness used, other than as described in (1), having neither a flame spread index greater than 25 nor evidence of continued progressive combustion, and of such composition that surfaces that would be exposed by cutting through material on any plane would have neither a flame spread index greater than 25 nor evidence of continued progressive combustion. [**220:**2.1]

3.3.340.11 Noncombustible Material. A material that, in the form in which it is used and under the conditions anticipated, will not ignite, burn, support combustion, or release flammable vapors, when subjected to fire or heat. Materials that are reported as passing ASTM E 136 are considered noncombustible materials.

Since conventional plenum cables are combustible materials, sprinklers may be required when these cables are installed in concealed spaces in a building with a sprinkler system designed to meet NFPA 13. This Fine Print Note will alert building owners to refer to NFPA 13.

Per the NFPA/NFPRF Technical Report entitled "International Limited Combustible Plenum Cable Fire Test Project", March 2001, there is a very large difference in fire safety performance between plenum cables just meeting the Combustible-Exception requirements and those meeting the much safer Limited Combustible plenum cable requirements per NFPA 90A 2002:

1) Duct cables = Limited Combustibles cables = FHC 25/50/8 (Fire Spread Index / Smoke Developed Index / Potential Heat)

2) Combustible - Exception cables = FHC 25/850 (Fire Spread Index / Smoke Developed Index / "No" Potential Heat requirement)

The NFPA 13 requirements for plenum-sprinklers in sprinklered buildings with Combustible-Exception plenum cables presents recognize the additions fire safety hazards that these combustible plenum cables represent.
Panel Meeting Action: Reject
Panel Statement: The panel is acting on this and other comments based on the Standards Council decision dated November 13, 2003 that is identified as Number 03-10-25 plus a subsequent letter by the Standards Council Chairman, Philip J. DiNenno, dated December 3, 2003. This decision states, in pertinent part as follows:
"The Council believes, that the best course of action for the NEC project is to generally refrain, unless absolutely necessary, from making revisions that interrelate with the NFPA 90A in advance of completion of the latest revision cycle of NFPA 90A, and instead to maintain the status quo in the NEC project on the applicable technical subjects pending the completion of the NFPA 90A revision cycle."

This action does not constitute agreement or disagreement with any of the substantiations submitted for the affected comments.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-378 Log #3701 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals**Comment on Proposal No:** 3-197
Recommendation: Continue rejecting this proposal and make no changes in the terminology of plenum spaces or of "other spaces used for environmental air".

Substantiation: The terminology in NEC 2002 is correct and needs no change. See also the substantiation for my comments on proposal 3-169.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-379 Log #3719 NEC-P03 **Final Action: Accept in Principle**
(725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-210
Recommendation: Continue accepting this proposal in principle, but add Fine Print Notes to 725.71 (H), (I) and (J) as follows:
For 725.71 (H)
FPN: One method of defining that a plenum signaling raceway is a low smoke producing raceway and a fire-resistant raceway is that the raceway exhibits a maximum peak optical density of 0.5 or less, an average optical density of 0.15 or less, and a maximum flame spread distance of 1.52 m (5 ft) or less when tested in accordance with the plenum test in UL 2024, Standard for Optical Fiber Cable Raceway.
For 725.71 (I)
FPN: One method of defining fire-resistant characteristics capable of preventing the carrying of fire from floor to floor is that the raceways pass the requirements of the test for Flame Propagation (riser) in UL 2024, Standard for Optical Fiber Cable Raceway.
For 725.71 (J)
FPN: One method of defining resistance to the spread of fire is that the raceways pass the requirements of the Vertical-Tray Flame test (General use) in UL 2024, Standard for Optical Fiber Cable raceway.
Also, do not change the designation of the spaces covered by the article.
Substantiation: This comment recommends the addition of a Fine Print Note, for consistency with Fine Print Notes incorporated everywhere when testing methods exist for listing certain products for an application, by recognizing that listing of plenum raceways is by UL 2024 and it represents listing to both low smoke and low flame spread, and that raceways cannot be listed separately to either property.
The new added Fine Print Notes for riser and cable tray raceways are for consistency. The proposed wording also has consistency between the FPN for plenum, riser and cable tray raceways. The added Fine Print Notes for riser and cable tray raceways use the language of CMP 16 in Proposal 16-175.
This comment also recommends a rejection of the concept of referencing NFPA 90A in the FPN, which would mean that requirements for these raceways could change without the knowledge and assent of NEC CMP members.
It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3. As stated by Mr. Harold Ohde in his negative on CMP 16 action on proposal 16-9: "Other codes should not be deciding on the typed of wiring methods to be used in these spaces. The electrical experts are capable of doing this and it is covered quite well in 300.22. The more we let those outside of the NEC make these decisions the more we weaken adoption of the NEC. In addition, we could make the change and there is nothing that requires a jurisdiction to even adopt 90A."
See attached comments from the chairman of the Technical Correlating Committee.
Panel Meeting Action: Accept in Principle
Panel Statement: See panel action on Comment 3-301, which seems to satisfy the submitter's concerns. The accepted text in Comment 3-301 is more concise and seems to be more user-friendly.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 13
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.

3-380 Log #3808 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-193
Recommendation: *Reject this proposal - Also reject the reference to NFPA 90A.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.
Furthermore, the reference to NFPA 90A is not appropriate in the Fine Print Note, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.
See further information in the comment I made to recommend rejection of proposal 3-169.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-381 Log #3822 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-208
Recommendation: *Reject this proposal - Also reject the reference to NFPA 90A.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.
Furthermore, the reference to NFPA 90A is not appropriate in the Fine Print Note, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.
See further information in the comment I made to recommend rejection of proposal 3-169.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-382 Log #3825 NEC-P03 **Final Action: Accept**
(725.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-211
Recommendation: *Reject this proposal - Also reject the reference to NFPA 90A.*
Substantiation: There is no need for a new category of CL2D or CL3D cables. There is also no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.

Furthermore, the reference to NFPA 90A is not appropriate in the Fine Print Note, since NFPA 90A is not a suitable standard for testing or listing wiring methods. The logical way to have a fine print note is to reference the standard used for testing the fire safety of the materials, which in this case is a combination of NFPA 255 and NFPA 259, or the UL Subject 2424 that contains all the listing requirements.

See further information in the comment I made to recommend rejection of proposal 3-169.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-383 Log #1648 NEC-P03 **Final Action: Accept**
(725.71 & 725.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-190
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter, and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-384 Log #1657 NEC-P03 **Final Action: Accept**
(725.71 & 725.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-199
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-385 Log #1660 NEC-P03 **Final Action: Accept**
(725.71 & 725.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-202
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-386 Log #1661 NEC-P03 **Final Action: Accept**
(725.71 & 725.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-203
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-387 Log #1662 NEC-P03 **Final Action: Accept**
(725.71 & 725.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-206
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-388 Log #1801 NEC-P03 **Final Action: Reject**
(725.71, 725.61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-192
Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved creating a higher level of hierarchy for air duct cable. The Task Group members who were at the teleconference call recommended accepting "air duct cable" as a level "up" in the hierarchy sections and charts for all articles covered by Panels 3 and 16. The members felt that duct cable, based on all information submitted in proposals dealing with "air duct cable," had a lower burn rate and less products of combustion than plenum cable. It was also determined that building materials used for the actual air ducting would have the same fire and burn characteristics as the duct cable.

It was also felt that where air duct cable was used in a fabricated duct, the inclusion of this duct cable, as a higher level, would provide direction for installing this type of cable. The two different levels, air duct cable and plenum cable, would permit the NFPA 90A Committee to accept two different test techniques, one test for air duct cable and one for plenum cable.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.

Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-389 Log #2518c NEC-P03 **Final Action: Accept**
(725.71, 725.61)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-193
Recommendation: Reject this proposal.
Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-390 Log #2518e NEC-P03 **Final Action: Accept**
(725.71, 725.61)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-199
Recommendation: Reject this proposal.
Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-391 Log #2518g NEC-P03 **Final Action: Accept**
(725.71, 725.61)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-203
Recommendation: Reject this proposal.
Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-392 Log #2518kk NEC-P03 **Final Action: Accept**
(725.71, 725.61)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-190
Recommendation: Reject this proposal.
Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-393 Log #2518ll NEC-P03 **Final Action: Accept**
(725.71, 725.61)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-192
Recommendation: Reject this proposal.
Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-394 Log #2518pp NEC-P03 **Final Action: Accept**
(725.71, 725.61)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-202
Recommendation: Reject this proposal.
Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-395 Log #2518qq NEC-P03 **Final Action: Accept**
(725.71, 725.61)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-204
Recommendation: Reject this proposal.
Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-396 Log #2518ss NEC-P03 **Final Action: Accept**
(725.71, 725.61)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-208
Recommendation: Reject this proposal.

Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-397 Log #891 NEC-P03 **Final Action: Reject**
(725.71 & 760-71)

Submitter: Dan Kennefick, Ber-Tek a Nexans Company
Comment on Proposal No: 3-193
Recommendation: Accept my proposals in principle by accepting broader proposals 3-194 and 3-288.
Substantiation: Proposals 3-193 and 3-287 were part of a series of proposals submitted to establish duct cable in the NEC. They include changes proposed by the Technical Committee on Air Conditioning that the panel did not initially accept. The panel requested additional substantiation that has now been provided in comments that, when accepted by the panel, will change the panel's position on these duct cable proposals.
Ber-Tec continues to support the inclusion of duct cables in the NEC because of their extremely low flame spread and smoke emmission properties.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-398 Log #3831 NEC-P03 **Final Action: Accept**
(725.71760.31, 760.71)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-213
Recommendation: *Continue rejecting this proposal.*
Substantiation: There is no justification for limiting the use of traditional plenum cables. It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3.
This proposal should be rejected because, as stated by Mr. Paul Casparro in his negative on CMP action on proposal 3-192, the NEC is not a product catalog nor is it a design manual and is not intended to contain an all-inclusive list of permitted products. Moreover, as stated by Mr. Melvin Sanders in his negative on CMP action on proposal 3-192 "No technical documentation has been provided, such as fire loss data, as to why the existing type CL2P and CL3P plenum cable are not suitable for use in the environmental air handling spaces included in 300.22 (C)."
If this proposal were approved, it would limit the application of traditional plenum-rated cable without any justification based on fire hazard or fire risk. It has already been shown in detail by the fire hazard and fire risk analysis presented together with my original proposals (see for example the section on pages 2080-2091 of the NEC-ROP of the substantiation for my proposal 3-130) that there is no need to change the requirements, or limit the application, for wiring methods in plenums, because the fire safety record is excellent.
In fact, if CL2P and CL3P cables, i.e. traditional plenum cables meeting the requirements of NFPA 262, are to be limited in application, then cables contained in metal raceways must also be limited in application, since the work that led to the development of the requirements for plenum rated cables showed that they generate more smoke and flame spread than plenum cables meeting NFPA 262, as is clear from the following Table, containing data from the work conducted to justify the development of NFPA 262 (originally UL 910). All 11 plenum-rated cables had flame spread values not exceeding 5 ft and average optical densities not exceeding 0.15 and 10 of the 11 plenum-rated cables had peak optical densities not exceeding 0.50. On the other hand, 5 of the 17 cables in metal raceways tested had flame spread values exceeding 5 ft, 8 of the 17 cables in metal raceways tested had average optical densities exceeding 0.15 and 10 of the 17 cables in metal raceways tested had peak optical densities exceeding 0.50. This comment recognizes that cables in metal raceways are safe wiring methods for plenums. Therefore traditional plenum cables are also safe and suitable.
This comment is one of a series of comments on Articles 300, 725, 760, 770, 800, 820 and 830, regarding "plenum cables". The philosophy behind all the comments is that the NEC is OK as published in 2002, but that 2 minor changes might represent improvements: (i) the clarification of the 6 inch extension of a wiring method into a more restricted environment and (ii) the clarification in the Fine Print Notes that a cable listed to NFPA 262 is listed both based on its "low-smoke" characteristics and its "low-flame-spread" characteristics, and that the two are not listed separately.
Also see comments from the chairman of the Technical Correlating Committee.
(table shown on following page)
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-399 Log #1307 NEC-P03 **Final Action: Accept**
(725.71 and 725-61)

Submitter: Wayne G. Carson, Carson Assoc. Inc.
Comment on Proposal No: 3-192
Recommendation: Reject proposal.
Substantiation: There is no need for an additional cable category and there is no technical justification for this change.
See also my comment submitted on Proposal 3-126.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-400 Log #1506 NEC-P03 **Final Action: Accept**
(725.71 and 725-61)

Submitter: T. David Mills, Bechtel Savannah River, Inc.
Comment on Proposal No: 3-192
Recommendation: Reject proposal in its entirety.
Substantiation: NFPA 90A - 2002 only places a restriction for cables and for testing per NFPA 262 for ceiling cavity plenums (4.3.10.2.6.1) and raised floor plenums (4.3.10.6.5.1). It does not state that these are the only places that this plenum rated cable can be used.
The other sections of NFPA 90A related to all other air spaces including "air ducts" are silent with respect to cable requirements. This indicates plenum rated cables can be placed anywhere in the air conditioning air handling system without any new "Duct" designator. There are not any other requirements in NFPA 90A to indicate anywhere that a "does not correlate" situation exists between NFPA 70 and NFPA 90A.
There is no need for any additional environmental air space identifiers or cable type designators.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

Comment 3-398 (Log #3831)

Table 1. Flame Spread and Optical Density of Wiring Systems

Cable	Metal Raceway	Flame Spread (ft)	Peak Optical Density	Average Optical Density
Plenum Rated Coaxial Cable	None	3.0	0.12	0.015
Plenum Rated Coaxial Cable	None	3.0	0.25	0.067
Plenum Rated Coaxial Cable	None	3.0	0.45	0.13
Plenum Rated Coaxial Cable	None	3.0	0.60	0.15
Plenum Rated Fire Alarm Cable	None	3.0	0.10	0.028
Plenum Rated Fire Alarm Cable	None	3.0	0.15	0.043
Plenum Rated Inside Wiring	None	3.0	0.35	0.121
Plenum Rated Inside wiring	None	3.0	0.25	0.047
Plenum Rated Station Wire	None	3.5	0.08	0.069
Plenum Rated Station Wire	None	3.5	0.07	-
Plenum Rated Station Wire	None	3.5	0.08	-
Plenum Cable NFPA 262 Limits	None	5.0	0.50	0.15
Coaxial Cable	Steel EMT	7.0	1.85	0.37
Coaxial Cable	Steel EMT	4.5	1.00	0.11
Fire Alarm Cable	Steel EMT	4.0	0.70	0.17
Fire Alarm Cable	Steel EMT	3.5	0.50	0.09
Inside Wiring	Steel EMT	2.5	0.14	0.069
Inside Wiring	Steel EMT	2.5	0.38	0.094
Inside Wiring	Flexible Steel	2.0	0.06	0.008
Inside Wiring	Flexible Steel	2.0	0.04	0.005
Inside Wiring	Rigid Aluminum	2.0	0.20	0.045
Inside Wiring	Flexible Aluminum	2.5	0.56	0.084
Inside Wiring	Flexible Aluminum	2.5	0.31	0.051
Station Wire	Flexible Aluminum	3.5	0.85	0.222
Station Wire	Flexible Aluminum	3.5	0.66	0.157
Fire Alarm Cable	Flexible Aluminum	6.0	0.60	0.22
Fire Alarm Cable	Flexible Aluminum	5.5	1.20	0.19
Coaxial Cable	Flexible Aluminum	13.5	1.85	0.45
Coaxial Cable	Flexible Aluminum	19.5	2.15	0.32

3-401 Log #1640 NEC-P03 **Final Action: Reject**
(725.71 and 725-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-194
Recommendation: Accept in Principle by accepting Proposal 3-194, as submitted, and changing "duct cable" to "air duct cable."
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

The task group recommends that Panel 3 accept the original proposal, but change the name of "duct cable" to "air duct cable".

Proposal 3-194 includes the changes proposed in the following:

3-214, which recommended changing the fine print notes for plenum cable listing to reference NFPA 90A. Panel 3 accepted this proposal. Panel 16 accepted companion proposals. The task group developed a comment to accept proposal 3-214 in principle with a reference to action on this comment.

3-174, which recommended changing the permitted applications of "P" type plenum cable to restrict them to ceiling cavity and raised floor plenums only and thereby remove a conflict with NFPA 90A. Panel 3 rejected this proposal. Panel 16 accepted companion proposals. The task group developed a comment to accept proposal 3-174 in principle with a reference to action on this comment.

3-213, which recommended changing the listing requirements for "P" type plenum cable to list them for use in ceiling cavity and raised floor plenums only and thereby remove a conflict with NFPA 90A. Panel rejected this proposal. Panel 16 accepted companion proposals. The task group developed a comment to accept proposal 3-213 in principle with a reference to action on this comment.

Proposal 3-194 also includes changes recommended in proposals 3-270, 3-271 and 3-272 which require the use of air duct cable in newly built inaccessible ceiling cavity plenums and newly built inaccessible raised floor plenums. Panel 3 rejected these proposals. Panel 16 accepted companion proposals. The task group developed comments to accept proposal 3-270, 3-271, and 3-272 in principle with a reference to action on this comment.

Panel 3 accepted the listing of duct cable in its action on proposal 3-192 and 3-286. The name of the cable should be changed from "duct cable" to "air duct cable" to correlate with the actions of Panel 16 of proposals 16-37, 16-112 and 16-177. The name of the cable was changed to avoid confusion with telephone duct cable which is an unlisted outside plant cable used in telephone ducts (conduit).

This proposal provides a wiring method that correlates with the requirements of NFPA 90A for supplementary materials in air handling spaces. Furthermore, providing listing and applications for "air duct" cables correlates with the NFPA 90A requirements for listing of limited combustible cable. The test requirements for plenum cable (NFPA 262) are less severe than the test requirements for supplementary materials and limited combustible cable.

The acceptance of proposal 3-194, beyond removing conflicts, will improve correlation between NFPA 90A and NFPA 70 and provide a needed wiring method for wiring in air handling spaces. Because 725.3(C) and 726.61 both reference 300.22, the wiring permitted in "other space used for environmental air" is retained.

Panel 16 accepted proposals for Articles 770, 800, and 820 having the same requirements as proposed in Proposal 3-194.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-402 Log #2555 NEC-P03 **Final Action: Accept**
(725.71 and 725-61)

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-190
Recommendation: Reject this proposal.
Substantiation: See our companion proposal on 3-192.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-403 Log #2570 NEC-P03 **Final Action: Accept**
(725.71 and 725-61)

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-193
Recommendation: Reject this proposal.
Substantiation: See our companion proposal on 3-192.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-404 Log #2573 NEC-P03 **Final Action: Accept**
(725.71 and 725-61)

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-194
Recommendation: Reject this proposal.
Substantiation: See our companion proposal on 3-192.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-405 Log #2584 NEC-P03 **Final Action: Accept**
(725.71 and 725-61)

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-202
Recommendation: Reject this proposal.
Substantiation: See our companion proposal on 3-192.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-406 Log #2587 NEC-P03 **Final Action: Accept**
(725.71 and 725-61)

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-203
Recommendation: Reject this proposal.
Substantiation: See our companion proposal on 3-192.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-407 Log #2589 NEC-P03 **Final Action: Accept**
(725.71 and 725-61)

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-204
Recommendation: Reject this proposal.
Substantiation: See our companion proposal on 3-192.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-408 Log #2694 NEC-P03 **Final Action: Reject**
(725.71 and 725-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-190
Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group's comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-409 Log #2699 NEC-P03 **Final Action: Reject**
(725.71 and 725-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-193
Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group's comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-410 Log #2707 NEC-P03 **Final Action: Reject**
(725.71 and 725-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-199
Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group's comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-411 Log #2716 NEC-P03 **Final Action: Reject**
(725.71 and 725-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-203
Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group's comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-412 Log #2737 NEC-P03 **Final Action: Reject**
(725.71 and 725-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-202
Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group's comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-413 Log #2815 NEC-P03 **Final Action: Reject**
(725.71 and 725-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-204
Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group's comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-414 Log #3014 NEC-P03 **Final Action: Accept**
(725.71 and 725-61)

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-192
Recommendation: Reject this roposal.
Substantiation: We agree with the negative comment submitted by NEMA representative Mr. Easter. By accepting the duct cable types, the panel has approved a concept that was rejected by the TCC during the 2002 cycle. The TCC determined that "it is inappropriate to attempt to include references to all products that do not have a need for specific application rules or products that are permitted but not required by the NEC."

The submitter indicates that this proposal was submitted in order to correlate the NEC with NFPA 90A. If it is true that the NFPA 90A has jurisdiction over materials used in air ducts and plenum spaces, why is the NEC changing its requirements before the next revision cycle of 90A? The 90A Technical Committee met in August and is recommending several changes to the types of cables allowed in plenum spaces. However, their proposals will be subject to a comment period and to a membership vote that will not take place until May 2005, a full year after the NEC's.

The issue of toxicity of the two types of cable has not been discussed. While the fire characteristics of the "air duct" cables are stated to be an improvement over the fire characteristics of the CMP cables, they are more highly toxic, according to an article that appeared in Data Commuications Magazine (copyright 1996) entitled "Cabling: What You Don't Know Call Kill You". The article characterizes both Halogen FEP cables ("air duct" cables) and Halogen PVC cables (CMP cables) as having "high toxicity", stating that the LC50 range for FEP cables (air duct cables) is 16.1 to 77.1 while the toxicity range from the PC cables is 10-20.6 (Toxicity is often measured using the LC50 rating, which indicates the number of grams of insulation that must be burned to kill half the mice in a lab experiment." The LC50 ratings for the article were supplied by the State of New York Hazardous Material Bureau.) An August 23, 2003 letter that appeared on the National Electric Code Internet Connection inquired: "How do we get the NFPA to consider another aspect of fire safety in communications cable products? Toxicity?" The writer continues: "Safety is too important to ignore. As the public and private sectors are besieged with higher insurance premiums and liability litigation about safety issues, we asked the "BIG" question. Does the testing process for fire safety measure the TOXICITY of the cables when overheated or burned? The answer is shockingly "NO". One of the writer's concerns is that while certain of the fire characteristics of the FEP cables (Duct cables) appear to be superior to CMP cables, the duct cable are, in fact, more toxic.

Note: Supporting material is available for review at NFPA Headquarters.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-415 Log #1650 NEC-P03 **Final Action: Accept**
(725.71 and 725.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-192
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter, and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-416 Log #1651 NEC-P03 **Final Action: Accept**
(725.71 and 725.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-193
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter, and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-417 Log #1831 NEC-P03 **Final Action: Reject**
(725.71 and 725.61)

Submitter: Thomas P. Hammerberg, Automatic Fire Alarm Association
Comment on Proposal No: 3-192
Recommendation: Accept this proposal in principle by continuing to provide for the listing of duct cable.

Insert "CMD" in Table 725.61 as a substitute for CL2, CL3, CL2R, CL3R, CL2P, CL3P, CL2D, and CL3D.

Substantiation: Duct cable provides a much higher level of fire safety than conventional plenum cable (CL2P, CL3P).

Panel 16 accepted the listing of Type CMD cable in Proposal 16-112. Communications cables are permitted to substitute for Class 2 and Class 3 cables where the fire resistance of the communications cable is equal or higher.

Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-418 Log #3270 NEC-P03 **Final Action: Reject**
(725.71 and 760-71)

Submitter: Robert Allen, Mohawk/CDT
Comment on Proposal No: 3-209
Recommendation: Accept my proposals in principle by accepting broader proposals 3-209 and 3-296 that include all the changes in 3-211 and 3-269. These proposals were part of a series of proposals submitted to establish duct cable in the NEC.
Substantiation: I submitted proposals 3-209 and 3-296. These proposals were part of a series of proposals submitted to establish duct cable in the NEC.

My proposals, like all the others that were submitted to establish duct cable, assumed that Panels 3 and 16 would accept the proposals 3-174 and 3-213 submitted by the Technical Committee on Air Conditioning to harmonize the terminology and requirements to the NEC with NFPA 90A. I assume that panel 3 will then change its position on proposals 3-174 and 3-213 after reviewing the comments submitted to support them.

For a substantiation of the height restriction without physical protection, please refer to the excerpt below from the substantiation in Proposal 3-169 submitted by Sandy Egesdal.

"An air-handling unit plenum (a.k.a., fan room) requires control wiring for the HVAC equipment. The majority of the circuits are Class 2, connected to sensors, control relays, and small motors for dampers and valves. From interviews with HVAC technicians, most circuits are in conduit. Exposed cables are typically protected to 7 ft. above the floor. Presently, all cables installed exposed do not comply with NFPA 90A."

Mohawk/CDT continues to support the inclusion of duct cable in the NEC because it is significantly better than plenum cable in fire safety properties.

Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-419 Log #3329 NEC-P03 **Final Action: Reject**
(725.71 and 760.71)

Submitter: Robert Wessels, CommScope Inc.
Comment on Proposal No: 3-211
Recommendation: Accept proposals which include duct cable as an option.
Substantiation: I submitted proposals 3-211 and 3-269. These proposals were part of a series of proposals submitted to establish duct cable in the NEC. The panel action to accept proposals 3-192 and 3-286 in principle established listing requirements for duct cable. The panel should continue to accept the listing of duct cable in articles 725 and 760.

CommScope supports the inclusion of duct cable in the NEC for forced air duct applications. Standard plenum cable certified to NFPA 262 has proved to be a very safe product over the years and the additional duct cable specification provides more options for telecommunications and control cable installations.

It is important that we maintain the viability of listed "plenum" (i.e., OFNP, CMP, etc.) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air) because:
- Such cables have a proven track record for safety
- Listed plenum cables currently installed within buildings have not been shown to raise risk factor to building occupants.

It is critical that we provide the optimum blend of product safety and cost effectiveness when considering these standards. Having both duct and plenum cables available as options for consumers is the best solution.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-420 Log #2599 NEC-P03 **Final Action: Accept**
(725.71 and Table 725-61)

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-208
Recommendation: Reject this proposal.
Substantiation: See our companion proposal on 3-192.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-421 Log #2727 NEC-P03 **Final Action: Reject**
(725.71 and Table 725-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-208
Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group's comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-422 Log #1665 NEC-P03 **Final Action: Accept**
(725.71 and Table 725.71)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-208
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-423 Log #2566 NEC-P03 **Final Action: Accept**
(725.71, Table 725-71, 725-61 and Table 725-61)

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-191
Recommendation: Reject this proposal.
Substantiation: See our companion proposal on 3-192.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-424 Log #2696 NEC-P03 **Final Action: Reject**
(725.71, Table 725-71, 725-61 and Table 725-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-191
Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group's comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.

Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-425 Log #2575 NEC-P03 **Final Action: Accept**
(725.71, Table 725-71, 725-61, Table 725-61 and Figure 725-61)

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-195
Recommendation: Reject this proposal.
Substantiation: See our companion proposal on 3-192.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-426 Log #2577 NEC-P03 **Final Action: Accept**
(725.71, Table 725-71, 725-61, Table 725-61 and Figure 725-61)

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-196
Recommendation: Reject this proposal.
Substantiation: See our companion proposal on 3-192.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-427 Log #2579 NEC-P03 **Final Action: Accept**
(725.71, Table 725-71, 725-61, Table 725-61 and Figure 725-61)

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-198
Recommendation: Reject this proposal.
Substantiation: See our companion proposal on 3-192.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-428 Log #2582 NEC-P03 **Final Action: Accept**
(725.71, Table 725-71, 725-61, Table 725-61 and Figure 725-61)

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-201
Recommendation: Reject this proposal.
Substantiation: See our companion proposal on 3-192.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-429 Log #2590 NEC-P03 **Final Action: Accept**
(725.71, Table 725-71, 725-61, Table 725-61 and Figure 725-61)

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-205
Recommendation: Reject this proposal.
Substantiation: See our companion proposal on 3-192.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-430 Log #2596 NEC-P03 **Final Action: Accept**
(725.71, Table 725-71, 725-61, Table 725-61 and Figure 725-61)

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-207
Recommendation: Reject this proposal.
Substantiation: See our companion proposal on 3-192.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-431 Log #2601 NEC-P03 **Final Action: Accept**
(725.71, Table 725-71, 725-61, Table 725-61 and Figure 725-61)

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-209
Recommendation: Reject this proposal.
Substantiation: See our companion proposal on 3-192.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-432 Log #2602 NEC-P03 **Final Action: Accept**
(725.71, Table 725-71, 725-61, Table 725-61 and Figure 725-61)

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-211
Recommendation: Reject this proposal.
Substantiation: See our companion proposal on 3-192.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-433 Log #2657 NEC-P03 **Final Action: Reject**
(725.71, Table 725-71, 725-61, Table 725-61 and Figure 725-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-201
Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.
See the task group's comment on proposal 3-194.
The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC

Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.

Panel Meeting Action: Reject

Panel Statement: See the statement on Comment 3-352.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-434 Log #2700 NEC-P03 **Final Action: Reject**

(725.71, Table 725-71, 725-61, Table 725-61 and Figure 725-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota

Comment on Proposal No: 3-195

Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.

Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group's comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.

Panel Meeting Action: Reject

Panel Statement: See the statement on Comment 3-352.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-435 Log #2703 NEC-P03 **Final Action: Reject**

(725.71, Table 725-71, 725-61, Table 725-61 and Figure 725-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota

Comment on Proposal No: 3-196

Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.

Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group's comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.

Panel Meeting Action: Reject

Panel Statement: See the statement on Comment 3-352.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-436 Log #2705 NEC-P03 **Final Action: Reject**

(725.71, Table 725-71, 725-61, Table 725-61 and Figure 725-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota

Comment on Proposal No: 3-198

Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.

Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group's comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.

Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-437 Log #2709 NEC-P03 **Final Action: Reject**
(725.71, Table 725-71, 725-61, Table 725-61 and Figure 725-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-200
Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group's comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.

Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-438 Log #2718 NEC-P03 **Final Action: Reject**
(725.71, Table 725-71, 725-61, Table 725-61 and Figure 725-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-205
Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.

Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group's comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.

Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-439 Log #2725 NEC-P03 **Final Action: Reject**
(725.71, Table 725-71, 725-61, Table 725-61 and Figure 725-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-207
Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group's comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.

Panel Meeting Action: Reject

Panel Statement: See the statement on Comment 3-352.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-440 Log #2729 NEC-P03 **Final Action: Reject**

(725.71, Table 725-71, 725-61, Table 725-61 and Figure 725-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota

Comment on Proposal No: 3-209

Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.

Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group's comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.

Panel Meeting Action: Reject

Panel Statement: See the statement on Comment 3-352.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-441 Log #2732 NEC-P03 **Final Action: Reject**

(725.71, Table 725-71, 725-61, Table 725-61 and Figure 725-61)

Submitter: Richard P. Owen, City of St. Paul, Minnesota

Comment on Proposal No: 3-211

Recommendation: Accept in principle, based on acceptance of the task group's recommendation on Proposal 3-194.

Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

See the task group's comment on proposal 3-194.

The NEC TCC Task Group on Correlation Issues Between Panels 3 and 16 met three times via teleconference calls. The assignment by the TCC Chairman was to attempt to develop a resolution and accompanying comments for the different actions taken on proposals dealing with similar issues by CMP 3 and CMP 16 for their respective Articles in Chapters 7 and 8 of the NEC.

The Task Group studied the issues and determined that there were five major differences in the actions on proposals concerning Articles 725, 760, 770, 800, 820, and 830. The voting on these issues was not unanimous but did pass as at least a simple majority of the Task Group.

One of the major differences involved installing air duct cables in a fabricated air duct without enclosing the cable in a metal raceway.

The Task Group members who attended the teleconference call voted to accept text that permits "air duct cable" to be installed in fabricated ducts without enclosing in an additional metal raceway or metal cable. The text to be accepted by Panel 3 is recommended to be similar to that found in Proposals 3-194 for Article 725 and 3-288 for Article 760. The "air duct cable" will replace the plenum cable that was previously acceptable in fabricated duct without enclosing in a metal raceway or metal cable assembly.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.

Panel Meeting Action: Reject

Panel Statement: See the statement on Comment 3-352.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-442 Log #1427 NEC-P03 **Final Action: Reject**

(725.71, Table 725.61)

Submitter: Technical Correlating Committee on Signaling Systems for the Protection of Life and Property

Comment on Proposal No: 3-192

Recommendation: Accept this proposal in principle by continuing to provide for the listing of duct cable.

Insert "CMD" in Table 725.61 as a substitute for CL2, CL3, CL2R, CL3R, CL2P, CL3P, CL2D, and CL3D.

Substantiation: Duct cable provides a much higher level of fire safety than conventional plenum cable (CL2P, CL3P).

Panel 16 accepted the listing of Type CMD cable in proposal 16-112. Communications cables are permitted to substitute for Class 2 and Class 3 cables where the fire resistance of the communications cable is equal or higher.

Panel Meeting Action: Reject

Panel Statement: See the statement on Comment 3-352.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-443 Log #2518b NEC-P03 **Final Action: Accept**

(725.71, Table 725.71, 725.61 Table 725.61)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)

Comment on Proposal No: 3-191

Recommendation: Reject this proposal.

Substantiation: See our companion comment on Proposal 1-69.

Panel Meeting Action: Accept

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-444 Log #1653 NEC-P03 **Final Action: Accept**
(725.71, Table 725.71, 725.61, Table 725.61 and Figure 725.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-195
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter, and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-445 Log #1654 NEC-P03 **Final Action: Accept**
(725.71, Table 725.71, 725.61, Table 725.61 and Figure 725.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-196
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter, and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-446 Log #1658 NEC-P03 **Final Action: Accept**
(725.71, Table 725.71, 725.61, Table 725.61 and Figure 725.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-200
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-447 Log #1659 NEC-P03 **Final Action: Accept**
(725.71, Table 725.71, 725.61, Table 725.61 and Figure 725.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-201
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-448 Log #1664 NEC-P03 **Final Action: Accept**
(725.71, Table 725.71, 725.61, Table 725.61 and Figure 725.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-207
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-449 Log #1666 NEC-P03 **Final Action: Accept**
(725.71, Table 725.71, 725.61, Table 725.61 and Figure 725.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-209
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-450 Log #1667 NEC-P03 **Final Action: Accept**
(725.71, Table 725.71, 725.61, Table 725.61 and Figure 725.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-211
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter, and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-451 Log #1904 NEC-P03 **Final Action: Accept**
(725.71, Table 725.71, 725.61 Table 725.61 and Figure 725.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-205
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter, and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-452 Log #1656 NEC-P03 **Final Action: Accept**
(725.71, Table 725.71, 725.61, Table 725.61 and Figure 726.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-198
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-453 Log #1834 NEC-P03 **Final Action: Reject**
(725.71, Table 725.71, 725.61, Table 725.61 and Fiugre 725.61)

Submitter: Thomas P. Hammerberg, Automatic Fire Alarm Association
Comment on Proposal No: 3-207
Recommendation: Accept this proposal.
Substantiation: The Automatic Fire Alarm Association understands the Air Conditioning Committee has jurisdiction over materials installed in or on air ducts and plenums. Accepting the proposed text provides correlation between the NEC and NFPA 90A-2002.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-454 Log #2518d NEC-P03 **Final Action: Accept**
(725.71, Table 725.71 725.61, Table 725.61 Figure 725.61)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-196
Recommendation: Reject this proposal.
Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-455 Log #2518f NEC-P03 **Final Action: Accept**
(725.71, Table 725.71, 725.61, Table 725.61, Figure 725.61)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-201
Recommendation: Reject this proposal.
Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-456 Log #2518h NEC-P03 **Final Action: Accept**
(725.71, Table 725.71, 725.61, Table 725.61 Figure 725.61)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-205
Recommendation: Reject this proposal.
Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-457 Log #2518i NEC-P03 **Final Action: Accept**
(725.71, Table 725.71, 725.61, Table 725.61 Figure 725.61)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-207
Recommendation: Reject this proposal.
Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-458 Log #2518j NEC-P03 **Final Action: Accept**
(725.71, Table 725.71, 725.61, Table 725.61 Figure 725.61)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-209
Recommendation: Reject this proposal.
Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-459 Log #2518mm NEC-P03 **Final Action: Accept**
(725.71,Table 725.71, 725.61, Table 725.61, Figure 725.61)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-195
Recommendation: Reject this proposal.
Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-460 Log #2518nn NEC-P03 **Final Action: Accept**
(725.71, Table 725.71, 725.61, Table 725.61, Figure 725.61)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-198
Recommendation: Reject this proposal.
Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-461 Log #2518oo NEC-P03 **Final Action: Accept**
(725.71, Table 725.71, 725.61, Table 725.61, Figure 725.61)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-200
Recommendation: Reject this proposal.
Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-462 Log #2518tt NEC-P03 **Final Action: Accept**
(725.71, Table 725.71, 725.61, Table 725.61 Figure 725.61)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-211
Recommendation: Reject this proposal.
Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-463 Log #1649 NEC-P03 **Final Action: Accept**
(725.71, Table 725.71, Table 725.61 and Figure 725.61)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-191
Recommendation: Reject this proposal.
Substantiation: This proposal should be rejected as we agree with the explanation of negative of Mr. Casparro, Mr. Easter, and Mr. Keden. This comment represents the official position of the International Brotherhood of Electrical Workers codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-464 Log #1483 NEC-P03 **Final Action: Accept**
(725.71(A))

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals
Comment on Proposal No: 3-213
Recommendation: Continue rejecting this proposal.
Substantiation: • This comment recommends continued rejection of a subdivision of "other spaces used for environmental air" and continued rejection of granting priority to NFPA 90A on choices of wiring methods.
• The input from CMP 3 and from the NEC Technical Coordinating Committee makes it clear that the terminology used in 300.22 has served the NEC well and needs no change. It has also become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods.
• It has already been shown in detail by the fire hazard and fire risk analysis presented together with my original proposals (see for example the section on pages 2080-2091 of the NEC-ROP of the substantiation for my proposal 3-130) that there is no need to change the requirements, or limit the application, for wiring methods in plenums, because the fire safety record is excellent.
• I understand that this comment represents a change in some of the concepts the submitter believed when the proposal was submitted, but "even old dogs can learn".
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-465 Log #496 NEC-P03 **Final Action: Reject**
(725.71(A), 760-31(C) & 760-71(D))

Submitter: Allen C. Weidman, The Society of the Plastics Industry, Inc.
Comment on Proposal No: 3-213
Recommendation: Accept this proposal.
Substantiation: Acceptance of this proposal will prohibit the installation of unlimited quantities of combustible plenum cable in ducts, which is clearly an unsafe practice. It will also promote the harmonization of the NFPA Family of Codes and Standards by using the terms "ceiling cavity plenum" and "raised floor plenum" instead of "other space used for environmental air", a term which is unique to the NEC and is vague and undefined.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-466 Log #718 NEC-P03 **Final Action: Reject**
(725.71(A), 760-31(C) & 760-71(D))

Submitter: Paula Hubbard, 3M
Comment on Proposal No: 3-213
Recommendation: Accept this proposal.
Substantiation: The proposal is needed to harmonize terminology with NFPA by using the terms "ceiling cavity plenum" and "raised floor plenum", instead of "other space for environmental air". Terminology should be consistent across the board to eliminate later confusion and arbitrary interpretation of the codes. Furthermore, acceptance of this proposal will greatly enhance fire safety by prohibiting the use of combustible plenum cables in ducts.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-467 Log #2603 NEC-P03 **Final Action: Accept**
(725.71(A), 760-31(C) and 760-61(D))

Submitter: William A. Wolfe, Steel Tube Institute of North America
Comment on Proposal No: 3-213
Recommendation: Reject this proposal.
Substantiation: See our companion proposal on 3-192.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-468 Log #2817 NEC-P03 **Final Action: Reject**
(725.71(A), 760-31(C) and 760-71(D))

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-214
Recommendation: Continue to accept.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.
The task group agrees with Panel 3's action.
The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-469 Log #3680 NEC-P03 **Final Action: Reject**
(725.71(A), 760-31(C) and 760-71(D))

Submitter: Sanford Egesdal, Egesdal Associates PLC
Comment on Proposal No: 3-213
Recommendation: Accept the proposal.
Substantiation: The Standards Council ruled that the Technical Committee on Air Conditioning Committee has jurisdiction over combustibles in the air distribution system. Also, see the NEC TCC note preceding Proposal 3-89, which supports the Standards Council's decision.
The NEC does not define "other space used for environmental air" so it seems reasonable to use air distribution terms from the Air Conditioning Committee to provide requirements for plenum cable.
"…CL2P and CL3P, and plenum signaling raceways shall not be installed in ducts or plenums, but only in other spaces used for environmental air." The preceding quote is from the Panel 3 Statement on Proposal 3-133, which provides substantiation for limiting the application of plenum cable.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-470 Log #1790 NEC-P03 **Final Action: Reject**
(725.71(A), 760.31(C), 760.61(D))

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-213
Recommendation: Accept in Principle, based on acceptance of the task group's recommendation on Proposal 3-194.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.
See the task group's comment on proposals 3-194.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-471 Log #2518k NEC-P03 **Final Action: Accept**
(725.71(A), 760.31(C), 760.61(D))

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)
Comment on Proposal No: 3-213
Recommendation: Reject this proposal.
Substantiation: See our companion comment on Proposal 1-69.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-472 Log #229 NEC-P03 **Final Action: Reject**
(725.71(A), 760.31 (C) & 760.71 (D))

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-214
Recommendation: Accept this proposal in principle by revising the text as shown below.
FPN: See section 4.3.10 of NFPA 90A-2002, Standard for the Installation of Air-Conditioning and Ventilating Systems for listing requirements for plenum cable.
Substantiation: The text was revised editorially in order to simplify it.
See our comments on proposals 3-215, 3-254 and 3-297 that offer alternate text. We continue to support this proposal.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-473 Log #251 NEC-P03 **Final Action: Reject**
(725.71(A), 760.31(C), 760.71(D))

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-213
Recommendation: Accept this proposal.
Substantiation: Proposal 3-213 from the Technical Committee on Air Conditioning is a companion proposal to 3-174.
Proposal 3-174 addresses applications of plenum cables. This proposal addresses listing requirements. See our comment on proposal 3-174. Cables that are intended for use in ceiling cavity plenums and raised floor plenums should also be listed for use in these plenums.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.

Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-474 Log #1429 NEC-P03 **Final Action: Reject**
(725.71(A), 760.31(C) & 760.71(D))

Submitter: Technical Correlating Committee on Signaling Systems for the Protection of Life and Property
Comment on Proposal No: 3-213
Recommendation: Accept this proposal.
Substantiation: Proposal 3-174 addresses applications of plenum cables. This proposal addresses listing requirements. See our comment on proposal 3-174. Cables that intended for use in ceiling cavity plenums and raised floor plenums should also be listed for use in these plenums.
This comment is one in a series of comments including: 3-174, 3-213, 16-46 and 16-64.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-475 Log #1826 NEC-P03 **Final Action: Reject**
(725.71(A), 760.31(C), 760.71(D))

Submitter: Thomas P. Hammerberg, Automatic Fire Alarm Association
Comment on Proposal No: 3-213
Recommendation: Accept this proposal.
Substantiation: The Automatic Fire Alarm Association understands the Air Conditioning Committee has jurisdiction over materials installed in or on air ducts and plenums. Accepting the proposed text provides correlation between the NEC and NFPA 90A-2002.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-476 Log #2655 NEC-P03 **Final Action: Reject**
(725.71(A), 760.31(C) & 760.71(D))

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association
Comment on Proposal No: 3-213
Recommendation: Accept this proposal.
Substantiation: See the CFRA comment on Proposal 3-174. Cables that are intended for use in ceiling cavity plenums and raised floor plenums should also be listed for use in these plenums.
Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-477 Log #1668 NEC-P03 **Final Action: Accept**
(725.71(A), 760.31(C) and 760.71 (D))

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-213
Recommendation: Continue to Reject.
Substantiation: We agree with both the panel action and panel statement to reject proposal 3-213. No technical substantiation has been provided. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-478 Log #1669 NEC-P03 **Final Action: Accept**
(725.71(A), 760.31(C), and 760.71(D))

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-214
Recommendation: This proposal should be rejected and the proposed 2005 text should be deleted. Retain the current 2002 FPN for the following: 725-71(A), 760.31(C) and 760.71(D)
Substantiation: An effort to better correlate the requirements in the NFPA 70 Standard with the NFPA 90A will require teamwork and representation from both committees. There is no such definition - adequate fire resistant and low smoke producing characteristics located in the 2002 NFPA 90A - Standard for Installation of Air-Conditioning and Ventilating Systems. It is a requirement not a definition. The new proposed FPN language - For a definition of adequate fire-resistant and low smoke producing characteristics is not in the form of a true FPN is used as a suggestion, but its language spells more of a requirement. This FPN which is in a violation of the nature of a FPN and also the NEC Style Manual 3.1.3 which state FPNs contain explanatory information. They shall not contain requirements and shall not be written in mandatory language. This proposal does not add to the clarity and consistency of the National Electrical Code. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.
Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-479 Log #3732 NEC-P03 **Final Action: Accept**
(725.71(A) FPN, 760-31(A) FPN and 760-71(D) FPN)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-214
Recommendation: Reject this proposal.
Substantiation: This comment recommends a rejection of the concept in the proposal to reference NFPA 90A, which would mean that requirements for these cables could change without the knowledge and assent of NEC CMP members.
It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3. As stated by Mr. Harold Ohde in his negative on CMP 16 action on proposal 16-9: “Other codes should not be deciding on the typed of wiring methods to be used in these spaces. The electrical experts are capable of doing this and it is covered quite well in 300.22. The more we let those outside of the NEC make these decisions the more we weaken adoption of the NEC. In addition, we could make the change and there is nothing that requires a jurisdiction to even adopt 90A.”

This comment is one of a series of comments on Articles 300, 725, 760, 770, 800, 820 and 830, regarding "plenum cables". The philosophy behind all the comments is that the NEC is OK as published in 2002, but that 2 minor changes might represent improvements: (i) the clarification of the 6 inch extension of a wiring method into a more restricted environment and (ii) the clarification in the Fine Print Notes that a cable listed to NFPA 262 is listed both based on its "low-smoke" characteristics and its "low-flame-spread" characteristics, and that the two are not listed separately.

I understand that this comment represents a change in some of the concepts the submitter believed when the proposal was submitted, but "even old dogs can learn".

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-480 Log #230 NEC-P03
Final Action: Reject
(725.71(A), FPN)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 3-215
Recommendation: Continue to accept this proposal in principle.
Substantiation: The Technical Committee on Air Conditioning does not support the alternate text in this proposal.

The Technical Committee on Air Conditioning recommends acceptance of its comment on proposal 3-214 that offers alternate text.

Panel Meeting Action: Reject
Panel Statement: See the statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-481 Log #1670 NEC-P03 **Final Action: Accept**
(725.71(A), FPN)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 3-215
Recommendation: This proposal should be rejected and the proposed 2005 text should be deleted. Retain the current 2002 FPN for 725.71(A)
Substantiation: An effort to better correlate the requirements in the NFPA 70 Standard with the NFPA 90A will require teamwork and representation from both committees. There is no such definition - adequate fire resistant and low smoke producing characteristics located in the 2002 NFPA 90A - Standard for Installation of Air-Conditioning and Ventilating Systems. It is a requirement not a definition. The new proposed FPN language - For a definition of adequate fire-resistant and low smoke producing characteristics is not in the form of a true FPN which is used as a suggestion but its language spells more of a requirement. This FPN is in a violation of the nature of a FPN and also the NEC Style Manual 3.1.3 which state FPNs contain explanatory information. They shall not contain requirements and shall not be written in mandatory language. This proposal does not add to the clarity and consistency of the National Electrical Code. This comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards Committee.

Panel Meeting Action: Accept
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-482 Log #2819 NEC-P03 **Final Action: Reject**
(725.71(A), FPN)

Submitter: Richard P. Owen, City of St. Paul, Minnesota
Comment on Proposal No: 3-215
Recommendation: Continue to accept in principle.
Substantiation: The Panel 3/Panel 16 Task Group, appointed by the NEC TCC, developed this comment.

The task group agrees with Panel 3's action and statement.

The following members of Panels 3 and 16 participated in this Task Group assignment: From Panel 3, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Inc., Mr. Ronald E. Maassen representing the National Electrical Contractors Association, and Mr. Mark C. Ode representing Underwriters Laboratories Inc. From Panel 16, Mr. Robert W. Jensen representing the Building Industry Consulting Services International, Mr. Harold C. Ohde representing the International Brotherhood of Electrical Workers, and Mr. Joseph W. Rao representing the Independent Electrical Contractors, Inc. Mr. Richard P. Owen, the Chairman of CMP 3, representing the International Association of Electrical Inspectors, was the chairman of the Task Group.

Panel Meeting Action: Reject
Panel Statement: See the panel statement on Comment 3-352.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-483 Log #3722 NEC-P03 **Final Action: Reject**
(725.71(A), FPN)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association
Comment on Proposal No: 3-215
Recommendation: 725.71 Listing and Marking of Class 2, Class 3, and Type PLTC Cables.

Class 2, Class 3, and Type PLTC cables installed as wiring within buildings shall be listed as being resistant to the spread of fire and other criteria in accordance with 725.71(A) through (G) and shall be marked in accordance with 725.71(H).

(A) Types CL2P and CL3P. Types CL2P and CL3P plenum cables shall be listed as being suitable for use in ducts, plenums, and other space used for environmental air and shall also be listed as having adequate fire resistant and low smoke producing characteristics.

FPN: One method of defining a cable that is low smoke producing cable and fire-resistant cable is that the cable exhibits a maximum peak optical density of 0.5 or less, an average optical density of 0.15 or less, and a maximum flame spread distance of 1.52 m (5 ft) or less when tested in accordance with NFPA 262, Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air Handling Spaces. ~~by establishing an acceptable value of the smoke produced when tested in accordance with NFPA 262-1999, Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air Handling Spaces, to a maximum peak optical density of 0.5 and a maximum average optical density of 0.15. Similarly, one method of defining fire resistant cables is by establishing a maximum allowable flame travel distance of 1.52 m (5 ft) when tested in accordance with the same test.~~

No change for 725.71 (B) through 725.71 (H)

Substantiation: This comment recommends a slight change in wording for the existing Fine Print Note, by recognizing that listing of plenum cable by NFPA 262 represents listing to both low smoke and low flame spread, and that cables cannot be listed separately to either property. This is basically an editorial change, as a clarification, to the existing Fine Print Note.

This comment also recommends a rejection of the initial concept in the proposal to reference NFPA 90A, which would mean that requirements for these cables could change without the knowledge and assent of NEC CMP members.

It has become clear now that the expertise needed for choosing the type of wiring systems permitted in any space should be the prerogative of the NEC, which (through its various panels and its Technical Correlating Committee) has greater expertise and a broader view than the Technical Committee on Air Conditioning (responsible for NFPA 90A). Therefore, the NEC panels should continue making their own choices regarding wiring methods. The issue of correlation (or even reference) to either NFPA 90A or the categories of plenums used in NFPA 90A should continue to be rejected by CMP 3. As stated by Mr. Harold Ohde in his negative on CMP 16 action on proposal 16-9: "Other codes should not be deciding on the typed of wiring methods to be used in these spaces. The electrical experts are capable of doing this and it is covered quite well in 300.22. The more we let those outside of the NEC make these decisions the more we weaken adoption of the NEC. In addition, we could make the change and there is nothing that requires a jurisdiction to even adopt 90A."

This comment is one of a series of comments on Articles 300, 725, 760, 770, 800, 820 and 830, regarding "plenum cables". The philosophy behind all the comments is that the NEC is OK as published in 2002, but that 2 minor changes might represent improvements: (i) the clarification of the 6 inch extension of a wiring method into a more restricted environment and (ii) the clarification in the Fine Print Notes that a cable listed to NFPA 262 is listed both based on its "low-smoke" characteristics and its "low-flame-spread" characteristics, and that the two are not listed separately.

I understand that this comment represents a change in some of the concepts the submitter believed when the proposal was submitted, but "even old dogs can learn".

See attached comments from the chairman of the Technical Correlating Committee.

Panel Meeting Action: Reject

Panel Statement: The panel is acting on this and other comments based on the Standards Council decision dated November 13, 2003 that is identified as Number 03-10-25 plus a subsequent letter by the Standards Council Chairman, Philip J. DiNenno, dated December 3, 2003. This decision states, in pertinent part as follows:

"The Council believes, that the best course of action for the NEC project is to generally refrain, unless absolutely necessary, from making revisions that interrelate with the NFPA 90A in advance of completion of the latest revision cycle of NFPA 90A, and instead to maintain the status quo in the NEC project on the applicable technical subjects pending the completion of the NFPA 90A revision cycle."

This action does not constitute agreement or disagreement with any of the substantiations submitted for the affected comments.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-484 Log #1356 NEC-P03 **Final Action: Accept in Principle**
(725.71(F))

Submitter: Barry F. O'Connell, Tyco Thermal Controls

Comment on Proposal No: 3-216

Recommendation: (F) Circuit Integrity (CI) Cable. Cable used for remote-control, signaling, and power-limited circuits that are critical to life safety, property protection, or emergency management in order to ensure continued operation for a specified time under fire conditions shall be listed as circuit integrity (CI) cable or listed as part of an Electrical Circuit Protective System. Cables identified in 725.71(A), (B), (C), (D) and (E) that meet the requirements for circuit integrity shall have the additional classification using the suffix "CI" (for example, CL2P-CI, CL3P-CI, CL2R-CI, CL3R-CI, CL2CI, CL3-CI, CL2X-CI, CL3X-CI and PLTC-CI).

Substantiation: If it should happen that the panel accepts the concept presented by the proposal, then Electrical Circuit Protective Systems should be included in the definition.

"Circuit Integrity" was introduced in Article 760 in the 1999 code, and given a common sense definition that referred to a cable's capability "to ensure continued operation of critical circuits during a specified time under fire conditions". In a FPN, it references UL2196 as the required fire-test - the same benchmark that applies to Electrical Circuit Protective Systems. This definition however is narrow, because it ignores the other "Electrical Circuit Protective Systems".

The additional words are consistent with the definition in the Panel Action on Proposal 3-255, as follows:

"Fire Alarm Circuit Integrity (CI) Cable. Cables suitable for use in fire alarm systems to ensure survivability of critical circuits during a specified time under fire conditions shall be listed as circuit integrity (CI) cable or listed as part of an Electrical Circuit Protective System".

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action and statement on Comment 3-485.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 13

3-485 Log #3032 NEC-P03 **Final Action: Accept in Principle**
(725.71(F))

Submitter: Edward Walton, Draka USA

Comment on Proposal No: 3-216

Recommendation: Add new paragraph 725.61(H) Class 2, Class 3 and PLTC Circuit Integrity (CI) Cable and new paragraph 725-71(F) Circuit Integrity (CI) cable.

725.61(H) Class 2, Class 3 and PLTC Circuit Integrity (CI) Cable. Cables complying with any of the requirements described in 725.61(A) through (F) that are critical to life safety, property protection, emergency management or as may be required by referencing codes in order to ensure continued circuit operation for a specified time under fire conditions.

Insert revised paragraph 725.71(F) in proper place and renumber the existing paragraphs and references to renumbered paragraphs accordingly. New paragraph 725.71(F) to read as follows:

725.71(F) Circuit Integrity (CI) Cable. Class 2, Class 3 and Type PLTC cables that are critical to life safety, property protection, emergency management or as may be required by referencing codes in order to ensure continued circuit operation for a specified time under fire conditions shall have the additional listing as circuit integrity cable using the suffix "CI" (for example, CL2P-CI, CL3P-CI, CL2R-CI, CL3R-CI, CL2-C1, CL3-CI, CL2X-CI, CL3X-CI and PLTC-CI).

FPN: One method of defining circuit integrity (CI) cable is by establishing a minimum 2-hour fire resistance rating for the cable when tested in accordance with UL 2196-2002, Standard for Tests of Fire Resistive Cables.

Substantiation: Article 725 cables are used in association with elevator evacuation systems, ventilating fans, security systems, building data acquisition systems, etc. The need for emergency operation under fire conditions is stated by; (1) other NFPA codes such as NFPA 101 "Life Safety Code" (emergency elevator, special occupancies, etc.); (2) legislative adapted building codes such as the International Building Code, "IBC (special requirement for ventilating fans); (3) Federal, State and City codes such as the General Services Administrations standard PBS-100 "Facilities Standards for the Public Building Service" (which references NFPA 70 and extends survivability requirements beyond those contained NFPA 72); and (4) legislation such as Senate Bill S.2664 "First Responder Terrorism Preparedness Act of 2002" which contained the following commentary ("The committee recognizes the importance of maintaining the operational integrity of emergency systems that may be subject to failure as a result of fire or water damage to essential wiring or cabling, and of utilizing necessary measures to ensure continued operation of these vital systems") and the current NIST WTC program which "will provide practical guidance and tools to better prepare facility owners, contractors, architects, engineers, emergency responders and regulatory authorities to respond to future disasters".

Without Class 2, Class 3 and PLTC Circuit Integrity (CI) Cables; specifiers, owners and users would have to resort to mechanical fire protection methods to provide this capability. Examples of this would include (1) fire rated cables systems; (2) fire rated enclosures or barriers; (3) cables installed in conduit embedded in 2 in. of concrete; or (4) redundant wiring techniques.

Panel Meeting Action: Accept in Principle

Revise the text to read as follows:

725.61(H) Class 2, Class 3, PLTC Circuit Integrity (CI) Cable or Electrical Circuit Protective System. Circuit Integrity (CI) cable or a listed electrical circuit protective system shall be permitted for use in remote control, signaling, or power limited systems that supply critical circuits to ensure survivability for continued circuit operation for a specified time under fire conditions.

725.71(F) Circuit Integrity (CI) Cable or Electrical Circuit Protective System. Cables used for survivability of critical circuits shall be listed as circuit integrity (CI) cable. Cables specified in 725.61(A), (B), (D)(1), and (E), and used for circuit integrity, shall have the additional classification using the suffix "-CI". Cables that are part of a listed electrical circuit protective system shall be considered to meet the requirements of survivability.

FPN: One method of defining circuit integrity is by establishing a minimum 2-hour fire resistance rating when tested in accordance with UL 2196-2002, Standard for Tests of Fire Resistive Cables.

Panel Statement: The text in the comment has been editorially revised for consistency with similar text located in Article 760 for similar applications. The phrase referencing other codes was deleted, since that text introduced too broad a scope of applications for this survivability system.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 13

3-486 Log #3883 NEC-P03 **Final Action: Accept in Part**
(725.82(A)725.82(B), 760.82(D), 760.82(E), and Tables 725.82 & 760.82(J))

Submitter: John A. Jay, Corning

Comment on Proposal No: 3-192

Recommendation: With respect to cabling in ducts, plenums and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace Section 725.82(A&B) & 760.82(D&E) as appropriate

Note: The relevant cables types need to be inserted in the text below as appropriate for each Article. For

- 725: **CL2P** and **CL3P**
- 760: **FPLP**

With

(A or D) Types CL2P and CL3P. Types **CL2P** and **CL3P** plenum cables shall be listed as being suitable for placement in other space used for environmental air, to include ceiling cavities and raised floor cavities, and shall also

be listed as having adequate fire-resistant and low smoke-producing characteristics.

Tables 725.82 & 760.82(J).

Delete references to listed "duct cables" as follows:

• 725.82: CL3D and CL2D

• 760.82: FPLD

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
   - Eliminating or correcting erroneous definitions
   - Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding communications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety.
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part

Accept the deletion of duct cables. Reject the remainder of the recommendation.

Panel Statement: The panel is acting on this and other comments based on the Standards Council decision dated November 13, 2003 that is identified as Number 03-10-25 plus a subsequent letter by the Standards Council Chairman, Philip J. DiNenno, dated December 3, 2003. This decision states, in pertinent part as follows:

"The Council believes, that the best course of action for the NEC project is to generally refrain, unless absolutely necessary, from making revisions that interrelate with the NFPA 90A in advance of completion of the latest revision cycle of NFPA 90A, and instead to maintain the status quo in the NEC project on the applicable technical subjects pending the completion of the NFPA 90A revision cycle."

This action does not constitute agreement or disagreement with any of the substantiations submitted for the affected comments.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-488 Log #3324 NEC-P03 **Final Action: Accept in Part**

(725.82(A), and (B) & 760.82(D) and (E) and Table 725.82 & 760.82(J))

Submitter: Robert Pollock, Corning Cable Systems

Comment on Proposal No: 3-192

Recommendation: With respect to cabling in ducts, plenums and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requiremtns for cables placed in such spaces:

Replace current Sections 725.82(A&B) & 760.82(D&E) as indicated below:

Notes:

1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For

• 725: **CL2P** and **CL3P** (as is below)

• 760: **FPLP**

2) Renumber Sections as appropriate.

Replace Section 725.82(A&B) & 760.82(D&E) with all of the following:

(A or D) Types CL2P and CL3P. Types **CL2P** and **CL3P** plenum cables shall be listed as being suitable for placement in other spaces used for environmental air, to include ceiling cavities and raised floor cavities, and shall also be listed as having adequate fire-resistant and low smoke-producing characteristics.

Tables 725.82 & 760.82(J).

Delete references to listed "duct cables" as follows:

• 725.82: CL3D and CL2D

• 760.82: FPLD

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:

• Eliminating or correcting erroneous definitions

• Consolidating definitions in Article 100.

2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)

3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cables in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefit. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises end users (i.e., fiber-to-the-end user). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reinterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kband for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However: "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, three are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part

Panel Statement: See panel action and statement on Comment 3-486.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-487 Log #2187 NEC-P03 **Final Action: Accept in Part**
(725.82(A) and (B), 760.82(D) and (E), and Tables 725.82 and 760.82(J))

Submitter: Ken Chauvin, Corning Cable Systems

Comment on Proposal No: 3-192

Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace current Sections 725.82(A&B) & 760.82(D&E) as indicated below:

Notes:

1) The relevant cables types need to be changed in the revised main text below (see **BOLD)** for each Article. For

725: **CL2P** and **CL3P** (as is below)
760: **FPLP**

2) Renumber Sections as appropriate.

Replace Section 725.82(A&B) & 760.82(D&E) with all of the following:

(A or D) Types CL2P and CL3P, Types **CL2P** and **CL3P** plenum cables shall be listed as being suitable for placement in other spaces used for environmental air, to include ceiling cavities and raised floor cavities, and shall also be listed as having adequate fire-resistant and low smoke-producing characteristics.

Tables 725.82 & 760.82(J).

Delete references to listed "duct cables" as follows:

• 725.82: CL3D and CL2D
• 760.82 FPLD

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air", such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
• Eliminating or correcting erroneous definitions
• Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data.)
- Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety

- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.

- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part

Panel Statement: See panel action and statement on Comment 3-486.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-489 Log #3339 NEC-P03 **Final Action: Accept in Part**

(725.82(A) and (B), 760.82(D)&(E) and Tables 725.82 & 760.82)

Submitter: Grant P. Watkins, Confluent Photonics Corporation

Comment on Proposal No: 3-192

Recommendation: With respect to cabling in ducts, plenums and other spaces used for environmental air (ceiling and raised floor cavities) add the following clarification related to the requirements for cables placed in such spaces:

Revise text to read as follows:

Replace Sections 725.82 (A&B) & 760.82 (D&E) as appropriate:

Notes: The relevant cables types need to be inserted in the text below (see **BOLD**) as appropriate for each Article. For

725: **CL2P** and **CL3P**

760: **FPLP**

(A or D) Types CL2P and CL3P, Types **CL2P** and **CL3P** plenum cables shall be listed as being suitable for placement in other spaces used for environmental air, to include ceiling cavities and raised floor cavities, and shall also be listed as having adequate fire-resistant and low smoke-producing characteristics.

Tables 725.82 & 760.82 (J)

Delete reference to listed "duct cables" as follows:

- 725.82: CL3D and CL2D
- 760.82: FPLD

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air", such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:

• Eliminating or correcting erroneous definitions

• Consolidating definitions in Article 100.

2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)

3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)

4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data.)

- Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.

- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.

- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

- Such cables have a proven track record for safety

- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.

- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part

Panel Statement: See panel action and statement on Comment 3-486.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-490 Log #3348 NEC-P03 **Final Action: Accept in Part**
(725.82(A)and (B) & 760.82(D)&(E) and Tables 725.82 & 760.82 (j))

Submitter: Jean Baer, Supeiror Essex
Comment on Proposal No: 3-192
Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace current Sections 725.82(A&B) & 760.82(D&E) as indicated below:
Notes:
1) The relevant cables types need to be changed in the revised main text below (see **BOLD)** for each Article. For
725: **CL2P** and **CL3P** (as is below)
760: **FPLP**
2) Renumber Sections as appropriate.
Replace Section 725.82(A&B) & 760.82(D&E) with all of the following:
(A or D) Types CL2P and CL3P, Types **CL2P** and **CL3P** plenum cables shall be listed as being suitable for placement in other spaces used for environmental air, to include ceiling cavities and raised floor cavities, and shall also be listed as having adequate fire-resistant and low smoke-producing characteristics.
Tables 725.82 & 760.82(J).
Delete references to listed "duct cables" as follows:
• 725.82: CL3D and CL2D
• 760.82 FPLD
Substantiation: Comment Discussion
The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air", such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.
Specific actions recommended include:
1. Harmonize on appropriate definitions, as well as:
• Eliminating or correcting erroneous definitions
• Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)
Comment Rationale
In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:
- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data.)
- Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.
The primary objectives of this comment, and associated comments, can be summarized as the needs to:
• Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).
• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums
• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).
• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.
• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.
Panel Meeting Action: Accept in Part
Panel Statement: See panel action and statement on Comment 3-486.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-492 Log #3371 NEC-P03 **Final Action: Accept in Part**
(725.82(A) & (B), 760-82(D) & (E) and Tables 725-82 and 760-82(J) (as appropriate))

Submitter: Randy Harris, Day One Communications Inc.
Comment on Proposal No: 3-192
Recommendation: With respect to cabling in ducts, plenums and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace Section 725.82(A&B) and 760.82(D&E) as appropriate:
Note: The relevant cable types need to be inserted in the text below as appropriate for each article. For
• 725: CL2P and CL3P
• 760: FPLP
With:
(A or D) Types CL2P and CL3P. Types CL2P and CL3P plenum cables shall be listed as being suitable for placemetn in other space used for environmental air, to include ceiling caviteis and raised floor cavities, and shall also be listed as having adequate fire-resistant and low smoke-producing characteristics.
Tables 725.82 & 760.82(J).
Delete references to listed "duct cables" as follows:
• 725.82: CL3D and CL2D
• 760.82: FPLD

Substantiation: Comment Discussion
The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling

solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended included:

1. Harmonize on appropriate definitions, as well as:
• Eliminating or correcting erroneous definitions
• Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)

Comment Rationale

In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical date).
- Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of highly capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part
Panel Statement: See panel action and statement on Comment 3-486.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-493 Log #3378 NEC-P03 **Final Action: Accept in Part**
(725.82(A) & (B), 760-82(D) & (E) and Tables 725.82 and 760.82(J))

Submitter: Matt Brown, US Conec
Comment on Proposal No: 3-192
Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace current Sections 725.82(A&B) & 760.82(D&E) as indicated below:

Notes:

1) The relevant cables types need to be changed in the revised main text below (see **BOLD)** for each Article. For
725: **CL2P** and **CL3P** (as is below)
760: **FPLP**
2) Renumber Sections as appropriate.

Replace Section 725.82(A&B) & 760.82(D&E) with all of the following:

(A or D) Types CL2P and CL3P, Types **CL2P** and **CL3P** plenum cables shall be listed as being suitable for placement in other spaces used for environmental air, to include ceiling cavities and raised floor cavities, and shall also be listed as having adequate fire-resistant and low smoke-producing characteristics.

Tables 725.82 & 760.82(J).

Delete references to listed "duct cables" as follows:
• 725.82: CL3D and CL2D
• 760.82 FPLD

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air", such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
• Eliminating or correcting erroneous definitions
• Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data.)
- Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

- Such cables have a proven track record for safety

- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.

- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part

Panel Statement: See panel action and statement on Comment 3-486.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-494 Log #2980 NEC-P03 **Final Action: Accept in Part**

(725.82(A) & (B), 760.82(A) & (B) and Tables 725.82 & 760.82(J) **)**

Submitter: Sean Foley, AFL Telecommunications

Comment on Proposal No: 3-192

Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace current Sections 725.82(A&B) & 760.82(D&E) as indicated below:

Notes:

1) The relevant cables types need to be changed in the revised main text below (see **BOLD)** for each Article. For

725: **CL2P** and **CL3P** (as is below)

760: **FPLP**

2) Renumber Sections as appropriate.

Replace Section 725.82(A&B) & 760.82(D&E) with all of the following:

(A or D) Types CL2P and CL3P, Types **CL2P** and **CL3P** plenum cables shall be listed as being suitable for placement in other spaces used for environmental air, to include ceiling cavities and raised floor cavities, and shall also be listed as having adequate fire-resistant and low smoke-producing characteristics.

Tables 725.82 & 760.82(J).

Delete references to listed "duct cables" as follows:

• 725.82: CL3D and CL2D

• 760.82 FPLD

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air", such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:

• Eliminating or correcting erroneous definitions

• Consolidating definitions in Article 100.

2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)

3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)

4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data.)

- Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.

- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.

- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

- Such cables have a proven track record for safety

- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.

- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part
Panel Statement: See panel action and statement on Comment 3-486.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-495 Log #3065 NEC-P03 **Final Action: Accept in Part**
(725.82(A) (B) & 760.82(D) and (E) and Table 725.82 & 760.82(J))

Submitter: James Walter Clark, Timberland Mechanical Services
Comment on Proposal No: 3-192
Recommendation: With respect to cabling in ducts, plenums and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace Section 725.82(A&B) & 760.82(D&E) as appropriate
Note: The relevant cables types need to be inserted in the text below as appropriate for each Article. For
• 725: **CL2P** and **CL3P**
• 760: **FPLP**
With
(A or D) Types CL2P and CL3P. Types **CL2P** and **CL3P** plenum cables shall be listed as being suitable for placement in other space used for environmental air, to include ceiling cavities and raised floor cavities, and shall also be listed as having adequate fire-resistant and low smoke-producing characteristics.
Tables 725.82 & 760.82(J).
Delete references to listed "duct cables" as follows:
• 725.82: CL3D and CL2D
• 760.82: FPLD
Substantiation: Comment Discussion
The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.
Specific actions recommended include:
1. Harmonize on appropriate definitions, as well as:
- Eliminating or correcting erroneous definitions
- Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)
Comment Rationale
In regards to structured cabling installations that support intrabuilding communications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:
- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.
The primary objectives of this comment, and associated comments, can be summarized as the needs to:
• Maintain viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety.
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).
• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.
• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).
• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.
• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.
Panel Meeting Action: Accept in Part
Panel Statement: See panel action and statement on Comment 3-486.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-491 Log #3598 NEC-P03 **Final Action: Accept in Part**
(725.82(A) &(B), 760.82(D) & (E) and Tables 725.82 & 760.82(J))

Submitter: Alfred D. Messineo, Calm Technologies Inc.
Comment on Proposal No: 3-192
Recommendation: With respect to cabling in ducts, plenums and other spaces used for environmental air (ceiling and raised floor cavities) add the following clarification related to the requirements for cables placed in such spaces:
Revise text to read as follows:
Replace Sections 725.82 (A&B) & 760.82 (D&E) as appropriate:
Notes: The relevant cables types need to be inserted in the text below (see **BOLD**) as appropriate for each Article. For
725: **CL2P** and **CL3P**
760: **FPLP**
(A or D) Types CL2P and CL3P, Types **CL2P** and **CL3P** plenum cables shall be listed as being suitable for placement in other spaces used for environmental air, to include ceiling cavities and raised floor cavities, and shall also be listed as having adequate fire-resistant and low smoke-producing characteristics.
Tables 725.82 & 760.82 (J)
Delete reference to listed "duct cables" as follows:
• 725.82: CL3D and CL2D
• 760.82: FPLD
Substantiation: Comment Discussion
The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air", such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.
Specific actions recommended include:
1. Harmonize on appropriate definitions, as well as:
• Eliminating or correcting erroneous definitions

• Consolidating definitions in Article 100.

2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)

3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)

4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding telecommunications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real-world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data.)

- Critically limit the availably of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.

- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.

- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain the viability of listed “plenum” (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

- Such cables have a proven track record for safety

- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.

- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building’s exterior. However, “duct cable” can act as a fuel source despite its low-smoke characteristics. Since there are no provisions for a listed device to detect toxins emanating from a burning “duct cable” in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part

Panel Statement: See panel action and statement on Comment 3-486.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-496 Log #3043 NEC-P03 **Final Action: Accept in Part**

(725.82(A)& (B), 760.82(D) & (E) and Tables 725.82 & 760.82(J))

Submitter: William Tenkate, EIS Wire & Cable Co.

Comment on Proposal No: 3-192

Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace current Sections 725.82(A and B) and 760.82(D and E) as indicated below:

Notes:

1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for Article. For

• 725: **CL2P** and **CL3P** (as is below)

• 760: **FPLP**

2) Renumber Sections as appropriate.

Replace Section 725.82(A and B) and 760.82(D and E) with all of the following:

(A or D) Types CL2P and CL3P. Types **CL2P** and CL3P plenum cables shall be listed as being suitable for placement in other spaces used for environmental air, to include ceiling cavities and raised floor cavities, and shall also be listed as having adequate fire-resistant and low smoke-producing characteritics.

Tables 725.82 and 760.82(J).

Delete references to listed “duct cables” as follows:

• 725.82: CL3D, and CL2D

• 760.82: FPLD

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in “other places used for environmental air,” such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:

- Eliminating or correcting erroneous definitions

- Consolidating definitions in Article 100.

2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)

3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)

4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding communications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).

- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.

- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.

- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain viability of listed “plenum” (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

- Such cables have a proven track record for safety.

- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.

- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part

Panel Statement: See panel action and statement on Comment 3-486.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-497 Log #3555 NEC-P03 **Final Action: Accept in Part**

(725.82(A) & (B), 760.82(D) & (E) and Tables 725.82 & 760.82(J))

Submitter: Michael J. McLear, Madison Cable Corporation

Comment on Proposal No: 3-192

Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace current Sections 725.82(A and B) and 760.82(D and E) as indicated below:

Notes:

1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For

• 725: **CL2P** and **CL3P** (as is below)

• 760: **FPLP**

2) Renumber Sections as appropriate.

Replace Section 725.82(A and B) and 760.82(D and E) with all of the following:

(A or D) Types CL2P and CL3P. Types **CL2P** and CL3P plenum cables shall be listed as being suitable for placement in other spaces used for environmental air, to include ceiling cavities and raised floor cavities, and shall also be listed as having adequate fire-resistant and low smoke-producing characteritics.

Tables 725.82 and 760.82(J).

Delete references to listed "duct cables" as follows:

• 725.82: CL3D, and CL2D

• 760.82: FPLD

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
   - Eliminating or correcting erroneous definitions
   - Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding communications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

• Maintain viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

- Such cables have a proven track record for safety.
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part

Panel Statement: See panel action and statement on Comment 3-486.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-498 Log #3315 NEC-P03 **Final Action: Accept in Part**
(725.82(A) & (B), 760.82(D) & (E) and Tables 725.82 and 760.82(J))

Submitter: Donald G. Ouellette, Teknor Apex Co.
Comment on Proposal No: 3-192
Recommendation: With respect to cabling in ducts, plenums and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace current Sections 725.82(A&B) & 760.82(D&E) as indicated below:
Notes:
1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For
• 725: **CL2P** and **CL3P** (as is below)
• 760: FPLP
2) Renumber Sections as appropriate.
Replace Section 725.82 (A&B) & 760.82(D&E) with all of the following:
(A or D) Types CL2P and CL3P, Types **CL2P** and **CL3P** plenum cables shall be listed as being suitable for placement in other spaces used for environmental air, to include ceiling cavities and raised floor cavities, and shall also be listed as having adequate fire-resistant and low smoke-producing characteristics.
Tables 725.82 & 760.82(J).
Delete references to listed "duct cables" as follows.
• 725.82: CL3D and CL2D
• 760.82: FPLD
Substantiation: In the mid 1970's the NFPA 255 test, (referred to at that time as the ASTM E-84), was deemed inappropriate for wire and cables because there was no provision for mounting cables in this test designed for building materials. The NFPA 255 test then known as ASTM E-84, Steiner Tunnel Test was modified to accommodate testing wires and cables and as a result a steel ladder suspended in the approximate center of the fire rig to simulate a horizontal cable tray. The modified ASTM E-84 was then named UL-190, Steiner Tunnel Fire Test. In addition to cable mounting differences there also remains another very important difference in comparing the NFPA 255 to the UL-910 (now known as NFPA 262). This very important difference is the test time duration. The proposed NFPA 255 has a test duration time of 10 minutes. The test time duration of the UL-910 (NFPA 262 test) is 20 minutes. This is important because fluoropolymer insulating and jacketing materials do not begin to burn until temperatures reach > 1100°F. Furthermore, Underwriters Laboratories has since issued a new UL standard, UL 2424, and is now accepting applications to list Limited Combustible, CMD Cables. The UL 2424 standard has omitted NFPA 262, a 20-minute duration test, in favor of NFPA 255, a 10-minute duration test.
The effects of favoring NFPA 255 (10 minute test) versus NFPA 262 (20 minute test) have not been studied across all plenum cable designs. If the NFPA 255 test protocol is to be the test method for wires and cables then consideration must be given to extend the test time of NFPA 255 for wires and cables to 20 minutes.
In 1998 the Fire Protection Research Foundation, FPRF, conducted a study called "International Limited Combustible Plenum Cable Fire Test Project". Teknor Apex Company participated in this research project. The final report to this project was printed in March 2001. The cable samples consisted of only 4 UTP, unshielded twisted pairs made from various insulating and jacketing materials. The decision to use NFPA 255 and NFPA 259 building materials test methods was not a consensus decision. The facts are that NFPA 255 and NFPA 259 are clearly described as: NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials - NFPA 259, Standard Method for Potential Heat of Building Materials. Despite objections from a minority of sponsors the project moved forward utilizing these test methods previously deemed inappropriate during a time period when 4 pair UTP consisting of cables made of all fluoropolymer materials already existed.
Panel Meeting Action: Accept in Part
Panel Statement: See panel action and statement on Comment 3-486.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-499 Log #3561 NEC-P03 **Final Action: Accept in Part**
(725.82(A) & (B), 760.82(D) & (E) and Tables 726.82 & 760.82(J))

Submitter: Doug Coleman, Corning Cable Systems
Comment on Proposal No: 3-192
Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:
Replace current Sections 725.82(A and B) and 760.82(D and E) as indicated below:
Notes:
1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for each Article. For
• 725: **CL2P** and **CL3P** (as is below)
• 760: **FPLP**
2) Renumber Sections as appropriate.
Replace Section 725.82(A and B) and 760.82(D and E) with all of the following:
(A or D) Types CL2P and CL3P. Types **CL2P** and CL3P plenum cables shall be listed as being suitable for placement in other spaces used for environmental air, to include ceiling cavities and raised floor cavities, and shall also be listed as having adequate fire-resistant and low smoke-producing characteritics.
Tables 725.82 and 760.82(J).
Delete references to listed "duct cables" as follows:
• 725.82: CL3D, and CL2D
• 760.82: FPLD
Substantiation: Comment Discussion
The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.
Specific actions recommended include:
1. Harmonize on appropriate definitions, as well as:
- Eliminating or correcting erroneous definitions
- Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)
Comment Rationale
In regards to structured cabling installations that support intrabuilding communications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:
- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.
The primary objectives of this comment, and associated comments, can be summarized as the needs to:
• Maintain viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety.
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).
• Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.

• Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.

• Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part

Panel Statement: See panel action and statement on Comment 3-486.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-500 Log #3618 NEC-P03 **Final Action: Accept in Part**
(725.82(A) & (B) and 760.82(D) & (E))

Submitter: Charles D. Marion, II, Marion Fiber Splice Inc.

Comment on Proposal No: 3-192

Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace Section 725.82(A and B) and 760.82(D and E) as appropriate:

Note: The relevant cables types need to be inserted in place of OFNP/OFCP and OFND/OFCD as appropriate for each Article.

• 725: CL2P/CL3P and CL2D/CL3D

• 760: FPLP and FPLD

With:

(A) Types CL2D and CL3D. Types CL2D and CL3D nonconductive and conductive optical fiber air duct cables shall be listed as being suitable for use in ducts or plenums, and other space used for environmental air and shall also be listed as having a low potential heat value, low flame spread characteristics, and very low smoke-producing characteristics.

(B) Types CL2P and CL3P. Types CL2P and CL3P nonconductive and conductive optical fiber plenums cables shall be listed as being suitable for use in ceiling cavities and raised floor cavities and shall also be listed as having adequate fire-resistant and low smoke-producing characteristics.

Substantiation: In regards to structured cabling supporting intrabuilding telecommunications systems, it is imperative to avoid making changes that directly or indirectly effect, or which otherwise set the stage for, the development of unnecessary and extraneous requirements that severely and negatively affect, and or unnecessarily limit, viable solutions to real-world requirements. To do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

– Significantly complicate intrabuilding structured cabling requirements with no substantive, definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).

– Critically limit the availably product sets compliant to the revised requirements or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.

– Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser), resulting in significant delays in realizing improvements to endusers' Quality-of-Life and access to on-demand services.

– Limit the flexibility and upgrade potential of newer structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as:

• Maintain the viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).

– Such cables have a proven track record for safety

– The report on an investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

• Reiterate that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums unless specifically associated with the operation of the duct or plenum, to include the sensing, monitoring, handling, or control of environmental air within the duct or plenum, or with the associated systems such as fire alarm and suppression.

• Encourage the NFPA to recognize that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications supporting sprawling business complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).

• No significant consideration has apparently been given to what alternative viable structured cabling solutions may exist or can be developed, if any

Comment Discussion

The purpose of this comment, and associated comments, is improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding, wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document (see link below).

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:

• Eliminating or correcting erroneous definitions

• Consolidating definitions in Article 100.

2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)

3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)

– Plenums and air ducts, vs.

– Other spaces used for environmental air

– ceiling cavities and raised floor cavities

4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

– Plenums and ducts, vs.

– Other spaces used for environmental air

– ceiling cavities and raised floor cavities

5. Allow substitution hierarchy to be employed as appropriate, by avoiding redundant requirements in the sections addressed above.

– The use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they would be needed, when such products exist. This flexibility is allowed per the NEC substitution hierarchy.

Panel Meeting Action: Accept in Part

Panel Statement: See panel action and statement on Comment 3-486.

Number Eligible to Vote: 13

Ballot Results: Affirmative: 12 Abstain: 1

Comment on Affirmative:

CASPARRO: See my comment on affirmative on Comment 3-189.

Explanation of Abstention:

EGESDAL: See my Explanation of Abstention for Comment 3-63.

3-501 Log #2810 NEC-P03 **Final Action: Accept in Part**
(725.83(A) and (B) and 760.82(D) and (E))

Submitter: Paul Schmugge, Pirelli Cables & Systems North America
Comment on Proposal No: 3-192
Recommendation: With respect to cabling in ducts, plenums, and other spaces used for environmental air (ceiling and raised floor cavities), add the following clarification related to the requirements for cables placed in such spaces:

Replace current Sections 725.82(A and B) and 760.82(D and E) as indicated below:

Notes:

1) The relevant cables types need to be changed in the revised main text below (see **BOLD**) for Article. For

- 725: **CL2P** and **CL3P** (as is below)
- 760: **FPLP**

2) Renumber Sections as appropriate.

Replace Section 725.82(A and B) and 760.82(D and E) with all of the following:

(A or D) Types CL2P and CL3P. Types **CL2P** and CL3P plenum cables shall be listed as being suitable for placement in other spaces used for environmental air, to include ceiling cavities and raised floor cavities, and shall also be listed as having adequate fire-resistant and low smoke-producing characteritics.

Tables 725.82 and 760.82(J).

Delete references to listed "duct cables" as follows:

- 725.82: CL3D, and CL2D
- 760.82: FPLD

Substantiation: Comment Discussion

The purpose of this comment, and associated comments, is to improve the structure and clarity of the current draft 2005 NEC by harmonizing the requirements of the various Articles and Sections, with respect to intrabuilding wiring and cabling. These comments also highlight the importance of preserving the integrity of the document to allow for appropriate and viable structured cabling solutions in "other places used for environmental air," such as ceiling and raised floor cavities, as well as stressing the critical need to maintain requirements that support the deployment of practical and meaningful intrabuilding communications systems. As such, these comments are directed at the relevant portions of Articles 725, 760, 770, 800, 820, and 830, as they appear in the current draft document.

Specific actions recommended include:

1. Harmonize on appropriate definitions, as well as:
   - Eliminating or correcting erroneous definitions
   - Consolidating definitions in Article 100.
2. Clarify references to the relevant portions of Article 300.22, Parts (B) and (C), and reinforce references and exceptions to the same in the various articles. (###.3)
3. Consent on appropriate applications for cabling in spaces used for handling environmental air. (###.61)
4. Clarify listing requirements for wire and cable in spaces used for handling environmental air. (###.82)

Comment Rationale

In regards to structured cabling installations that support intrabuilding communications systems, and in just about any other situation, it is imperative to avoid making changes that will directly or indirectly specify, or which otherwise set the stage for, the development and adoption of unnecessary, extraneous, and/or excessive requirements. Such requirements most often have a severely negative impact on the availability of viable and effective solutions to real world issues, but provide no added benefits. In the case of structured cabling specifically, to do otherwise can further exacerbate efforts to revive an ailing telecommunications sector by the following means:

- Significantly complicate intrabuilding structured cabling requirements with no substantive and definable benefit to the industry or to the public as a whole (i.e., not supported by meaningful and relevant technical data).
- Critically limit the availability of compliant product sets or require extremely burdensome and convoluted installation practices, resulting in an extraordinary expenditure of resources to account for exceedingly derisive requirements.
- Significantly impede efforts to improve the availability of, and access to, high bandwidth services to premises endusers (i.e., fiber-to-the-enduser). The result will be significant delays for many in realizing easy access to on-demand services and the associated improvements in quality-of-life.
- Limit the flexibility and upgrade potential of structured cabling solutions, thereby potentially creating more long-term safety and reliability issues with respect to the installation and maintenance of high capacity intrabuilding communications systems.

The primary objectives of this comment, and associated comments, can be summarized as the needs to:

- Maintain viability of listed "plenum" (i.e., OFNP and OFCP) cables in ceiling and raised floor cavities (i.e., other spaces used for environmental air).
- Such cables have a proven track record for safety.
- Listed plenum cables currently installed within buildings have not been shown to raise the risk factor to building occupants.
- The report on an intensive investigation recently undertaken by the International Electrotechnical Commission (IEC) into fire safety stated, in effect, that NFPA 262 was very appropriate for evaluating the fire safety of cables for use in critical areas (e.g., those involving safety of equipment and personnel).

- Recognize that air ducts and (true) plenums should serve the sole purpose of handling environmental air, as well as supporting associated sensing, monitoring, or control equipment. No data or communications cabling should be allowed in air ducts or (true) plenums.
- Reiterate that the types of cable that run in the physical horizontal are not all simply one and two count cables that run a few kbaud for servicing desktop applications. They can, and often do, consist of cables that are capable of running an aggregate data capacity in the range of many thousands of Gigabits. This capacity is needed for applications that support sprawling business, educational, entertainment, data storage, and lodging complexes with remote telecommunications rooms tied together with high capacity, high count cabling (e.g., 72 and 144 fiber optic cables).
- Note that the use of products meeting more stringent requirements can always be agreed upon between customers and suppliers for the limited applications where they might be needed, when such products exist. This flexibility is allowed per the NEC, which sets a minimum level of requirements.
- Educate all on typical building air distribution systems. Such systems are generally designed with actual air ducts and (true) plenums that feed occupied areas, with air return paths that utilize building structural spaces and voids (ceiling and raised floor cavities). When a fire is detected, smoke dampers in the supply side are actuated to isolate smoke and toxic gases and/or divert them to the building's exterior. However, "duct cable" can act as a fuel source despite its low-smoke characteristics. Since, there are no provisions for a listed device to detect toxins emanating from a burning "duct cable" in the air duct, such emissions would continue to build up and move within the supply-air distribution system, until the point when a smoke sensor is prompted to set off damper actuators by some other means to isolate or divert toxins externally, but only after some delay. Placing any cable directly into air ducts and (true) plenums is also largely unnecessary.

Panel Meeting Action: Accept in Part
Panel Statement: See panel action and statement on Comment 3-486.
Number Eligible to Vote: 13
Ballot Results: Affirmative: 12 Abstain: 1
Comment on Affirmative:
CASPARRO: See my comment on affirmative on Comment 3-189.
Explanation of Abstention:
EGESDAL: See my Explanation of Abstention for Comment 3-63.