

ARTICLE 80 — ADMINISTRATION AND ENFORCEMENT

1-6 Log #187 NEC-P01 **Final Action: Reject**
(80.9(C))

Submitter: David Shapiro, Safety First Electrical Contracting, Consulting, and Safety Education

Comment on Proposal No: 1-8

Recommendation: Accept proposal with the deletion of “a permit shall be applied for”.

Substantiation: While it is true that permits need not be addressed here, it does not appear true that (B) and (C) address my concerns. I’ll give another example. (B) says that, for instance, once-legal non-grounding circuits may continue to serve a kitchen unless they’re deteriorated to the point of imminent danger. (C) says, though, that repairs shall conform to the standard required of a new building, which taken literally indicates that if a receptacle needs replacement, and its enclosure was sized with a one-conductor allowance for the receptacle, it needs to be upgraded.

Panel Meeting Action: Reject

Panel Statement: The panel concludes that its original action on Proposal 1-8 meets the submitter’s intent. This section allows the authority having jurisdiction to decide which additions, alterations, installations, or repairs are to comply with the current Code.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

ARTICLE 90 — INTRODUCTION

1-7 Log #1416 NEC-P01 **Final Action: Accept in Principle**
(90.2(A))

Submitter: Lanny G. McMahon Phoenix, AZ

Comment on Proposal No: 1-18

Recommendation: Delete the word “cables”.

Substantiation: This proposal should be rejected. The addition of the word “cables” provides no further clarification to the section and simply adds redundancy. All cable types addressed in Chapter 3, such as NM, SE, MC, AC, etc., contain conductors; therefore, if cables contain conductors, they are automatically included in the section. In addition, the NEC Style Manual, Section 3.3.5, encourages parallel construction to attain greater code consistency and clarity. The addition of the word “cables” causes inconsistencies with other code sections, such as 90.2(A)(3), 90.2(C), 110.1 and 110.2. Inconsistencies create uncertainty for the code user.

Panel Meeting Action: Accept in Principle

Revise the text in 90.2(A) to read as follows:

“(A) Covered. This Code covers the installation of electric conductors, equipment, and raceways; signaling and communications conductors, equipment, and raceways; and optical fiber cables and raceways for the following:”

Panel Statement: The panel has retained the word “cables” after “optical fiber” for clarity. The panel agrees with the submitter’s substantiation that electric, signalling, and communication cables include conductors.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-8 Log #2221 NEC-P01 **Final Action: Reject**
(90.2(B))

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

Comment on Proposal No: 1-25

Recommendation: Accept the proposal in principle. Locate the text in Article 100 as follows:

Utility. An organization, typically recognized by law as a common carrier and regulated by public service/utility commissions or other public authorities, that installs, operates, and maintains electric supply (such as generation, transmission, or distribution systems) or communication systems (such as telephone, CATV, Internet, satellite, or data services).

FPN: Entities designated as common carriers are subject to comprehensive regulation by public authorities, and are subject to codes and standards covering those activities relevant to their industry. Refer to the appropriate governmental bodies, such as state regulatory commissions, for specific information applicable in a particular jurisdiction.

Substantiation: This proposal does what some other proposals failed to do, namely, define a utility. This comment places the text into Article 100 accordingly. The non-definition aspect becomes a FPN following. The comment makes extensive edits for the following reasons:

1) Laws are only enacted by governments, and therefore the phrase “governmental law” is a redundancy.

2) The definition includes the critical term “common carrier.” Common carriers enjoy partial monopoly status in exchange for a greater level of regulation because competition is restricted, either due to government regulation, or in the case of power and communications utilities due to the existence of a natural

monopoly, and they have the obligation to serve all who are willing to (in these cases) be connected. Until it somehow becomes feasible for competing utilities to run power and communications down the same street, electric and communications utilities will monopolize local distribution subject to regulation and the duty to serve. Their generation activities are becoming more competitive under deregulation, but not the local utility poles or telephone frame room. This concept is crucial to the understanding of how utilities operate.

3) The FPN captures the remaining concepts in the proposal, but much more simply worded. For emphasis this comment uses the phrasing “subject to comprehensive regulation by public authorities” to emphasize the regulatory constraints utilities operate under. The language mentioning FERC and the FCC, etc. was deleted because the concepts are universal and those agencies do not apply outside of the U.S. The NEC should be written from an international viewpoint where possible.

Panel Meeting Action: Reject

Panel Statement: The panel continues to support the inclusion of an explanatory fine print note concerning the characteristics of utilities rather than a definition.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-9 Log #1569 NEC-P01
(90.2(B), FPN 4 and FPN 5)

Note: The Technical Correlating Committee directs that this comment be reported as “Accept in Principle.”

Submitter: Jim Pauley, Square D Company

Comment on Proposal No: 1-25

Recommendation: Revise the proposed FPN as follows:

FPN to (4) and (5): ~~Examples of utilities may include those entities Utilities are organizations;~~ typically designated or recognized by governmental law or regulation by public service/utility commissions, that install, operate, and maintain electric supply (such as generation, transmission, or distribution systems) or communication systems (such as telephone, CATV, Internet, satellite, or data services). As such, the utility Utilities may be is subject to compliance with codes and standards covering ~~these their regulated activities relevant to their industry~~ as adopted under governmental law or regulation. Additional information can be found through consultation with Refer to the appropriate governmental bodies, such as state regulatory commissions, Federal Energy Regulatory Commission, and Federal Communications Commission.

Substantiation: The FPN proposed in the ROP contains a requirement and definition by stating “utilities are organizations...” This approach is not permitted in a FPN. The recommended revisions eliminates the requirement/definition statement.

In addition, changes are recommended to make it clear that not all groups that call themselves “utilities” are subject to compliance with any of the “regulated” laws. It also uses the words “regulated activities” to make it clear that it is only those portions of their business that is regulated is potentially covered by PSC or similar groups rules and regulations. Utilities have morphed into many different business models and any FPN that is added needs to recognize that wide variation.

Panel Meeting Action: Accept

Revise the proposed FPN as follows:

“FPN to (4) and (5): ~~Examples of utilities may include those entities Utilities are organizations;~~ typically designated or recognized by governmental law or regulation by public service/utility commissions, that install, operate, and maintain electric supply (such as generation, transmission, or distribution systems) or communication systems (such as telephone, CATV, Internet, satellite, or data services). ~~As such, the utility Utilities may be~~ is subject to compliance with codes and standards covering ~~these their regulated activities relevant to their industry~~ as adopted under governmental law or regulation. Additional information can be found through consultation with Refer to the appropriate governmental bodies, such as state regulatory commissions, Federal Energy Regulatory Commission, and Federal Communications Commission.”

Panel Statement: The panel editorially deleted the words “As such, the utility”.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

STAUFFER: Adding this proposed long, complicated, Fine Print Note will not clarify the Code, nor make it more enforceable. NECA believes it will do the opposite. 90.2(B), which defines what is NOT covered by the NEC, is already longer than 90.2(A), which defines what IS. Adding this FPN will make 90.2(B) longer still by several lines of unenforceable text and will further muddy the scope of the National Electrical Code.

NECA also believes this proposed FPN does not comply with 4.2 of the “NEC Style Manual,” and is contrary to the way standards are referenced throughout the Code. Other FPNs provide the titles and designations of reference standards so that users can consult them. This proposed FPN states: “Additional information can be found through consultation with the appropriate governmental bodies, such as state regulatory commissions, Federal Energy Regulatory Commission, and Federal Communications Commission.”

A reference this broad, and all-encompassing, is useless. It is anti-informational.

Comment on Affirmative:

ANTHONY: The change has jurisdictional implications for our industry. I look forward to future code cycles when BICSI (Building Industry Consulting Service International), which represents a large number of NEC users in the telecommunications industry, has more voting representatives on NEC technical committees.

TROGLIA: This is a revision of EEI's initial proposal to meet the TCC's concern regarding the content of an FPN to comply with Section 3.1.3 of the NEC Style Manual for fine print notes to only contain explanatory material.

1-10 Log #539 NEC-P01
(90.2(B), FPN (New))

Final Action: Accept

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 1-25

Recommendation: The Technical Correlating Committee directs the Panel to reconsider this Proposal, and address the issue of the Fine Print Note containing a definition. 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 panel action and statement on Comment 1-9.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

Comment on Affirmative:

ANTHONY: See my Explanation of Affirmative Vote on Comment 1-9.

1-11 Log #1070 NEC-P01
(90.2(B), FPN (New))

Final Action: Accept in Principle

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

Comment on Proposal No: 1-25

Recommendation: Accept in principle and revise the proposed Fine Print Note to 90.2(B), which is under item (5) as follows:

FPN to (4) and (5): Various authorities adopt codes and standards covering activities relevant to the utility industry under governmental law or regulation and require compliance with them. Examples of such regulatory authorities are state regulatory commissions, Federal Energy Regulatory Commission, and Federal Communication Commission.

Substantiation: This revision satisfies the Technical Correlating Committee's note to comply with 3.1.3 the NEC Style Manual.

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action and statement on Comment 1-9.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

STAUFFER: See the Explanation of NECA'S Negative Vote on Comment 1-9.

Comment on Affirmative:

ANTHONY: See my Explanation of Affirmative Vote on Comment 1-9.

1-12 Log #1201 NEC-P01
(90.2(B)(4))

Final Action: Reject

Submitter: James E. Brunssen, Telcordia Technologies, Inc.

Comment on Proposal No: 1-29

Recommendation: CMP1 is urged to reconsider their initial Action and accept proposal 1-29.

Substantiation: The acceptance of this proposal would provide much need clarity to 90.2(B)(4). There is much confusion today on the part of AHJ's as to what constitutes communications equipment. Historically, DC power equipment that is designed and incorporated as part of the communications network has been considered communications equipment. Nothing has changed to alter that perspective. Centralized DC power equipment serving communications loads is installed and maintained by the same trained technicians who install and maintain the other communications equipment. The installation of DC power equipment is performed according to industry-accepted practices and these installations have enjoyed a long and enviable safety history. Inherent in these industry-accepted installation practices is the reliability and interoperability of the telecommunications network required by Federal regulations and that the communications customer has come to expect and demand from their communications provider. To introduce new installation rules and procedures could very well jeopardize that reliability and interoperability.

Panel Meeting Action: Reject

Panel Statement: The panel's rejection of the original proposal does not introduce any new installation rules. That which is under the utility's exclusive

control, for communication purposes, remains outside the scope of the NEC. It is not necessary to name things that might or might not be under the utility's control.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-13 Log #1202 NEC-P01
(90.2(B)(5), FPN)

Final Action: Accept in Principle

Submitter: James E. Brunssen, Telcordia Technologies, Inc.

Comment on Proposal No: 1-25

Recommendation: Revise the accepted text as follows:

FPN to (4) and (5): Utilities are subject to compliance with codes and standards covering the activities relevant to their industry as adopted under governmental law or regulation. Refer to the appropriate governmental bodies, such as state regulatory commissions, Federal Energy Regulatory Commission, and Federal Communication Commission.

Substantiation: This comment revises the proposed FPN to eliminate the definition contained in the first sentence. The revised FPN directs the NEC user to appropriate resources on this subject.

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action and statement on Comment 1-9.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

STAUFFER: See the Explanation of NECA'S Negative Vote on Comment 1-9.

1-14 Log #999 NEC-P01
(90.2(B)(6))

Final Action: Reject

Submitter: Noel Williams, Noel Williams Consulting

Comment on Proposal No: 1-16

Recommendation: This proposal should have been accepted or accepted in principal.

Substantiation: The panel was correct that this proposal should have addressed 90.2(B)(6). The panel statement is partially correct in that the NEC claims jurisdiction over medium- and high-voltage installations and equipment. However, the critical term in the proposal was "overhead." Although the NEC says it "covers" these installations according to 90.2(A), it is COMPLETELY INADEQUATE for overhead line construction. The NESC more rightly claims to cover these overhead medium- and high-voltage installations because it is adequate and actually does cover them. As long as an installation remains in conduit or in insulated cable, the NEC does provide direction on how to do such an installation, but as soon as the installation moves to common overhead techniques, the NEC simply does not work. The NEC should either recognize another consensus standard that covers this work, or actually provide the needed rules. As noted in the proposal, the NEC does not cover "span distances, conductor sag or tension, crossarms, spacings between conductors, insulators, reclosers, or many of the other components or issues that are critical to such installations." Saying the NEC covers these things does not make it so. If the Panel feels this proposal conflicts with 90.2(A), they should accept the proposal in principal and add to 90.2(A)"except as covered in 90.2(B)(6)." As it currently stands, a user of the NEC can do pretty much whatever they want with the type of overhead construction this proposal addresses, because the NEC has no rules to cover it and refers to the NESC only in a seemingly unrelated note in 90.2(A)(2). Article 490 covers some high-voltage equipment, but not the specific items mentioned above.

Panel Meeting Action: Reject

Panel Statement: The comment incorrectly refers to Proposal 1-169. It appears to be addressing Proposal 1-16. The comment does not recommend proposed text as required by 4-4.5 of the Regulations Governing Committee Projects.

Panel 1 chooses to address the submitter's substantiation. The panel reaffirms its statement on Proposal 1-16. To the extent that the NEC contains requirements for overhead feeders, such requirements apply and should not be included as "not covered" as proposed. The user of the code is appropriately referred to the NESC in 90.2(A) for additional information on such installations. If the submitter desires to include specific requirements not presently included in the NEC, he can submit such requirements as he deems necessary in the form of a proposal.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-15 Log #1415 NEC-P01
(90.8(A))

Final Action: Accept in Principle

Note: The Technical Correlating Committee understands the Panel Action in this Comment changes the title back to the 2002 title, but continues to accept the Proposal 1-35 Panel Action text.

Submitter: Lanny G. McMahl Phoenix, AZ

Comment on Proposal No: 1-35

Recommendation: Delete the words "and cabling".

Substantiation: This proposal should be rejected. Adding the words “and cabling” to the section title provides no meaningful clarification and only adds redundancy. Article 90 is the “Introduction” to the code. “Wiring Planning” is a general term that includes all types of wiring methods. The NEC uses other general terms, such as “wiring and protection, premises wiring, and conductors for general wiring”. Wiring methods are understood to include cabling methods too. Cabling methods are simply a type of wiring method. In addition, the NEC Style Manual, Section 3.3.5, encourages parallel construction to attain greater code consistency and clarity. The addition of the words “and cabling” causes inconsistencies with other code sections, such as 90.2(A)(3), 90.2(C), 110.1 and 110.2. Inconsistencies create uncertainty for the code user.

Panel Meeting Action: Accept in Principle

Revise the text in the title of 90.8 to read as follows:
“90.8 Wiring Planning.”

Panel Statement: The panel changed the title in 90.8 from “Wire and Cable Planning” to “Wiring Planning”. The panel concludes that the current title of 90.8 in the 2002 NEC is clear.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

ARTICLE 100 — DEFINITIONS

1-16 Log #27 NEC-P01 **Final Action: Accept**
(100.Abandoned Cable)

Submitter: Stanley Kaufman, CableSafe, Inc.

Comment on Proposal No: 1-46

Recommendation: Reject this proposal.

Substantiation: The submitter states that the term “abandoned cable” is used in the sections shown in the table below. With the exception of Article 645, all the uses of the term “abandoned cable” in the Articles 725, 760, 770, 800, 820, and 830 were an error. Stan Kahn submitted proposals to fix the error. See the comment section in the table below. With the acceptance of proposals to correct the error, only one section in Article 725 continues to use the term and a comment has been submitted to correct that oversight. As a consequence of these actions, only Article 645 will use the term “abandoned cable”. It needs to be defined in Article 645.

Section	Comment
645.5(D)(6)	Definition needed in Article 645
725.61(A)	Deleted by CMP 3 action on Proposal 3-173
725.61(B)(1)	Deleted by CMP 3 action on Proposal 3-173
725.61(E)	Overlooked. I submitted a comment to panel 3 to take consistent action in this section.
760.61(A)	Deleted by CMP 3 action on Proposal 3-173
760.61(B)(1)	Deleted by CMP 3 action on Proposal 3-173
770.53(A)	Deleted by CMP 16 action on Proposals 16-63 and 16-64
770.53(B)(1)	Deleted by CMP 16 action on Proposal 16-63
800.53(A)	Deleted by CMP action on Proposals 16-141 and 16-64
800.53(B)(1)	Deleted by CMP action on Proposal 16-141
820.53(A)	Deleted by CMP action on Proposals 16-64 and 16-194
820.53(B)(1)	Deleted by CMP action on Proposal 16-194
820.53(A)	Deleted by CMP action on Proposal 16-141
820.53(D)	Deleted by CMP action on Proposals 16-141 and 16-194
830.55(B)	Deleted by CMP action on Proposal 16-141 and 16-64
830.55(C)(1)	Deleted by CMP action on Proposal 16-141

Articles 640, 725, 760, 770, 800, 820 and 830 contain the following specific definitions.

Article 640

Abandoned Audio Distribution Cable. Installed audio distribution cable that is not terminated at equipment and not identified for future use with a tag.

Article 725

Abandoned Class 2, Class 3, and PLTC Cable. Installed Class 2, Class 3, and PLTC cable that is not terminated at equipment and not identified for future use with a tag.

Article 760

Abandoned Fire Alarm Cable. Installed fire alarm cable that is not terminated at equipment other than a connector and not identified for future use with a tag.

Article 770

Abandoned Optical Fiber Cable. Installed optical fiber cable that is not terminated at equipment other than a connector and not identified for future use with a tag.

Article 800

Abandoned Communications Cable. Installed communications cable that is not terminated at both ends at a connector or other equipment and not identified for future use with a tag.

Article 820

Abandoned Coaxial Cable. Installed coaxial cable that is not terminated at equipment other than a coaxial connector and not identified for future use with a tag.

Article 830

Abandoned Network-Powered Broadband Communications Cable. Installed network-powered broadband communications cable that is not terminated at equipment other than a connector and not identified for future use with a tab.

These definitions are not identical because of differences in installation practices of the cables.

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

Panel Meeting Action: Accept

Panel Statement: See panel action on Comment 1-21.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-17 Log #177 NEC-P01 **Final Action: Reject**
(100.Abandoned Cable)

Submitter: David Shapiro, Safety First Electrical Contracting, Consulting, and Safety Education

Comment on Proposal No: 1-46

Recommendation: Accept, but add “possible” before “future.”

Substantiation: Clarify that one need not have definite future plans for a cable to avoid it being considered abandoned. Tagging it to indicate where it goes (and, implicitly, that no reason is known to consider its reuse unsafe) is enough to assure people coming upon it, and to enable them to reuse it should an opportunity arise.

Panel Meeting Action: Reject

Panel Statement: The panel chooses not to define “abandoned cable” in Article 100 because this will promote ease and usability of the phrase within each article without diluting the individuality of the cables and the method used to terminate each type of cable at equipment.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

MCMAHILL: For ease in understanding code requirements and code enforcement, panel 1 should have continued to accept the definition of “abandoned cable”. Logic and common sense alone should have justified the action. Yes, it is difficult to debate the panel’s reason for reversing their original decision, as theoretically the panel had no other choice. This panel member encourages panels 3 and 16 to make a concerted effort to generate a single definition for “abandoned cable”. Having multiple definitions for “abandoned cable” makes no sense at all - especially when the intended use and application of the term is basically the same in each article. If minor nuances exist within each article, they can easily be addressed. All code panel members should check with users of the code to get their thoughts on the merits of having one definition or multiple definitions for “abandoned cable.” Obviously, one definition is preferred. Again, code panels 3 and 16 should work towards the goal of creating a single definition for “abandoned cable” that can be placed in Article 100 to be used and applied consistently throughout the code. Based on panel 1’s statement this action “... will promote ease and usability of the phrase within each article without diluting the individuality of the cables and the method used to terminate each type of cable at equipment.”

1-18 Log #532 NEC-P01 **Final Action: Accept**
(100.Abandoned Cable)

Submitter: National Electrical Code Panel 16

Comment on Proposal No: 1-46

Recommendation: Reject this proposal.

Substantiation: The submitter states that the term “abandoned cable” is used in the sections shown in the table below. With the exception of Article 645, all the uses of the term “abandoned cable” in Articles 725, 760, 770, 800, 820 and 830 were an error. As chair of CMP-16, I submitted proposals to correct the error. With the acceptance of the proposals that corrected the error, only one section in Article 725 continued to use the term and a Comment has been submitted by Stan Kaufman to correct that oversight. As a consequence of these actions, only Article 645 uses the term “abandoned cable” and it must be defined in Article 645.

Section	Comment
645.5(D)(6)	Definition needed in Article 645
725.61(A)	Deleted by CMP 3 action on proposal 3-173
725.61(B)(1)	Deleted by CMP 3 action on proposal 3-173
725.61(E)	Overlooked. Stan Kaufman submitted a comment to panel 3 to take consistent action in this section.
760.61(A)	Deleted by CMP 3 action on proposal 3-173
760.61(B)(1)	Deleted by CMP 3 action on proposal 3-173
770.53(A)	Deleted by CMP 16 action on proposal 16-63 & 16-64
770.53(B)(1)	Deleted by CMP 16 action on proposal 16-63
800.53(A)	Deleted by CMP 16 action on proposal 16-141 & 16-64
800.53(B)(1)	Deleted by CMP 16 action on proposal 16-141
820.53(A)	Deleted by CMP 16 action on proposal 16-64 & 16-194
820.53(B)(1)	Deleted by CMP 16 action on proposal 16-194
820.53(A)	Deleted by CMP 16 action on proposal 16-141
820.53(D)	Deleted by CMP 16 action on proposal 16-141 & 16-194
830.55(B)	Deleted by CMP 16 action on proposal 16-141 & 16-64
830.55(C)(1)	Deleted by CMP 16 action on proposal 16-141

Panel 16 established the following definitions of abandoned cable in Articles 640, 725, 760, 770, 800, 820 and 830. The definitions are not identical because of differences in installation practices of the cables.

Article 640

Abandoned Audio Distribution Cable. Installed audio distribution cable that is not terminated at equipment and not identified for future use with a tag.

Article 725

Abandoned Class 2, Class 3, and PLTC Cable. Installed Class 2, Class 3, and PLTC cable that is not terminated at equipment and not identified for future use with a tag.

Article 760

Abandoned Fire Alarm Cable. Installed fire alarm cable that is not terminated at equipment other than a connector and not identified for future use with a tag.

Article 770

Abandoned Optical Fiber Cable. Installed optical fiber cable that is not terminated at equipment other than a connector and not identified for future use with a tag.

Article 800

Abandoned Communications Cable. Installed communications cable that is not terminated at both ends at a connector or other equipment and not identified for future use with a tag.

Article 820

Abandoned Coaxial Cable. Installed coaxial cable that is not terminated at equipment other than a coaxial connector and not identified for future use with a tag.

Article 830

Abandoned Network-Powered Broadband Communications Cable. Installed network-powered broadband communications cable that is not terminated at equipment other than a connector and not identified for future use with a tag.

The proposal was referred to Code-Making Panel 16 for information and this Comment is in response to our review. It has been submitted to ballot by the panel.

Panel Meeting Action: Accept

Panel Statement: See panel action on Comment 1-21.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

MCMAHILL: For ease in understanding code requirements and code enforcement, panel 1 should have continued to accept the definition of "abandoned cable". Logic and common sense alone should have justified the action. Yes, it is difficult to debate the panel's reason for reversing their original decision, as theoretically the panel had no other choice. This panel member encourages panels 3 and 16 to make a concerted effort to generate a single definition for "abandoned cable". Having multiple definitions for "abandoned cable" makes no sense at all - especially when the intended use and application of the term is basically the same in each article. If minor nuances exist within each article, they can easily be addressed. All code panel members should check with users of the code to get their thoughts on the merits of having one definition or multiple definitions for "abandoned cable." Obviously, one definition is preferred. Again, code panels 3 and 16 should work towards the goal of creating a single definition for "abandoned cable" that can be placed in Article 100 to be used and applied consistently throughout the code. Based on panel 1's statement this action "... will promote ease and usability of the phrase within each article without diluting the individuality of the cables and the method used to terminate each type of cable at equipment."

1-19 Log #1218 NEC-P01 **Final Action: Reject**
(100.Abandoned Cable)

Submitter: Randall R. McCarver, Telcordia Technologies
Comment on Proposal No: 1-46
Recommendation: This proposal should be held until the NEC 2008 code cycle.

Substantiation: The Technical Correlating Committee has ruled that definitions will continue to reside in Article 100, but each CMP will now have responsibility for definitions under their purview. Holding this proposal until the next cycle will allow Panels with responsibility for code using this term the chance to take appropriate action.

Panel Meeting Action: Reject

Panel Statement: The submitter's concern has been addressed in the panel action and statement on Comment 1-21. Proposal 1-46 was subject to public review and debate in accordance with the Regulations Governing Committee Projects.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-20 Log #2223 NEC-P01 **Final Action: Reject**
(100.Abandoned Cable (New))

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

Comment on Proposal No: 1-46

Recommendation: Accept the proposal as written.

Substantiation: The original proposal is more clearly written. In addition, it includes the phrasing "terminated at both ends at equipment." This precludes an argument that cable terminated in a twist-on wire connector, etc., is in fact terminated and not, therefore, abandoned.

Panel Meeting Action: Reject

Panel Statement: See panel action and statement on Comment 1-17.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

MCMAHILL: For ease in understanding code requirements and code enforcement, panel 1 should have continued to accept the definition of "abandoned cable". Logic and common sense alone should have justified the action. Yes, it is difficult to debate the panel's reason for reversing their original decision, as theoretically the panel had no other choice. This panel member encourages panels 3 and 16 to make a concerted effort to generate a single definition for "abandoned cable". Having multiple definitions for "abandoned cable" makes no sense at all - especially when the intended use and application of the term is basically the same in each article. If minor nuances exist within each article, they can easily be addressed. All code panel members should check with users of the code to get their thoughts on the merits of having one definition or multiple definitions for "abandoned cable." Obviously, one definition is preferred. Again, code panels 3 and 16 should work towards the goal of creating a single definition for "abandoned cable" that can be placed in Article 100 to be used and applied consistently throughout the code. Based on panel 1's statement this action "... will promote ease and usability of the phrase within each article without diluting the individuality of the cables and the method used to terminate each type of cable at equipment."

1-21 Log #3411 NEC-P01 **Final Action: Accept**
(100.Abandoned Cable)

Submitter: Mark C. Ode, Underwriters Laboratories Inc.

Comment on Proposal No: 1-46

Recommendation: Recommend rejecting proposal to create a new definition for abandoned cable in Article 100.

Substantiation: A single definition for abandoned cable in Article 100 would not cover all of the various types of abandoned cables and the various terminations necessary for the different types of cables located in Articles 640, 645, 725, 760, 770, 800, 820, and 830. Each low voltage system may have an abandoned cable with a different termination making the definitions unique to each individual situation. Since these definitions are contained within the individual articles, the user of the NEC does not need to refer back to Article 100 to determine what is considered to be a specific abandoned cable for that system and usability of the NEC is enhanced by leaving the definitions in their present locations within the individual articles.

This will promote ease and usability of the phrase within each article without diluting the individuality of the cables and the method used to terminate each type of cable at equipment. For example, some cables have special connectors or special connection methods at the equipment while other systems use conductors that are stripped and terminated to screws or terminals without special connectors. Small Class 2 or telephone cables may be connected at punch-down blocks at a cross-connect array, whereas coaxial cables based upon CATV technology is usually provided with a special crimped connector that would permit easy re-connection to a patch panel at a distribution board.

The NEC Technical Correlating Committee appointed a Task Group to study this issue of providing a single definition for abandoned cable. The Task Group was composed of members from Panel 1 [covering definitions in Article 100], Panel 3 [covering Articles 725 and 760], Panel 12 [covering Article 645], and Panel 16 [covering Articles 640, 770, 800, 820, and 830]. The Task Group decided that since each definition was unique to a particular system, the each article dealing with an abandoned cable issue should contain its own definition, as is presently done in the 2002 NEC.

The following persons participated as members of the Task Group: Mr. Lanny G. McMahl representing the International Association of Electrical Inspectors, Mr. David L. Hittinger representing the Independent Electrical Contractors, Mr. Sanford E. Egesdal representing the Automatic Fire Alarm Association, Mr. Paul J. Casparro representing the International Brotherhood of electrical Workers, Mr. George A. Straniero representing the National Electrical Manufacturers Association, Mr. Steven J. Owen representing the Associated Builders and Contractors, Mr. Charles M. Trout representing the National Electrical Contractors Association, Mr. Ron L. Janikowski representing the International Association of Electrical Inspectors, Mr. James E. Brunssen representing the Alliance for Telecommunications Industry Solutions, Mr. Stanley D. Kahn representing the National Electrical Contractors Association, Mr. Stanley Kaufman representing the Insulated Cable Engineers Association, and Mr. Mark C. Ode representing Underwriters Laboratories, Inc.

Panel Meeting Action: Accept

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

MCMAHILL: For ease in understanding code requirements and code enforcement, panel 1 should have continued to accept the definition of “abandoned cable”. Logic and common sense alone should have justified the action. Yes, it is difficult to debate the panel’s reason for reversing their original decision, as theoretically the panel had no other choice. This panel member encourages panels 3 and 16 to make a concerted effort to generate a single definition for “abandoned cable”. Having multiple definitions for “abandoned cable” makes no sense at all - especially when the intended use and application of the term is basically the same in each article. If minor nuances exist within each article, they can easily be addressed. All code panel members should check with users of the code to get their thoughts on the merits of having one definition or multiple definitions for “abandoned cable.” Obviously, one definition is preferred. Again, code panels 3 and 16 should work towards the goal of creating a single definition for “abandoned cable” that can be placed in Article 100 to be used and applied consistently throughout the code. Based on panel 1’s statement this action “... will promote ease and usability of the phrase within each article without diluting the individuality of the cables and the method used to terminate each type of cable at equipment.”

1-22 Log #245 NEC-P01
(100.Air Duct)

Final Action: Reject

Submitter: Technical Committee on Air Conditioning

Comment on Proposal No: 1-47

Recommendation: Continue to accept this proposal in principle.

Substantiation: See the comment from the Technical Committee on Air Conditioning on Proposal 1-49.

Panel Meeting Action: Reject

Panel Statement: Code-Making Panel 1 accepts the following directive of the NFPA Standards Council: “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 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.”

Therefore CMP 1 takes actions consistent with the Standards Council directive on all Public Comments on all subjects regarding this issue including this Public Comment.

This action by CMP 1 is applicable to Comments 1-22, 1-23, 1-24, 1-25, 1-26, 1-27, 1-28, 1-29, 1-30, 1-31, 1-32, 1-44, 1-45, 1-46, 1-47, 1-48, 1-49, 1-151, 1-152, 1-153, 1-154, 1-155.

Reference: Letter dated December 3, 2003 from Philip J. DiNunno, Chair of the NFPA Standards Council to Loren M. Caudill, Cable Fire Research Association. Also reference :

Letter dated November 13, 2003 from Leona A. Nisbet, Recording Secretary of the NFPA Standards Council to James W. Carpenter, Chair of the NEC Technical Correlating Committee

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-23 Log #1610 NEC-P01
(100.Air Duct)

Final Action: Accept

Submitter: Michael I. Callanan, IBEW

Comment on Proposal No: 1-47

Recommendation: Reject this proposal.

Substantiation: This term has no positive effect on the National Electrical Code. This term will add confusion and not clarity to an electrical code section that covers wiring in spaces that provide environmental air. The present language in the 2002 National Electrical Code Section 300.22(B) - Ducts or Plenums for Environmental Air and Section 300.22(C) - Other Space Used for Environmental Air covers in great detail which type of wiring methods should be used and implemented in these spaces. There is no technical reason offered that definitions that exist in another NFPA standard must be included in NFPA

70. Additional and unnecessary definitions from the NFPA 90A standard are not required or needed.

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

Panel Meeting Action: Accept

Panel Statement: See panel statement on Comment 1-22. The panel does not necessarily agree with all of the submitter’s substantiation.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-24 Log #2226 NEC-P01
(100.Air Duct)

Final Action: Accept

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

Comment on Proposal No: 1-49

Recommendation: Reject the proposal.

Substantiation: This comment is in support of the negative comments in the voting. Even if the definition were needed (it plainly is not), the definition wording is problematic in that it uses the term “conduit” in a manner completely foreign to the NEC. Better terminology would be “enclosed passageway fabricated for the purpose of conveying air ...” However, we will need to await the outcome of the TCC level discussions with the 90A committee to see how much of this information needs to go into Article 100.

Panel Meeting Action: Accept

Panel Statement: See panel statement on Comment 1-22. The panel does not necessarily agree with all of the submitter’s substantiation.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-25 Log #243 NEC-P01

Final Action: Reject

(100.Air Duct, Air-Handling Unit Room Plenum, Plenum, Air-Handling Unit Room, Plenum, Apparatus Casing, Plenum, Ceiling Cavity, Plenum, Duct Distribution, Plenum, Raised Floor)

Submitter: Technical Committee on Air Conditioning

Comment on Proposal No: 1-49

Recommendation: Accept the proposal as submitted.

Substantiation: The panel rejected the definitions of plenums because they were not used in the NEC. Refer to proposals 16-31, 16-107, and 16-170 which were accepted by Panel 16. They revised 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-handling unit room plenum in Articles 770, 800, and 820. Since the terms are used in multiple articles, these definitions belong in Article 100. See also proposal 16-9. The sources of the proposed definition 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.

Panel Meeting Action: Reject

Panel Statement: See panel statement on Comment 1-22.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-26 Log #476 NEC-P01 **Final Action: Reject**
(100.Air Duct, Air-Handling Unit Room Plenum, Plenum, air-handling unit room, Plenum, apparatus casing, Plenum, ceiling cavity, lenum, duct distribution, Plenum, raised floor)

Submitter: Robert A. McCullough, Ocean County Construction Insp. Dept.,
Comment on Proposal No: 1-49

Recommendation: Continue to Accept in Part.

Substantiation: While this proposal was referred to Code-Making Panel 19 for comment. Code-Making Panel 19 defers to the expertise of the other panels more technically involved with the terminology used to describe the spaces and items mentioned. Code-Making Panel 19's specific involvement with the use of these terms is limited to 604.4. Uses permitted for Manufactured Wiring Systems. The panel has accepted to date, a change in language to bring this section into line with the title of 300.22. The intent of Code-Making Panel 19 and section 604.4 is to permit the use of Manufactured Wiring Systems in 300.22 spaces where listed for this application and installed in accordance with any restrictions contained in 300.22(A) through (D). Representatives from Code-Making Panel 19 conclude that further consideration of Mr. Minick's negative comment be given.

Panel Meeting Action: Reject

Panel Statement: See panel statement on Comment 1-22.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-27 Log #1611 NEC-P01 **Final Action: Accept**
(100.Air Duct, Air-Handling Unit Room Plenum, Plenum, Air-Handling Unit Room, Plenum, apparatus casing, Plenum, ceiling cavity, Plenum, duct distribution, Plenum, raised floor.)

Submitter: Michael I. Callanan, IBEW

Comment on Proposal No: 1-48

Recommendation: In regards to this proposal, I agree and support the panel's action (Reject) and also the panel statement. Continue to Reject.

Substantiation: We agree with the panel action and statement. While these definitions may be necessary for another NFPA standard they are not needed in NFPA 70.

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

Panel Meeting Action: Accept

Panel Statement: See panel statement on Comment 1-22. The panel does not necessarily agree with all of the submitter's substantiation.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-28 Log #1612 NEC-P01 **Final Action: Accept**
(100.Air Duct, Air-Handling Unit Room Plenum, Plenum, Air-Handling Unit Room, Plenum, apparatus casing, Plenum, ceiling cavity, Plenum, duct distribution, Plenum, raised floor.)

Submitter: Michael I. Callanan, IBEW

Comment on Proposal No: 1-49

Recommendation: Reject this proposal.

Substantiation: We agree with the explanation of negative by Mr. Minick. There is no technical reason offered that definitions that exist in another NFPA standard must be included in NFPA 70.

The term has no positive effect on the National Electrical Code. This term will add confusion and not clarity to an electrical code section that covers wiring in spaces that provide environmental air.

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

Panel Meeting Action: Accept

Panel Statement: See panel statement on Comment 1-22. The panel does not necessarily agree with all of the submitter's substantiation.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-29 Log #2895 NEC-P01 **Final Action: Reject**
(100.Air Duct, Air-Handling Unit Room Plenum, Plenum, Air-Handling Unit Room, Plenum, apparatus casing, Plenum, ceiling cavity, Plenum, duct distribution, Plenum, raised floor.)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association

Comment on Proposal No: 1-49

Recommendation: Accept this proposal.

Substantiation: The panel rejected the definitions of plenums because they were not used in the NEC. See proposals 16-31, 16-107 and 16-170 that were accepted by Panel 16. These terms will be used in Articles 770, 800 and 820.

Panel Meeting Action: Reject

Panel Statement: See panel statement on Comment 1-22.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-30 Log #3590 NEC-P01 **Final Action: Accept**
(100.Air Duct, Air-Handling Unit Room Plenum, Plenum, Air-Handling Unit Room, Plenum, apparatus casing, Plenum, ceiling cavity, Plenum, duct distribution, Plenum, raised floor.)

Submitter: Don W. Jhonson, ESP of South Florida, Inc.

Comment on Proposal No: 1-49

Recommendation: The entire proposal should be rejected.

Substantiation: No evidence of problems with the present usage of the term, "air duct" have been provided.

Panel Meeting Action: Accept

Panel Statement: See panel statement on Comment 1-22. The panel does not necessarily agree with all of the submitter's substantiation.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-31 Log #3856 NEC-P01 **Final Action: Accept**
(100.Air Duct, Air-Handling Unit Room Plenum, Plenum, Air-Handling Unit Room, Plenum, apparatus casing, Plenum, ceiling cavity, Plenum, duct distribution, Plenum, raised floor.)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association

Comment on Proposal No: 1-49

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, to put the terms into Article 100 of 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, 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

Panel Statement: See panel statement on Comment 1-22. The panel does not necessarily agree with all of the submitter's substantiation.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-32 Log #3859 NEC-P01 **Final Action: Reject**
(100.Air Duct, Air-Handling Unit Room Plenum, Plenum, Air-Handling Unit Room, Plenum, apparatus casing, Plenum, ceiling cavity, Plenum, duct distribution, Plenum, raised floor.)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association

Comment on Proposal No: 1-49

Recommendation: 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.

Continue rejecting the remainder of the proposal.

Substantiation: The actual preferred definition of air duct, as contained in the NFPA Glossary of Terms and as found in NFPA 97, Standard Glossary of Terms Relating to Chimneys, Vents, and Heat-Producing Appliances (2000 Edition) reads as follows:

1-2.6 Air Duct. A conduit or passageway for conveying air to or from heating, cooling, air conditioning, or ventilating equipment, but not including the plenum.

Panel Meeting Action: Reject**Panel Statement:** See panel statement on Comment 1-22.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-33 Log #1203 NEC-P01
(100.Bonding Conductor, Equipment)**Final Action: Reject****Submitter:** Jeffrey Boksiner, Telcordia Technologies**Comment on Proposal No:** 1-59**Recommendation:** Continue to Reject the Proposal and maintain the existing term, however add the following FPN after the definition:FPN: The term "Protective Earthing Conductor" is used in some Product Standards instead of "Equipment Grounding Conductor".**Substantiation:** The change in terminology from "Equipment Grounding Conductor" to "Equipment Bonding Conductor" has been rightly rejected by CMP 5 for reasons detailed in Negative votes. It is important to note that the proposed terminology would not have improved harmonization with industry and international standards such as product standard based on IEC (International Electrotechnical Committee) standards. Here are definitions from IEC 60950-1 adopted in North America as UL/CSA 60950-1:

1.2.13.10 PROTECTIVE EARTHING CONDUCTOR: A conductor in the building installation wiring, or in the power supply cord, connecting a main protective earthing terminal in the equipment to an earth point in the building installation.

1.2.13.11 PROTECTIVE BONDING CONDUCTOR: A conductor in the equipment, or a combination of conductive parts in the equipment, connecting a main protective earthing terminal to a part of the equipment that is required to be earthed for safety purposes.

Clearly, the "Protective Earthing Conductor" in IEC standards is the analog of the NEC "Equipment Grounding Conductor." The FPN proposed in this comment will help the users of the NEC and the product standards to properly match definitions and avoids misunderstanding.

Panel Meeting Action: Reject**Panel Statement:** The comment recommends wording that is not related to the proposal and is not in compliance with Section 4-4.5(b) of the Regulations Governing Committee Projects .**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-34 Log #2228 NEC-P01
(100.Bonding Jumper Main (New))**Final Action: Reject****Submitter:** Frederic P. Hartwell, Hartwell Electrical Services, Inc.**Comment on Proposal No:** 1-62**Recommendation:** Accept the proposal.**Substantiation:** The function of a main and system bonding (Proposal 1-63) jumper are identical. It is poor editorial practice to add distinctions without differences to a code already as complex as the NEC unavoidably has become. We just, finally, got over the confusion engendered by the fact that grounding electrode conductors for a very long time only originated at service equipment, and conductors with identical functions originating at building disconnects were something different. We did this by CMP 1 accepting a proposal to expand the definition to cover all such conductors. CMP 1 only rejected the change in Article 100 because it was inconsistent with current provisions in Article 250. CMP 5 and CMP 1 should arrange for a small task group to produce consistent terminology in both articles, using only the term "main bonding jumper. This comment is a companion to one submitted on Proposal 5-74 in support of the comments in the voting on this issue in CMP 5.**Panel Meeting Action: Reject****Panel Statement:** The panel reaffirms its original action on Proposal 1-62, and notes that this proposal does not define "system bonding jumper." This action correlates with Panel 5 actions on Comments 5-46, 5-50, and 5-74.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-35 Log #3305 NEC-P01
(100.Bonding Jumper, Main)**Final Action: Reject****Submitter:** Charles Mello, Electro-Test, Inc.**Comment on Proposal No:** 1-62**Recommendation:** Bonding Jumper, Main. The effective fault current path connection between the grounded circuit conductor and the equipment grounding conductor at the service, source of separately derived system, or building disconnecting means.**Substantiation:** The technical substantiation provided by the panel in the

ROP for the 2005 NEC is circular logic and did not address the substantiation provided in the proposal. The substantiation used to reject the proposal was that the term "Main Bonding Jumper" was only used for the "service" in article 250. This is true only because this definition, as it presently exists precludes the term to be used anywhere else and no technical substantiation was provided as to why this definition should remain limited. The substantiation provided in the proposal clearly indicated that if the definition was changed as proposed, or as proposed for the 2002 NEC cycle, the term would then be used where applicable for separately derived systems in 250.30 and also for building disconnecting means in 250.32. A similar proposal was rejected in the 2002 cycle and with two panels dealing with the issue could go on forever unless the regulations regarding committee projects is changed or the TCC gives direction that one panel controls the requirements and the definitions. This comment is being submitted on this proposal, proposal 1-63 and several other proposals in article 250 including separately derived systems and building disconnects. Concurrent proposals for 250.30 were rejected by panel 5 only because of panel 1's action at the ROP stage which in essence forced the rejection.

Today's reality is that the "service" is at best a moving target. What are services today are being sold by the utilities and at the stroke of a pen become by definition "separately derived systems". Conversely, universities and some industrial campuses are selling their privately owned primary distribution systems to the local utility so where there were 1 or 2 "services" at medium voltage, there are now a large number of "services" which just before the sale were "separately derived systems".

From the stand point of the connection of the system grounded conductor to the equipment grounding conductor(s) and grounding electrode conductor(s) there is no technical difference between a "service" or a "separately derived system". The materials are the same see 250.28(A). Conductor to the grounding system in a "service" 250.28 is referenced in 250.30 on connecting the system grounded conductor to the grounding system for a "separately derived system".

Grounding and bonding are already confusing enough and the fostering or perpetuating of additional terminology for the same thing only exasperates that confusion. See also the comment for proposal 1-63.

Panel Meeting Action: Reject**Panel Statement:** See panel action and statement on Comment 1-34.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-36 Log #540 NEC-P01
(100.Bonding Jumper, System (New))**Final Action: Accept****Submitter:** Technical Correlating Committee on National Electrical Code®**Comment on Proposal No:** 1-63**Recommendation:** It was the action of the Technical Correlating Committee that this Proposal be revised by changing "equipment bonding conductor" to "equipment grounding conductor" in the Recommendation. This action is consistent with the Technical Correlating Committee action on Proposal 1-2. This action will be considered by Panel 1 as a public comment. The Technical Correlating Committee directs that this proposal be referred to Code-Making Panel 5 for 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:****Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-37 Log #1000 NEC-P01
(100.Bonding Jumper System)**Final Action: Accept****Submitter:** Noel Williams, Noel Williams Consulting**Comment on Proposal No:** 1-63**Recommendation:** This proposal should remain "accept in principal" as directed by the TCC.**Substantiation:** The change in the term "equipment grounding conductor" to "equipment bonding conductor" should not be accepted. However, the new term "system bonding jumper" will provide a name for an item that has no distinguishing name now, even though its function is essentially the same as the main bonding jumper at a service-supplied grounded system. Entire buildings may be supplied by separately derived systems, but such systems have no main bonding jumper by definition. The equivalent of a main bonding jumper in a separately derived system is just another bonding jumper under the existing rules and definitions. This proposal for a new term will clarify the issue and, along with other proposals that have been accepted by Panel 5, still distinguish between service-supplied systems and separately derived systems.**Panel Meeting Action: Accept****Panel Statement:** See panel statement on Comment 1-38.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 12

1-38 Log #1107 NEC-P01 **Final Action: Accept**
(100.Bonding Jumper, System)

Note: The Technical Correlating Committee directs that the action on this comment be reported as **Accept**. The Technical Correlating Committee clarifies the Panel Action by inserting the definition into Article 100. Panel 1 requested this correlation and Panel 5 assumed this definition was being placed in Article 100.

Submitter: Paul Dobrowsky Holley, NY

Comment on Proposal No: 1-63

Recommendation: Continue to accept the proposal in principle but as follows:

Bonding Jumper, System. The connection between the grounded circuit conductor and the equipment grounding conductor at a separately derived system.

Substantiation: Because the concept of changing the term "equipment grounding conductor" to equipment bonding conductor" did not receive the necessary 2/3 vote, using the term equipment grounding conductor provides consistency at this time. This definition has been incorporated into 250.28 and 250.30 by CMP5 action on proposals 5-74 5-78, & 5-80.

Panel Meeting Action: Accept in Principle

Panel Statement: The panel agrees with the comment; however, the term is not used in more than one article and, therefore cannot be included in Article 100 per 2.2.2.1 of the NEC Style Manual. The definition should be located in Article 250. This action correlates with actions taken by Panel 5 on Comments 5-46, 5-50, and 5-74. The panel requests that the TCC review this comment for correlation issues.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

MCMAHILL: This panel member disagrees with the panel's action of "accept in principle." The panel action should have been "reject" to correlate with the action taken on other comments to this proposal. Also, there is no technical reason for adding this definition to Articles 100 or 250. As noted in the submitter's statement and substantiation in Comment 1-41: "There is no necessity to add yet another term and definition for what is essentially a "Main Bonding Jumper." There is no technical reason the connection between the grounded circuit conductor, the equipment grounding conductor(s) and the grounding electrode conductor(s) should not be called the same thing without regard to if the system is a service or if it is a separately derived system.

1-39 Log #2229 NEC-P01 **Final Action: Reject**
(100.Bonding Jumper, System (New))

Note: Based on the Technical Correlating Committee action on Comment 1-38, the Technical Correlating Committee directs that Comment 1-39 be reported as **"Reject"**.

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

Comment on Proposal No: 1-63

Recommendation: Reject the proposal.

Substantiation: The function of a main and system bonding (Proposal 1-63) jumper are identical. It is poor editorial practice to add distinctions without differences to a code already as complex as the NEC unavoidably has become. We just, finally, got over the confusion engendered by the fact that grounding electrode conductors for a very long time only originated at service equipment, and conductors with identical functions originating at building disconnects were something different. We did this by CMP 1 accepting a proposal to expand the definition to cover all such conductors. CMP 1 only rejected the change in Article 100 because it was inconsistent with current provisions in Article 250. CMP 5 and CMP 1 should arrange for a small task group to produce consistent terminology in both articles, using only the term "main bonding jumper. This comment is a companion to one submitted on Proposal 5-74 in support of the comments in the voting on this issue in CMP 5.

Panel Meeting Action: Accept

Panel Statement: Panel 1 does not necessarily agree with all of the submitter's substantiation. See panel statement on Comment 1-38.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-40 Log #2517 NEC-P01 **Final Action: Reject**
(100.Bonding Jumper System)

Note: Based on the Technical Correlating Committee action on Comment 1-38, the Technical Correlating Committee directs that Comment 1-40 be reported as **"Reject"**.

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)

Comment on Proposal No: 1-63

Recommendation: Reconsider and reject the proposal.

Substantiation: NEMA does not feel a new definition is needed. This is really an educational issue that cannot be solved by creating new terminology. Adding new definitions and changing terms does not replace the need for qualified persons doing installations. This change would create many revisions in the terminology and subsequent training needs in the industry with little to no benefit.

Panel Meeting Action: Accept

Panel Statement: Panel 1 does not necessarily agree with all of the submitter's substantiation. See panel statement on Comment 1-38.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-41 Log #3308 NEC-P01 **Final Action: Reject**
(100.Bonding Jumper System)

Note: Based on the Technical Correlating Committee action on Comment 1-38, the Technical Correlating Committee directs that Comment 1-41 be reported as **"Reject"**.

Submitter: Charles Mello, Electro-Test, Inc.

Comment on Proposal No: 1-63

Recommendation: The proposed additional definition for a "Bonding Jumper, System" should be rejected.

Substantiation: There is no necessity to add yet another term and definition for what is essentially a "Main Bonding Jumper". There is no technical reason the connection between the grounded circuit conductor, the equipment grounding conductor(s) and the grounding electrode conductor(s) should not be called the same thing without regard to if the system is a "service" or if it is a "separately derived system". From the prospective of this conductor there is no technical difference in form, fit or function or importance when installed in a "service" or when installed in a "separately derived system" or even for the disconnecting means in another building served by a feeder or branch circuit. Also, the proposed definition does provide for the disconnecting means in another building as in 250.32 so a third definition would eventually have to be added when only one would do.

This change would also require changes to product safety standards, specifically for fused switches, dead front switchboards, motor control centers and panelboards to allow for this additional designation. In addition, the required markings for all this equipment would have to be changed to a field installed option for no good justification which aggravates the confusion and would create possible enforcement nightmares.

See my comment on proposal 1-62. Concurrent comments are being submitted for proposal 1-62 and for several proposals in Article 250 for services, main bonding jumper and separately derived systems so all the terminology is consistent using "Main Bonding Jumper" as the sole term for the connection of the grounded conductor to the grounding system.

Panel Meeting Action: Accept

Panel Statement: Panel 1 does not necessarily agree with all of the submitter's substantiation. See panel statement on Comment 1-38.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-42 Log #186 NEC-P01 **Final Action: Reject**
(100.Bundled (New))

Submitter: David Shapiro, Safety First Electrical Contracting, Consulting, and Safety Education

Comment on Proposal No: 1-67

Recommendation: Move definition from 310 to 100.

Substantiation: The definitions in 310 and 520 are indeed different, but the use in 520 strongly suggests that the more-general definition in 310 would serve better for both Articles. The method of binding used in bundling cables is not the point. The context indicates that heat dissipation is key, and 310's definition has long-standing history of serving to address that issue, underscored by the exception to derating rules for nipples up to 24 in. long.

Panel Meeting Action: Reject

Panel Statement: There is no definition of the term "Bundled" in Article 310. The definition of "bundled" cables and conductors in 520.2 is applicable to the- atrical and similar applications, and is not identical to use of the same term in 310.15(B)(2). For this reason, the term does not belong in Article 100 according to 2.2.2.1 of the NEC Style Manual.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-43 Log #2371 NEC-P01 **Final Action: Accept**
(100.Bundled (new))

Submitter: James M. Daly, General Cable

Comment on Proposal No: 1-67

Recommendation: I support the Panel Action to Reject Proposal 1-67.

Substantiation: The definition of "Bundled" should not be moved from Article 520 to Article 100.

The definition of "Bundled" in 520.2 is very explicit in that it indicates "Cables or conductors that are physically tied, wrapped, taped, or otherwise periodically bound together."

The term "bundled" as used in the following sections does not require that the cables or conductors be physically bound together and does not meet the definition in 502.2.

310.15(B)(2)(a), Exception No. 5(3), and the last paragraph.

334.80 (Accepted Proposal 7-150a)

The term "bundled" as used in the above Sections by CMP 6 and CMP 7 applies to conductors or cables in close proximity such as through holes in framing materials; there is no requirement for them to be "physically bound together." In fact, it is not the intent that they be "physically bound together."

520.53(H)(2) is very explicit that "Single-conductor supply cables shall be grouped together but not bundled." The use of the term "grouped" is consistent with the use of the term "bundled" in 310.15(B) and 334.80.

Panel Meeting Action: Accept
Number Eligible to Vote: 12
Ballot Results: Affirmative: 12

1-44 Log #244 NEC-P01 **Final Action: Reject**
 (100.Ceiling Cavity Plenum and Raised Floor Plenum)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 1-69

Recommendation: Accept the proposal as submitted.
Substantiation: The panel rejected the definitions of plenums because they were not used more than one article in the NEC. 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 ceiling cavity plenum, and raised floor plenum in Articles 770, 800 and 820. Since the terms are used in multiple articles, these definitions belong in Article 100. The sources of the proposed definitions are NFPA 90A-2002, 4.3.10.2 (Ceiling Cavity Plenum) and NFPA 90A-2002, 4.3.10.6.1 (Raised Floor Plenum).

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.

Panel Meeting Action: Reject

Panel Statement: See panel statement on Comment 1-22.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-45 Log #1899 NEC-P01 **Final Action: Accept**
 (100.Ceiling Cavity Plenum and Raised Floor Plenum)

Submitter: Michael I. Callanan, IBEW

Comment on Proposal No: 1-69

Recommendation: Continue to Reject.

Substantiation: We agree with the panel action and statement. While these definitions may be necessary for another NFPA standard they are not needed in NFPA 70.

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

Panel Meeting Action: Accept

Panel Statement: See panel statement on Comment 1-22. The panel does not necessarily agree with all of the submitter's substantiation.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-46 Log #2896 NEC-P01 **Final Action: Reject**
 (100.Ceiling Cavity Plenum and Raised Floor Plenum)

Submitter: Richard Fransen, Daikin America, Inc. / Rep. Cable Fire Research Association

Comment on Proposal No: 1-69

Recommendation: Accept this proposal.

Substantiation: The panel rejected the definitions of plenums because they were not used in the NEC. See proposals 16-31, 16-46, 16-64, 16-107 and 16-170 that were accepted by Panel 16. These terms will be used in Articles 770, 800, 820 and 830.

Panel Meeting Action: Reject

Panel Statement: See panel statement on Comment 1-22.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-47 Log #3857 NEC-P01 **Final Action: Accept**
 (100.Ceiling Cavity Plenum and Raised Floor Plenum)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association

Comment on Proposal No: 1-69

Recommendation: Continue rejecting 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, to put the terms into Article 100 of 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, 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

Panel Statement: See panel statement on Comment 1-22. The panel does not necessarily agree with all of the submitter's substantiation.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-48 Log #534 NEC-P01 **Final Action: Reject**
 (100.Ceiling Cavity Plenum & Raised Floor Plenum)

Submitter: National Electrical Code Panel 16

Comment on Proposal No: 1-69

Recommendation: Accept the proposal as submitted.

Substantiation: Refer to our Comment on proposal 1-49 and Proposals 16-37, 16-46, 16-64, 16-112 and 16-177 that were accepted by panel 16 and use the terms ceiling cavity plenum and raised floor plenum. See also proposal 16-9. Panel 16 accepted these definitions in its action on proposal 16-9. Since the terms are used in multiple articles, the definitions belong in Article 100.

The proposal was referred to CMP-16 for information and this Comment is in response to our review. It has been submitted to ballot by the panel.

Panel Meeting Action: Reject

Panel Statement: See panel statement on Comment 1-22.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-49 Log #2518 NEC-P01 **Final Action: Accept**
 (100.Ceiling Cavity Plenum & Raised Floor Plenum)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)

Comment on Proposal No: 1-69

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

Panel Statement: See panel statement on Comment 1-22. The panel does not necessarily agree with all of the submitter’s substantiation.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

16-3 Log #3904 NEC-P16
(100.Communication Equipment)

Final Action: Accept

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 1-70

Recommendation: It was the action of the Technical Correlating Committee that this Proposal be referred to Code-Making Panel 16 for consideration in Article 800. This action will be considered by Code-Making Panel 16 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: CMP 16 accepts the direction of the TCC to review Proposal 1-70.

CMP 16 rejects the proposal.

See panel action on Comment 16-6.

That definition is more explicit and detailed for usability.

Number Eligible to Vote: 15

Ballot Results: Affirmative: 15

16-3a Log #1185a NEC-P16
(100.Communication Equipment)

Final Action: Accept

Submitter: James E. Brunssen, Telcordia Technologies, Inc.

Comment on Proposal No: 1-70

Recommendation: Revise text to read as follows:

Continue to reject this proposed definition of “Communications Equipment”.

Substantiation: Communications equipment may include equipment outside the proposed definition. Some of the equipment mentioned in the submitter’s substantiation as not being communications equipment, such as DC power and battery rooms associated with the communications function, and cabling and support systems, is indeed communication equipment. The submitter argues that there is a “decline in the knowledge, use and enforcement of ... installation and safety standards.” The safety record of the telecommunications industry has been, and continues to be, exemplary. All equipment installed in communications utilities’ facilities must conform to stringent safety criteria. The FCC requires that such equipment meet, at a minimum, NEBS Level 1 safety criteria. This industry-accepted standard is intended to ensure the electrical and fire safety of the communications equipment. Further, communications equipment installations are performed according to communications utility practices. These practices have been in force for many years, continue to be in force today, and are largely responsible for the industry’s exemplary safety record. This is a companion comment and is intended to correlate with comments on Proposals 1 -72 and 1-73.

Panel Meeting Action: Accept

Number Eligible to Vote: 15

Ballot Results: Affirmative: 15

1-50 Log #1185 NEC-P01
(100.Communication Equipment)

Final Action: Accept

Submitter: James E. Brunssen, Telcordia Technologies, Inc.

Comment on Proposal No: 1-70

Recommendation: Revise text to read as follows:

Continue to reject this proposed definition of “Communications Equipment”.

Substantiation: Communications equipment may include equipment outside the proposed definition. Some of the equipment mentioned in the submitter’s substantiation as not being communications equipment, such as DC power and battery rooms associated with the communications function, and cabling and support systems, is indeed communication equipment. The submitter argues that there is a “decline in the knowledge, use and enforcement of ... installation and safety standards.” The safety record of the telecommunications industry has been, and continues to be, exemplary. All equipment installed in communications utilities’ facilities must conform to stringent safety criteria. The FCC requires that such equipment meet, at a minimum, NEBS Level 1 safety criteria. This industry-accepted standard is intended to ensure the electrical and fire safety of the communications equipment. Further, communications equipment installations are performed according to communications utility practices. These practices have been in force for many years, continue to be in force today, and are largely responsible for the industry’s exemplary safety record. This is a companion comment and is intended to correlate with comments on Proposals 1 -72 and 1-73.

Panel Meeting Action: Accept

Panel Statement: The panel does not necessarily agree with all of the submitter’s substantiation.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

16-4 Log #3903 NEC-P16
(100.Communications Equipment (New))

Final Action: Accept

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 1-72

Recommendation: It was the action of the Technical Correlating Committee that this Proposal be referred to Code-Making Panel 16 for consideration in Article 800. This action will be considered by Panel 16 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: CMP 16 accepts the direction of the TCC to review Proposal 1-72.

See panel action on Comment 16-6.

Since the term appears in Article 90 as well as Article 800, the definition really belongs in Article 100. See Section 2.2.2.1 of the the NEC Style Manual.

Number Eligible to Vote: 15

Ballot Results: Affirmative: 15

16-5 Log #3905 NEC-P16
(100.Communications Equipment)

Final Action: Accept

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 1-73

Recommendation: It was the action of the Technical Correlating Committee that this Proposal be referred to Code-Making Panel 16 for consideration in Article 800. This action will be considered by Panel 16 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: CMP 16 accepts the direction of the TCC to review Proposal 1-73. CMP 16 rejects the proposal.

See panel action on Comment 16-6. That definition is more explicit and detailed for usability.

Number Eligible to Vote: 15

Ballot Results: Affirmative: 15

16-6 Log #3547 NEC-P16
(100.Communications Equipment)

Final Action: Accept

Note: The Technical Correlating Committee understands that the acceptance of Comment 16-6 places the definition of “Communications Equipment” in 800.2.

Submitter: Percy E. Pool, Verizon NS

Comment on Proposal No: 1-72

Recommendation: CMP 16 is urged to accept this proposal as definition of communications equipment to be included in 800.2.

Substantiation: Article 800.2 does not include a definition for “communications equipment”. The proposed definition correlates with NFPA 76, Recommended Practice for the Fire Protection of Telecommunications Facilities, 2002 Edition.

Panel Meeting Action: Accept**Number Eligible to Vote:** 15**Ballot Results:** Affirmative: 1516-6a Log #1186a NEC-P16
(100.Communications Equipment)**Final Action: Accept****Submitter:** James E. Brunssen, Telcordia Technologies, Inc.**Comment on Proposal No:** 1-72**Recommendation:** Revise text to read as follows:

Accept this proposal as a definition of communications equipment for inclusion in 800.2.

Substantiation: Section 800.2 presently does not define “communications equipment”, although this is the general subject of the entire Article 800. The proposed definition will clarify the scope of 800 and correlates with NFPA 76, Recommended Practice for the Fire Protection of Telecommunications Facilities, 2002 Edition. Further, the Technical Correlating Committee has ruled that definitions will continue to reside in Article 100, but each CMP will now have responsibility for definitions under their purview. This is a companion comment and is intended to correlate with comments on Proposals 1 -70 and 1-73.**Panel Meeting Action: Accept****Panel Statement:** See panel action and statement on Comment 16-6.**Number Eligible to Vote:** 15**Ballot Results:** Affirmative: 1516-6b Log #1187a NEC-P16
(100.Communications Equipment)**Final Action: Accept****Submitter:** James E. Brunssen, Telcordia Technologies, Inc.**Comment on Proposal No:** 1-73**Recommendation:** Revise text to read as follows:

Continue to reject this proposed definition of “Communications Equipment”.

Substantiation: The proposed definition is overly restrictive.

Communications equipment includes support equipment, power equipment and equipment for the transmission of video signals. Operating voltages are already covered by OSHA, UL and NFPA 76, among others. The FCC mandates minimum safety standards for this equipment. It is not a fact that “communications companies believe that [Article 90.2(B)(4)] exempts them from the NEC on all installations inside there [sic] offices.” Communications utilities install non-communications electrical equipment in compliance with the NEC and the installations are subject to inspection by the AHJ. This is a companion comment and is intended to correlate with comments on Proposals 1 -70 and 1-72.

Panel Meeting Action: Accept**Number Eligible to Vote:** 15**Ballot Results:** Affirmative: 151-51 Log #1186 NEC-P01
(100.Communications Equipment)**Final Action: Reject****Submitter:** James E. Brunssen, Telcordia Technologies, Inc.**Comment on Proposal No:** 1-72**Recommendation:** Revise text to read as follows:

Accept this proposal as a definition of communications equipment for inclusion in 800.2.

Substantiation: Section 800.2 presently does not define “communications equipment”, although this is the general subject of the entire Article 800. The proposed definition will clarify the scope of 800 and correlates with NFPA 76, Recommended Practice for the Fire Protection of Telecommunications Facilities, 2002 Edition. Further, the Technical Correlating Committee has ruled that definitions will continue to reside in Article 100, but each CMP will now have responsibility for definitions under their purview. This is a companion comment and is intended to correlate with comments on Proposals 1 -70 and 1-73.**Panel Meeting Action: Reject****Panel Statement:** CMP 1 should not define terms used only in articles under the jurisdiction of CMP 16. The original proposal has been sent to CMP 16.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-52 Log #1187 NEC-P01
(100.Communications Equipment)**Final Action: Accept****Submitter:** James E. Brunssen, Telcordia Technologies, Inc.**Comment on Proposal No:** 1-73**Recommendation:** Revise text to read as follows:

Continue to reject this proposed definition of “Communications Equipment”.

Substantiation: The proposed definition is overly restrictive. Communications equipment includes support equipment, power equipment and equipment for the transmission of video signals. Operating voltages are already covered by OSHA, UL and NFPA 76, among others. The FCC mandates minimum safety standards

for this equipment. It is not a fact that “communications companies believe that [Article 90.2(B)(4)] exempts them from the NEC on all installations inside there [sic] offices.” Communications utilities install non-communications electrical equipment in compliance with the NEC and the installations are subject to inspection by the AHJ. This is a companion comment and is intended to correlate with comments on Proposals 1 -70 and 1-72.

Panel Meeting Action: Accept**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-53 Log #44 NEC-P01
(100.Conductor, open, Cable, open multiconductor)**Final Action: Hold****Note: The Technical Correlating Committee agrees with the panel that this comment be sent to Panel 4 for the 2008 NEC cycle.****Submitter:** Eric G. Schneier, Bechtel Savannah River Inc. (BSRI)**Comment on Proposal No:** 1-74**Recommendation:** Please have proposal number 1-74 (Log #3476) redirected to CMP #4 for inclusion in Article 225.**Substantiation:** In submitting the original proposal, the submitter was unaware that the NEC style manual prohibited the inclusion of new definitions in Article 100 unless they are used in two or more NEC articles. Since the terms proposed to be added only appear in Article 225, this is where they should be defined.**Panel Meeting Action: Hold**

The panel requests that Proposal 1-74 as addressed in Comment 1-53 become a proposal for the 2008 NEC Code cycle and be submitted to Panel 4 for action.

Panel Statement: This comment represents new material which has not had public review in accordance with Section 4-4.6.2.2 of the Regulation Regarding Committee Projects.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-54 Log #422 NEC-P01
(100.Conductor, open, Cable, open multiconductor)**Final Action: Hold****Note: The Technical Correlating Committee agrees with the panel that this comment be sent to Panel 4 for the 2008 NEC cycle.****Submitter:** Eric G. Schneier, Bechtel Savannah River Inc. (BSRI)**Comment on Proposal No:** 1-74**Recommendation:** Please have proposal number 1-74 (Log #3476) redirected to CMP-4 for inclusion in Article 225.**Substantiation:** In submitting the original proposal, the submitter was unaware that the NEC style manual prohibited the inclusion of new definitions in Article 100 unless they are used in two or more NEC articles. Since the terms proposed to be added only appear in Article 225, this is where they should be defined.**Panel Meeting Action: Hold****Panel Statement:** See panel action and statement on Comment 1-53. The panel concludes that Comment 1-54 is a duplicate to Comment 1-53.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-55 Log #484 NEC-P01
(100.Coordination (Selective))**Final Action: Accept****Submitter:** James T. Dollard, Jr., IBEW Local 98**Comment on Proposal No:** 1-76**Recommendation:** Continue to accept in principle proposal 1-76, modified as follows:

Coordination (Selective). Localization of an overcurrent condition to restrict outages to the circuit or equipment affected, accomplished by the choice of overcurrent protective devices and their ratings or settings.

Substantiation: This comment is the work of a task group assigned to address the request of Code-Making Panel 1 and the Technical Correlating Committee for comment from Code-Making Panel 10 on proposal 1-76. The task group consisted of the following members of Code-Making Panel 10: Charlie Blizard, Dennis Darling, Carl Fredericks, Clive Kimblin, George Ockuly, Gerry Williams, John Zaplatosch, Rich Lofton, Vince Saporita and Jim Dollard. After significant review and deliberation, the task group recommends that the proposal continue to be accepted in principle as modified. The modifications suggested are substantiated as follows: Mr. Troglia’s explanation of negative vote contains suggested text to include the concept of an affected “circuit.” This serves to clarify that faults do not only occur at the branch circuit level where equipment is connected, but also at other levels, such as where an entire feeder “circuit” is connected or a circuit with multiple loads. This modification provides further clarity and increases usability. The addition of the phrase “circuit or” between “the” and “equipment” accomplishes Mr. Troglia’s suggestion. Mr. McMahlill’s explanation of negative vote contains suggested text to provide further clarification of the definition.. This modification is intended to include a reference to overcurrent protective devices that may have a number of possible settings. This modification provides further clarity and increases usability. The phrase “and their ratings” was added between “devices” and “or” and accomplishes Mr. McMahlill’s suggestion.

Panel Meeting Action: Accept**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 11 Negative: 1**Explanation of Negative:**

TROGLIA: The language of Comment 1-57 is preferred. Selective coordination is the result of the discriminate operation of protective devices, and not solely by their selection and setting by the designer. The proof of selective coordination is in the correct response of the protective device(s). Article 110 inherently implies that insulation and control are to be considered in the installation of protective devices for wiring systems. See my comment on vote on Comment 1-57.

1-56 Log #756 NEC-P01 **Final Action: Accept in Principle**
(100.Coordination (Selective))

Submitter: Michael J. Johnston Plano, TX**Comment on Proposal No:** 1-76

Recommendation: I agree with the Panel's action on this proposal and encourage to continue to accept this proposal and have some suggestions as follows:

Coordination (Selective). Localization of an overcurrent condition, including ground faults and short circuits, to restrict outages to the equipment affected feeder or branch circuit or equipment, accomplished by the choice use or application of suitable overcurrent protective device(s) or settings.

Substantiation: The proposed revisions provide additional specific clarity. The word equipment is too broad in nature. The device is protection the circuit (feeder or branch circuit usually) which in turn protects the equipment. The word choice could imply that one might have a choice of devices, but the device required may be limited only to devices properly applied in the circuit that provides the protection and localization of ground-faults or short circuits (overcurrent conditions). Make "device" plural because multiple devices can be used to accomplish selective coordination. Overcurrents can be long time duration events. The wording in the definition of overcurrent may be sufficient, but it appears the proposed new defined term could use the terms ground fault and short circuit in the definition also.

Panel Meeting Action: Accept in Principle**Panel Statement:** See panel action on Comment 1-55.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 11 Negative: 1**Explanation of Negative:**

TROGLIA: See my negative comment on vote on Comment 1-55.

1-57 Log #1071 NEC-P01 **Final Action: Accept in Principle**
(100.Coordination (Selective))

Submitter: Neil F. LaBrake, Jr., Niagara Mohawk, a National Grid Company / Rep. Edison Electric Institute**Comment on Proposal No:** 1-76

Recommendation: Accept in principle and revise the definition as follows:

"Coordination (Selective). Discriminate operation of protective devices in response to an abnormal condition, so as to localize and automatically disconnect only the affected equipment or circuit."

Substantiation: Edison Electric Institute does not necessarily agree with this proposed definition. There are other technical selective coordination methods other than related to overcurrent such as insulation and control for examples. The term should be broadened to include other methods of coordination and not just overcurrent.

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action on Comment 1-55. Panel 1 disagrees that insulation and control are NEC-recognized methods of coordination (selective).

Number Eligible to Vote: 12**Ballot Results:** Affirmative: 11 Negative: 1**Explanation of Negative:**

TROGLIA: This comment should be accepted. Although I do not disagree with the Panel Statement, selective coordination can be based on many parameters other than overcurrent. Power flow, undervoltage, and overvoltage, to name a few. The Article 100 definition should be general as proposed in this comment so that rules can be written for any specific criteria or method of selective coordination.

1-58 Log #1296 NEC-P01 **Final Action: Accept in Principle**
(100.Coordination, Selective)

Submitter: James M. Naughton, IBEW**Comment on Proposal No:** 1-76

Recommendation: Panel 1 should continue to accept in principle.

Substantiation: This comment is the work of a Task Group from Panel 4 assigned to recommend an action by direction of the Technical Correlating Committee on 1-76, Log 1686.

Coordination and selective coordination, occurs in additional sections of the NEC. A definition of such to Article 100 does seem appropriate. If Panel 10 needs some added language to cover specifics in their article, they can adopt additional text, but state "as used in Article 240...".

Panel Meeting Action: Accept in Principle**Panel Statement:** See panel action on Comment 1-55.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 11 Negative: 1**Explanation of Negative:**

TROGLIA: See my negative comment on vote on Comment 1-55.

1-59 Log #1380 NEC-P01 **Final Action: Accept in Principle**
(100.Coordination (Selective))

Submitter: Charles M. Trout, Maron Electric Co. Inc.**Comment on Proposal No:** 1-76

Recommendation: CMP-12 agrees with the Panel Action taken by Panel 1.

Substantiation: None necessary.**Panel Meeting Action: Accept in Principle****Panel Statement:** See panel action on Comment 1-55.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 11 Negative: 1**Explanation of Negative:**

TROGLIA: See my negative comment on vote on Comment 1-55.

1-60 Log #1413 NEC-P01 **Final Action: Accept in Principle**
(100.Coordination (Selective))

Submitter: Lanny G. McMahlill Phoenix, AZ**Comment on Proposal No:** 1-76

Recommendation: Revise definition to read as follows: "Coordination (Selective). Proper localization of an overcurrent condition to restrict outages to the equipment affected, accomplished by ~~the choice of selective the type of~~ overcurrent - protective devices and the rating or setting."

Substantiation: The definition as currently worded is unclear. A definition for "coordination" is in order, but I believe it must be clear as to its intent, purpose and use in the code. Since coordination of an overcurrent condition can be accomplished by various means, the definition needs to be expanded to include all types of overcurrent devices and the rating or setting of such devices. As an example, coordination could be accomplished by the use of circuit-breakers, fuses or current transformers, or a combination of these devices. A definition for "coordination" should not be limited. In addition, the word "selective" is not permitted to be used in the definition per the NEC Style Manual, Section 2.2.2 Definitions. It states "Definitions shall not contain the term that is being defined."

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action on Comment 1-55. The panel disagrees with changing the word "choice" to "type".

Number Eligible to Vote: 12**Ballot Results:** Affirmative: 11 Negative: 1**Explanation of Negative:**

TROGLIA: See my negative comment on vote on Comment 1-55.

1-61 Log #3303 NEC-P01 **Final Action: Reject**
(100.Coordination (Selective))

Submitter: Malinda Joyce Sampson, Minnesota Electricity Board**Comment on Proposal No:** 1-76

Recommendation: Reject the proposal that a new definition of coordination (selective) be added to Article 100.

Instead, modify the existing definition in Section 240.2 to accurately reflect the concept:

Coordination (selective) Discriminate localization of an overcurrent condition which isolates a fault from the remainder of the electrical system and restricts an outage to the affected equipment or circuit.

Substantiation: Proposal 1-76 does not suggest removing or changing the definition as found in 240.2, only to add this new definition to Article 100. The panel is correct to find the word "proper" unenforceable, and there is no requirement that this definition move to Article 100. Since the concept of selective coordination has to do with overcurrent protection, it belongs in Article 240. Mr. Troglia wisely used the term "discriminate" in his comments. If selective coordination - meaning system-wide coordination - is the act of choosing overcurrent devices that will respond in a predetermined, coordinated way, perhaps then, the overcurrent protection system itself becomes "discriminating".

Panel Meeting Action: Reject

Panel Statement: The submitter's substantiation does not take into account the fact that the defined term appears in other articles besides Article 240, specifically Articles 230, 517, 620, 700, and 701.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-62 Log #3426 NEC-P01
(100.Coordination (Selective))

Final Action: Reject

Submitter: James Wright Bolingbrook, IL

Comment on Proposal No: 1-76

Recommendation: Proposal 1-76 should not have been accepted. The new definition should not be added to Article 100.

Substantiation: Addition of this new definition could cause confusion and create potential unsafe conditions when applied to Article 430. The coordination under 430.52(C)(3) referenced in the substantiation for the proposal is not the same as the coordination covered by the proposed definition. During the listing of a combination motor controller with an instantaneous trip circuit breaker, tests are conducted by the listing agency to coordinate the operation of the overload relay with the operation of the instantaneous trip circuit breaker. This is done to ensure that there is coordinated protection between the normal maximum current at which the overload relay trips and the current at which the instantaneous trip circuit breaker operates. It has nothing to do with selection of protective devices to restrict outages to equipment and is not intended to be a field evaluation. If either the overload relay or the instantaneous trip circuit breaker were changed in an attempt to provide "coordination" in accordance with the new definition, there is no guarantee that the "coordination" evaluated by the listing agency would be maintained within the combination motor controller.

Panel Meeting Action: Reject

Panel Statement: See panel action on Comment 1-55. Panel 1 disagrees with the submitter that adding this definition to Article 100 "could cause confusion and create potential unsafe conditions when applied to Article 430." The specific word "coordination" is not used in Article 430. Panel 1 concurs with the submitter that 430.52(C)(3) uses the word "coordinated." Panel 1 notes to the submitter that 430.52(C)(3) applies to a "listed combination motor controller."

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-63 Log #754 NEC-P01
(100.Device)

Final Action: Accept

Submitter: Timothy M. Croushore, Allegheny Power

Comment on Proposal No: 1-78

Recommendation: Accept the action and recommended text of the "Accept in Principle" by Code-Making Panel 1 on Proposal 1-78.

Substantiation: This proposal was forwarded to Code-Making Panel 9 for information and/or comment. The task group responding is comprised of Fred Hartwell and Tim Croushore.

Code-Making Panel 9 agrees that the Code-Making Panel 1 action sufficiently addressed the concept presented in the original proposal and the modified text is better than the original proposal. There is no evidence that the industry is confused by the incidental consumption of electrical energy by elements of control devices such as contactor coils and the like. In fact, any piece of electrical equipment consumes some energy by virtue of I²R losses as current passes through it.

Panel Meeting Action: Accept

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-64 Log #1001 NEC-P01
(100.Device)

Final Action: Accept in Principle

Submitter: Noel Williams, Noel Williams Consulting

Comment on Proposal No: 1-78

Recommendation: This proposal should continue to be accepted in principal, but the "primary function" language should be included.

Substantiation: The definition as it currently exists, and as accepted by the panel, still makes a confusing and needless distinction between a switch with a pilot light and one without, between a magnetic starter and a manual one, between a GFCI receptacle and an ordinary one, between a heat detector and a smoke detector, both of which are "initiating devices" under NFPA 72.

Panel Meeting Action: Accept in Principle

Panel Statement: Accept the recommendation to continue to accept the proposal in principle. The addition of the words "primary function" does not add clarity. It is clear the purpose of the devices enumerated by the submitter is not to utilize electrical energy, but they utilize it incidentally in performing the function of "carrying or controlling" electrical energy.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-65 Log #3399 NEC-P01
(100.Device)

Final Action: Reject

Submitter: Douglas A. Lee, U.S. Consumer Product Safety Commission

Comment on Proposal No: 1-78

Recommendation: This Proposal Should be accepted.

Substantiation: This comment was submitted by a task group of CMP 2.

Panel Meeting Action: Reject

Panel Statement: The comment offers no technical substantiation and is not in compliance with the Regulations Governing Committee Projects, Section 4-4.5(d).

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-66 Log #541 NEC-P01
(100.Dwelling Unit)

Final Action: Accept

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 1-84

Recommendation: The Technical Correlating Committee directs the panel to reconsider the Proposal and either utilize the definition of "Dwelling Unit" from NFPA 101 or NFPA 5000 or explain why neither of those definitions is suitable for the NEC.

This action will be considered by the Panel as a Public Comment. This Proposal will be referred to Code-Making Panels 2 and 19 for 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 panel action and statement on Comment 1-69.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-67 Log #551 NEC-P01
(100.Dwelling Unit)

Final Action: Accept

Note: The Technical Correlating Committee understands that the final action on this Comment is "Accept" and directs that Proposal 1-83 be reported as "Accept".

Accepting this comment provides consistency between Panels 1 and 2 based on the acceptance of Proposal 2-242 by Panel 2 dealing with guest rooms of hotels and motels having permanent provisions for cooking. In addition, it provides consistency with NFPA 5000.

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 1-83

Recommendation: The Technical Correlating Committee directs the panel to reconsider the Proposal and either utilize the definition of "Dwelling Unit" from NFPA 101 or NFPA 5000 or explain why neither of those definitions is suitable for the NEC.

This action will be considered by the Panel as a Public Comment. This Proposal will be referred to Code-Making Panels 2 and 19 for 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 panel action and statement on Comment 1-69.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-68 Log #477 NEC-P01
(100.Dwelling Unit)

Final Action: Accept

Note: The Technical Correlating Committee directs that this Comment be reported as "Accept". See the Technical Correlating Committee action on Comment 1-67.

Submitter: Robert A. McCullough, Ocean County Construction Insp. Dept.,
Comment on Proposal No: 1-84

Recommendation: Reject the proposal.

Substantiation: See comment and statement for Proposal 1-83. In addition, consideration of Mr. Anthony's comments should be given.

Panel Meeting Action: Reject

Panel Statement: See panel action and statement on Comment 1-69.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-69 Log #479 NEC-P01
(100.Dwelling Unit)

Final Action: Accept

Note: The Technical Correlating Committee directs that this Comment be reported as "Accept". See the Technical Correlating Committee action on Comment 1-67.

Submitter: Robert A. McCullough, Ocean County Construction Insp. Dept.,
Comment on Proposal No: 1-83

Recommendation: Reconsider the panel's action and accept the proposal.
Substantiation: Representatives from Code-Making Panel 19 conclude that the Technical Correlating Committee's substantiation is correct and the language of the proposal should be used for consistency.

Panel Meeting Action: Reject

Maintain the wording in Proposal 1-84 panel action, which reads as follows: "Dwelling Unit. One or more rooms for the use of one or more persons as a housekeeping unit with space for eating, living, cooking, and sleeping, and permanent provisions for sanitation."

Panel Statement: Panel 1 is concerned with consistency, accuracy, and usability of definitions. The definition of "Dwelling Unit" as modified in Proposal 1-84 is preferred by CMP 1 as this definition is based on the premise that a "dwelling unit" is first of all a "housekeeping unit." This term is not used in the TCC recommended definition of "dwelling unit" in NFPA 5000. CMP 1 concludes the existing definition of "Dwelling Unit" in the NEC is out of date, as not all dwelling units have permanent provisions for cooking. Dwelling units may utilize portable or stationary appliances, such as coffee pots, refrigerators, microwaves, ranges, and toaster ovens. Some dwelling units are designed for gas cooking appliances, and these appliances may or may not be installed during the building process. In addition, there are extended stay type motels/hotels and assisted living facilities that are basically dwelling units and are designed as such. The only thing they lack is permanent provision for cooking.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

Comment on Affirmative:

MCMAHILL: Panel 1 is commended for accepting the revised definition of "dwelling unit." The statement that a "dwelling unit" is first of all a "housekeeping unit" is absolutely correct - regardless of permanent or non-permanent provisions for cooking. The revised definition will eliminate the possibility of someone challenging other code requirements for a dwelling unit, such as the requirements for appliance circuits and receptacle spacing, by simply stating that the dwelling does not have permanent provisions for cooking. In addition, there should be no concern that the revised definition may be expanded to other occupancies as first and foremost the occupancy must be a "housekeeping unit." If the occupancy is being used as a housekeeping unit, then it is likely appropriate that all other dwelling unit rules apply.

1-70 Log #1406 NEC-P01
(100.Dwelling Unit)

Final Action: Reject

Note: The Technical Correlating Committee directs that this Comment be reported as "Reject". See the Technical Correlating Committee action on Comment 1-67.

Submitter: Lanny G. McMahon Phoenix, AZ

Comment on Proposal No: 1-84

Recommendation: Continue to accept the revised definition of "Dwelling Unit".

Substantiation: The definition as currently worded restricts a "Dwelling Unit" to occupancies that must have "permanent provisions for cooking and sanitation". Permanent provisions for sanitation are understandable, but permanent provisions for cooking makes no sense at all. A housekeeping unit that does not have permanent provisions for cooking is not a dwelling unit? If so, it would be unnecessary to comply with all the dwelling unit rules in Article 210. In addition, the Technical Correlating Committee stated to "utilize the definition of "Dwelling Unit" from NFPA 101 or NFPA 5000 or explain why neither of those definitions is suitable for the NEC." The NFPA "Glossary of Terms" indicates that the preferred definitions of "Dwelling Unit" are those used in NFPA 70 and 101. Most likely the definition was extracted from 70 or 101. Therefore, it would seem logical that NFPA 70 should take the lead on any proposed changes to the definition. NFPA 101 and 5000 should be able to follow the lead without any major concerns. Again, what is the importance in "permanent provisions for cooking" in the definition? A housekeeping unit can be a dwelling unit with or without cooking provisions. This definition should be clarified and brought up to today's standards.

Panel Meeting Action: Accept

Panel Statement: See panel action and statement on Comment 1-69.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-71 Log #1570 NEC-P01
(100.Dwelling Unit)

Final Action: Accept in Principle

Note: The Technical Correlating Committee directs that this Comment be reported as "Accept in Principle". See the Technical Correlating Committee action on Comment 1-67.

Submitter: Jim Pauley, Square D Company

Comment on Proposal No: 1-84

Recommendation: Revise the definition as follows:

Dwelling Unit. A single unit, providing complete and independent living facilities for one or more rooms for the use of one or more persons as a housekeeping unit with space for eating, living, cooking, and sleeping, and permanent provisions for cooking and sanitation.

Substantiation: The definition as revised by the panel is not acceptable. It opens up the application of the "dwelling unit" rules to an entire area of construction that was not contemplated by many of the rules. The panel revised the language to basically state that there only had to be "space" for cooking. Previously, there needed to be permanent provisions. The panel's revision would apply, for instance, all of the rules in 210.11(C) to a hotel room with a microwave, including the 20A circuit for a bathroom receptacle. This was not intended by CMP 2. In fact, CMP 2 made it clear in their statement on Proposal 2-242 that "permanent provisions for cooking" does not include a microwave.

The revision recommended by this comment combines the existing language

of the definition with that proposed in Proposal 1-83. It makes sense to format the wording to be consistent with NFPA 101 and/or NFPA 5000. The revision suggested does alter that proposed in 1-83 by not applying the "permanent provision" wording to "eating, living and sleeping". This seems to be a reasonable deviation from the basic NFPA 101/5000 definition because of the argument about what constitutes "permanent provisions" in these areas. For instance, do I need to have a bed nailed to the floor to have a "permanent provision for sleeping"?

For a consistent set of codes, it is to the advantage of the NEC to be as consistent as possible with other key NFPA documents such as the Life Safety Code and the Building and Construction Code.

Panel Meeting Action: Reject

Panel Statement: See panel action and statement on Comment 1-69.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-72 Log #3400 NEC-P01
(100.Dwelling Unit)

Final Action: Accept

Note: The Technical Correlating Committee directs that this Comment be reported as "Accept". See the Technical Correlating Committee action on Comment 1-67.

Submitter: Douglas A. Lee, U.S. Consumer Product Safety Commission

Comment on Proposal No: 1-83

Recommendation: This proposal should be accepted.

Substantiation: This comment was submitted by a task group of CMP 2.

Panel Meeting Action: Reject

Panel Statement: The comment offers no technical substantiation and is not in compliance with the Regulations Governing Committee Projects Section 4-4.5(d).

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-73 Log #3401 NEC-P01
(100.Dwelling Unit)

Note: The Technical Correlating Committee directs that this Comment be reported as "Accept". See the Technical Correlating Committee action on Comment 1-67.

Submitter: Douglas A. Lee, U.S. Consumer Product Safety Commission

Comment on Proposal No: 1-84

Recommendation: This proposal should be rejected.

Substantiation: The panel agrees that the term "permanent provisions for cooking" should be included in the definition. This comment was submitted by a task group of CMP 2.

Panel Meeting Action: Reject

Panel Statement: See panel action and statement on Comment 1-69.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-74 Log #2239 NEC-P01
(100.Electric and Electrical (New))

Final Action: Accept

Note: The Technical Correlating Committee disagrees with the submitter's substantiation. There has been no change in policy, and the selection of the terms used falls under the discretion of NFPA Editorial Staff.

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

Comment on Proposal No: 1-85

Recommendation: Continue to reject the proposal.

Substantiation: This issue does not belong in Article 100, however, the TCC would be well advised to consider it for the NEC Style Manual. Under Pete Schram's (and prior) administrations, the word "electrical" was reserved for the term "National Electrical Code." The word "electric" was supposed to be reserved for adjectival use throughout the NEC. There were inconsistencies in the existing text, but new wording had to follow this convention. The convention has obviously been lost, and should be reconsidered for the 2008 code cycle.

Panel Meeting Action: Accept

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-75 Log #178 NEC-P01
(100.Energized)

Final Action: Reject

Submitter: David Shapiro, Safety First Electrical Contracting, Consulting, and Safety Education

Comment on Proposal No: 1-88

Recommendation: Delete definition.

Substantiation: Tortuous wording.

Panel Meeting Action: Reject

Panel Statement: The definition of "Energized" already exists in the 2002 Code. The submitter's recommendation does not relate to the panel's original action on Proposal 1-88.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-76 Log #1002 NEC-P01
(100.Energized)

Final Action: Reject

Submitter: Noel Williams, Noel Williams Consulting

Comment on Proposal No: 1-88

Recommendation: This proposal should continue to be accepted in principal, but the concept of a shock hazard should be restored.

Substantiation: The language “and a shock hazard exists” should not have been removed in the 2002 code cycle. This proposal recognizes a significant issue and that issue needs to be recognized. However, as it is now and as it will remain with the accepted change, almost everything associated with an electrical installation is “energized.” In a typical grounded system, a piece of grounded equipment is connected to an equipment grounding conductor, and the equipment grounding conductor is connected to the grounded conductor through a bonding jumper at the service or other source. The grounded conductor is in turn connected to the transformer windings or other source of voltage. Therefore, the grounded conductor, the equipment grounding conductor, and all grounded equipment is “energized.” Even the earth is energized. I know what is meant, but for the literal-minded users of the code, of which there are many, the term “energized” becomes meaningless because it has nothing to do with a hazard.

Panel Meeting Action: Reject

Panel Statement: No specific proposed text was provided. In addition, the definition of the term “energized” cannot be dependent on a degree of hazard that may result from energization.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-77 Log #1108 NEC-P01
(100.Energized)

Final Action: Reject

Submitter: Paul Dobrowsky Holley, NY

Comment on Proposal No: 1-88

Recommendation: Accept the proposal as submitted.

Substantiation: The change made does not provide clarity. For example overhead conductors that are “disconnected” can be energized by induction from other nearby overhead lines. The disconnected conductors are not really the source of voltage but can “have” voltage. The originally proposed language matches what has been accepted by the NFPA 70E committee. Regardless of what is best, having different language in the NEC from what is in NFPA 70E is confusing.

Panel Meeting Action: Reject

Panel Statement: The accepted definition is appropriate to the condition described by the submitter.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-78 Log #990 NEC-P01
(100.Equipment Grounding Conductor)

Final Action: Reject

Submitter: Dorothy Kellogg, American Chemistry Council

Comment on Proposal No: 1-96

Recommendation: The **Final Action** should be accept in principle instead of reject. Change the term “equipment grounding conductor” to “equipment bonding conductor” as stated in the original proposal and as shown below. Also add the FPN as proposed by Panel 1 in the original panel action.

Revise text as follows:

Bonding Grounding Conductor, Equipment. The conductor used to connect the non-current-carrying metal parts of equipment, raceways, and other enclosures to the system grounded conductor, the grounding electrode conductor, or both, at the service equipment or at the source of a separately derived system.

Add a Fine Print Note to read as follows:

FPN: The term “equipment bonding conductor” was referred to as “equipment grounding conductor” in previous editions of the NEC.

Substantiation: The ACC supports CMP 1’s original action of accept in principle and continues to support Mr. Dobrowsky’s proposal to change the term “equipment grounding conductor” to “equipment bonding conductor” throughout the National Electrical Code. The ACC believes that the change will clarify the understanding of the term and the actual purpose of this conductor as stated in the submitter’s substantiation. The new FPN should also be included as the industry transitions to the new term.

Panel Meeting Action: Reject

Panel Statement: The TCC recognizes that CMP 5 has responsibility for the resolution of this issue throughout the NEC and, at this time, CMP 5 has held Comment 5-5 which would change “equipment grounding conductor” to “equipment bonding conductor”.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-79 Log #3663 NEC-P01
(100.Equipment Grounding Conductor)

Final Action: Accept

Submitter: Gaylord Poe, Inspection Bureau, Inc.

Comment on Proposal No: 1-2

Recommendation: Recommend rejecting the proposal to change the term “equipment grounding conductor” to “equipment bonding conductor” throughout the NEC.

Substantiation: Thank you for providing me the opportunity to comment on this issue. I have very much respect for CMP-1 and the work that it does. I believe that CMP-1 should in no way support this change, especially if using the reasoning provided by the submitter’s substantiation.

The term “equipment grounding conductor” should not be change to “equipment bonding conductor” for this reason: Because it is technically an equipment grounding conductor regardless of whether or not the system is grounded. Yes it does “bond” components together but in this sense, one could say that all conductors that complete circuits are bonding various and interconnected components together or the circuits wouldn’t “work”. This conductor’s primary purpose per the NEC is to connect the equipment to the potential of earth. There is not technical reason to change its name or add the word “bonding” as a descriptive term for this conductor any more than there is a reason to have this word preface all other conductors that complete a circuit. This change is technically inaccurate, needless, confusing, and will require a major effort in rewording many section of the NEC –and for no betterment of the NEC.

Using text from the submitter, I offer these arguments:

1. Submitter: “The concept is simple.”

Yes the long established concept is very simple. Metal conductive parts of electrical equipment (exceptions noted) shall be grounded – literally. This attempt at calling an equipment grounding conductor something other than what it truly is provides much needless complication throughout the NEC.

2. Submitter: “The terms ‘grounding’ and ‘bonding’ are frequently misused and misunderstood.”

I agree. The substantiation offered verifies my agreement.

3. Submitter: “Systems are either grounded or they are not and neither case a path for fault current is provided for all normally non-current carrying metal parts of equipment that is supplied from that system. If systems are grounded, several sections prohibit re-grounding or using the grounded conductor as a fault current path, other than for specific limited situations. This conductor is more appropriately called a bonding conductor because its function of clearing faults exists, whether the system is grounded or not.”

a. The statement “Systems are either grounded or they are not...” proposes an argument that an equipment grounding conductor on a non-grounded system doesn’t really “ground” the equipment, it just provides a path for fault current. This is simply not true. It does (and is required to do) both functions – it literally connects the equipment to the earth and it also provides a path for fault current. An interesting point here is that if a “hot” wire from a non-grounded system comes into contact with an equipment grounding conductor there will be no current flow because the non-grounded system has no reference to ground but an equipment grounding conductor will keep the imposed voltage at the earth’s potential. Current flows only when a path exists to the source. For example, if two “hot” wires were inadvertently connected together via the equipment grounding conductor then current would flow on that conductor. While that current is flowing (a code compliant installation requires the equipment grounding conductor to be common with all interconnected metal enclosures and everything that is in contact with them) the very fact that it is grounded to earth helps reduce shock potential. An equipment bonding conductor can’t accomplish this unless it is also grounded. “Equipment Grounding Conductor”. I can’t think of a more appropriate name.

b. The statement “If systems are grounded, several sections prohibit re-grounding or using the grounded conductor as a fault current path, other than for specific limited situations.” Qualified electricians already know the long established practices and restrictions prohibiting using the grounded conductor for equipment grounding. That’s why the term equipment grounding conductor exists. The submitter’s statement attempts to reinforce his substantiation by “throwing” the normal current carrying grounded conductor into the argument...as if this change will “clear up” some industry confusion. (That doesn’t exist.) The substantiation suggests that fault current only flow on the equipment grounding conductor. This simply isn’t true. Fault current flow throughout the fault path. A fault path can be across line conductors, grounded current carrying conductors (“neutral”), conduit systems, equipment grounding conductors, interconnected metal enclosures and other conductive structures that are connected by mounting means, etc. The purpose of the equipment grounding conductor is not solely to help clear a fault when asked to do so. All circuit conductors are supposed to be continuous! More importantly this conductor must keep any imposed voltage (imposed for the duration of the fault) at the earths potential. It’s not only about “bonding”, it’s about “grounding” too.

c. The statement “This conductor is more appropriately called a bonding conductor because its function of clearing faults exists, whether the system is grounded or not.” attempts to draw some relationship between equipment grounding and system grounding. Each stands alone. Equipment grounding is required whether or not the supply system is a grounded system or an ungrounded system. It should be recognized that system grounding and equipment grounding are two separate and very different concepts. Only when one believes that the grounding of conductive metal enclosures in an ungrounded

system will not provide safety for personnel does the proposed change have merit.

Article 250.4(A)(2) and 250.4(B)(1) both recognize the significance of the shock protection afforded by the earth.

The bonding requirements of 250.4(A)(3) and 250.4(B)(2) and (3) recognize the importance of establishing a permanent path between conductive enclosures and equipment. Article 250 in general recognizes many different means of accomplishing these paths for current flow but the bottom line is this – all of these paths, regardless of the system (grounded or ungrounded), end up in the earth...and for good reason.

Call a spade a spade. It's an Equipment Grounding Conductor.

Panel Meeting Action: Accept

Panel Statement: The TCC recognizes that CMP 5 has responsibility for the resolution of this issue throughout the NEC and, at this time, CMP 5 has held Comment 5-5, which would change "equipment grounding conductor" to "equipment bonding conductor".

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-80 Log #2009 NEC-P01 **Final Action: Reject**
(100.First Floor)

Submitter: Julian R. Burns, Burns Electrical/Quality Power Solutions, Inc.
Comment on Proposal No: 1-241

Recommendation: CMP-1 should have Accepted in Principle and Part Proposal 1-241 and relocated definition of "First Floor" to Section 362.2. This is the only Article where this term is used.

Substantiation: Review of Proposal was per the request of the TCC.

Panel Meeting Action: Reject

Panel Statement: CMP 1 is responsible only for definitions in Article 100. Definitions in Article 362 are the responsibility of CMP 8. To ensure that the definition of "first floor" remain in the Code, the panel recommends that the TCC correlate this panel action with comment(s) with CMP 8 on this issue.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-81 Log #2010 NEC-P01 **Final Action: Reject**
(100.First Floor)

Submitter: Julian R. Burns, Burns Electrical/Quality Power Solutions, Inc.
Comment on Proposal No: 1-242

Recommendation: CMP-1 should have Accepted in Principle and Part Proposal 1-242 and relocated definition of "First Floor" to Section 362.2. This is the only Article where this term is used.

Substantiation: Review of Proposal was per the request of the TCC.

Panel Meeting Action: Reject

Panel Statement: See panel statement on Comment 1-80.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-82 Log #3534 NEC-P01 **Final Action: Reject**
(100.First Floor)

Submitter: Julian R. Burns, Burns Electrical/Quality Power Solutions, Inc.
Comment on Proposal No: 1-241

Recommendation: CMP 1 should have accepted in principle in part Proposal 1-241 and relocated definition of "first floor" to section 362.2.

Substantiation: This is the only article where this term is used. Review of proposal was per the request of the TCC.

Panel Meeting Action: Reject

Panel Statement: See panel statement on Comment 1-80.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-83 Log #3535 NEC-P01 **Final Action: Reject**
(100.First Floor)

Submitter: Julian R. Burns, Burns Electrical/Quality Power Solutions, Inc.
Comment on Proposal No: 1-242

Recommendation: CMP 1 should have accepted in principle in part Proposal 1-242 and relocated definition of "first floor" to section 362.2.

Substantiation: This is the only article where this term is used. Review of the proposal was per the request of the Technical Correlating Committee.

Panel Meeting Action: Reject

Panel Statement: See panel statement on Comment 1-80.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-84 Log #456 NEC-P01 **Final Action: Reject**
(100.Ground Fault Circuit Interrupter)

Submitter: Roy Kampmeyer, Power Electronic Systems, Inc.

Comment on Proposal No: 1-137

Recommendation: Under "Ground-Fault Circuit Interrupter," add the word "reliable" before the word "device."

Substantiation: A study by NEMA (Jan. 2001) showed at least 9% of installed GFCLs were defective. They are not reliable. Requiring manufacturers to produce only reliable devices should help in saving lives.

Panel Meeting Action: Reject

Panel Statement: The comment recommends wording that is not related to the proposal and is not in compliance with the Regulations Governing Committee Projects, Section 4-4.5(b).

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-85 Log #2520 NEC-P01 **Final Action: Accept**
(100.Ground-Fault Circuit Interrupter)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)

Comment on Proposal No: 1-94

Recommendation: Reconsider and reject the following portion of the proposal:

~~"Add the abbreviation GFPE to the title of the definition of ground fault protection of equipment as indicated: Ground Fault Protection of Equipment (GFPE)."~~

We have no comment against the portion of the proposal adding the abbreviation and definition of "GFCL."

Substantiation: There are other terms being used such as GFP in NEMA Standard PB 2.2 and EGF in UL 489. UL 1053 also uses a similar, but different term "Ground-Fault Sensing and Relaying Equipment." Lastly, the NEC does not use the acronym GFPE, so the definition should not be added.

Panel Meeting Action: Accept

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-86 Log #1120 NEC-P01 **Final Action: Reject**
(100.Grounded)

Submitter: Paul Dobrowsky Holley, NY

Comment on Proposal No: 5-62

Recommendation: Revise the definition as follows:

Grounded. Connected ~~directly~~ to earth or ~~through~~ to some conducting ~~means~~ body that serves in place of the earth.

Substantiation: The use of the phrase "body that serves in place of the earth" is confusing. Another body may be a "common point" but does not serve in place of the earth. In fact it frequently is at a different potential from earth. Definitions should be simple and clear. Something is either connected to earth or it is not. This comment is based on CMP-5's discussion related to proposal 5-62. One reason for not accepting the original proposal was due to a conflict with this definition. A comment has been submitted to accept the original proposal.

Panel Meeting Action: Reject

Panel Statement: The comment recommends wording that is not related to the proposal and is not in compliance with the Regulations Governing Committee Projects, Section 4-4.5(b).

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-87 Log #1421 NEC-P01 **Final Action: Reject**
(100.Grounded Conductor)

Note: The Technical Correlating Committee understands that the Panel did not intend to "Reject" Proposal 1-122.

Submitter: Lanny G. McMahill Phoenix, AZ

Comment on Proposal No: 1-122

Recommendation: Continue to accept this change; however, revise as follows: "Grounded Conductor (Neutral). A system or circuit conductor that is intentionally grounded."

Substantiation: The definition Panel 1 accepted will only cause confusion in the use of the term "neutral". The original proposal was simply attempting to address the concern that the terms "neutral conductor" and "grounded conductor" are frequently used. It seems reasonable that instead of adding a new definition to simply add the word "neutral" to the definition of "grounded conductor". This will meet the intent of the original proposal and possibly clarify that at times the "grounded conductor" may also be a "neutral conductor".

Panel Meeting Action: Reject

Panel Statement: The comment recommends wording that is not related to the proposal and is not in compliance with the Regulations Governing Committee Projects, Section 4-4.5(b).

Number Eligible to Vote: 12**Ballot Results:** Affirmative: 121-88 Log #1111 NEC-P01 **Final Action: Accept**
(100.Grounded, Solidly)**Submitter:** Paul Dobrowsky Holley, NY**Comment on Proposal No:** 1-136**Recommendation:** Continue to accept the proposal in principle.**Substantiation:** The term is used in more than one article and belongs in Article 100. It is used in 200.2, 215.10, 230.95, 240.13, 240.60, 240.85, 250.184, 310.2, 490.71, 517.17, 690.7, 690.41, 690.71, 692.41, and 700.7 of the 2002 NEC. See also the TCC note on proposal 4-116.**Panel Meeting Action: Accept****Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-89 Log #179 NEC-P01 **Final Action: Reject**
(100.Grounding Electrode)**Submitter:** David Shapiro, Safety First Electrical Contracting, Consulting, and Safety Education**Comment on Proposal No:** 1-97**Recommendation:** Delete proposed definition.**Substantiation:** Building steel can serve as a grounding electrode, but it is a strain to consider it a device. Contrariwise, a GEC establishes an electrical connection to earth, but is not itself the electrode.**Panel Meeting Action: Reject****Panel Statement:** As noted in the panel statement in the original proposal, device is a defined term. In the context of connecting the system to earth, building steel fits the definition of a device. No technical substantiation was submitted to justify deleting the definition.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-90 Log #773 NEC-P01 **Final Action: Reject**
(100.Grounding Electrode)**Submitter:** Michael J. Johnston Plano, TX**Comment on Proposal No:** 1-97**Recommendation:** Continue to accept the proposal and revise the definition as follows:

Grounding Electrode: A conducting element, wire, or other metallic underground system that is inherently connected to the earth.

Add FPN as follows: See Part III of Article 250 for grounding electrode system requirements and for a list of grounding electrodes that are permitted. A grounding electrode can be a conducting inherent element of the building construction that is connected to the earth.

Substantiation: The word "device" has a different and limited specific meaning as currently defined in Article 100. The word device is commonly related to equipment such as receptacles, switches, etc. and may be confusing to users. By using the term "conducting element" and adding the other types of typical electrode types to the definition, a more broad and appropriate description of the term is established. The FPN is a suggestion for the Panel's consideration and is felt to be needed as a pointer to the rules that are inclusive of the electrodes permitted and or required to be used for grounding and to further clarify that a "grounding electrode" is itself physically connected to the earth.**Panel Meeting Action: Reject****Panel Statement:** As noted in the panel statement in the original proposal, device is a defined term. In the context of connecting the system to earth, building steel fits the definition of a device. The panel continues to support its action on Proposal 1-97.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 11 Negative: 1**Explanation of Negative:**

STAUFFER: See the Explanation of NECA'S Negative Vote on Comment 1-94.

1-91 Log #1571 NEC-P01 **Final Action: Reject**
(100.Grounding Electrode)**Submitter:** Jim Pauley, Square D Company**Comment on Proposal No:** 1-97**Recommendation:** Revise the definition as shown below:**Grounding Electrode.** A device that establishes an electrical connection to earth used to effectively ground an electric system.**Substantiation:** The definition as appearing in the ROP is lacking in detail as to what a grounding electrode is intended to do. The recommended revision includes the already defined term "effectively grounded" to make it clear that

the connection to earth has to be made in an effective manner. After all, inserting a #6AWG grounding electrode conductor into the ground will establish an electrical connection to earth... just not an effective one.

Panel Meeting Action: Reject**Panel Statement:** A single grounding electrode may not effectively ground a system, but it is still a grounding electrode.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 11 Negative: 1**Explanation of Negative:**

STAUFFER: See the Explanation of NECA'S Negative Vote on Comment 1-94.

1-92 Log #2241 NEC-P01 **Final Action: Reject**
(100.Grounding Electrode)**Submitter:** Frederic P. Hartwell, Hartwell Electrical Services, Inc.**Comment on Proposal No:** 1-97**Recommendation:** Accept the proposal in principle. Revise as follows:

Grounding Electrode. A conductive element in electrical contact with earth that establishes an electrical connection recognized by this Code between specified components of an electrical system and the earth.

Substantiation: The word "device" is not appropriate here, because it suggests a component available in a supply house, and grounding electrodes can be water pipes, well casings, and a multitude of other conductive bodies. The phrasing "specified components" is intended to be broad enough to encompass ungrounded systems, where only enclosures and raceways are connected, to grounded systems where a system conductor is also connected, to Chapter 8 systems. The phrasing "recognized by this Code" responds to the comments in the voting concerning inadvertent conductive connections. The phrase "electrical contact with earth" encompasses concrete encased electrodes that contact the soil through a conductive envelope not part of the electrode itself.**Panel Meeting Action: Reject****Panel Statement:** See panel statement on Comment 1-90.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 11 Negative: 1**Explanation of Negative:**

STAUFFER: See the Explanation of NECA'S Negative Vote on Comment 1-94.

1-93 Log #2949 NEC-P01 **Final Action: Reject**
(100.Grounding Electrode)**Submitter:** Michael J. Johnston Plano, TX**Comment on Proposal No:** 1-97**Recommendation:** Continue to accept in principle and revise proposed wording as follows:Grounding Electrode. ~~A device that establishes~~ An electrical connection to the earth ~~through an electrically conductive element, material, wire, or other device.~~**Substantiation:** The word "device" has a different and limited specific meaning as currently defined in Article 100. It is more appropriate to simply define the grounding electrode as a connection between an electrically conductive element or material and the earth. The effectiveness of the connection to earth through the electrode is not needed in this general definition as the resistance of this connection to the earth varies. Adding the words "electrically conductive", wire, and "suitable" provide further clarity and consistency between the electrodes permitted for grounding identified in 250.52(A). The grounding electrode is not only the electrically conductive material itself, but it is the combination of the electrically conductive material and the connection to the earth. The grounding electrodes in Part III of Article 250 are grounding electrodes only when connected to the earth clearly indicated in 250.52 and 250.53. The word "wire" was added to correlate with the provisions for ground rings.**Panel Meeting Action: Reject****Panel Statement:** See panel statement on Comment 1-90.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 11 Negative: 1**Explanation of Negative:**

STAUFFER: See the Explanation of NECA'S Negative Vote on Comment 1-94.

1-94 Log #3365 NEC-P01 **Final Action: Reject**
(100.Grounding Electrode)**Submitter:** Michael J. Johnston Plano, TX**Comment on Proposal No:** 1-97**Recommendation:** Continue to accept in principle and revise proposed wording as follows:Grounding electrode. An electrically conductive material ~~A device~~ that establishes an electrical connection to the earth.

Substantiation: The word “device” has a different and limited specific meaning as currently defined in Article 100. It is more appropriate to simply define the grounding electrode as a connection between an electrically conductive material and the earth. The effectiveness of the connection to earth through the electrode is not needed in this general definition as the resistance of this connection to the earth varies. Adding the words “electrically conductive” provides further clarity and consistency between the electrodes permitted for grounding identified in 250.52(A).

Panel Meeting Action: Reject

Panel Statement: See panel statement on Comment 1-90.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

STAUFFER: NECA finds the submitter’s substantiations to Public Comments 1-90 through 1-95 persuasive. We agree that a “grounding electrode” may technically fall within the Article 100 definition of “device.” We also agree that most NEC users believe the word applies exclusively to wiring devices; circuit breakers and fuses are not commonly regarded as devices. NECA feels that Code usability would be enhanced by accepting this proposed modification of Proposal 1-97.

1-95 Log #3366 NEC-P01 **Final Action: Reject**
(100.Grounding Electrode)

Submitter: Michael J. Johnston Plano, TX

Comment on Proposal No: 1-97

Recommendation: Continue to accept in principle and revise proposed wording as follows:

Grounding Electrode. A device that establishes a connection to the earth through an electrically conductive element, material, wire, or suitable device.

Substantiation: The word “device” as currently defined in Article 100 relates to items such as receptacles, snap switches, as well as other devices intended for carrying current within their ratings but do not utilize electrical energy. It is more appropriate to simply define the grounding electrode as a connection between an electrically conductive element or material and the earth. The effectiveness of the connection to earth through the electrode is not needed in this general definition as the resistance of this connection to the earth varies. Adding the words “electrically conductive”, “wire”, and “suitable” provide further clarity and consistency between the electrodes permitted for grounding identified in 250.52(A). The grounding electrode is not only the electrically conductive material itself, but it is the combination of the electrically conductive material and the connection to the earth. The word “wire” was added to correlate with the provisions for ground rings.

Panel Meeting Action: Reject

Panel Statement: See panel statement on Comment 1-90.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

STAUFFER: See the Explanation of NECA’S Negative Vote on Comment 1-94.

1-96 Log #2948 NEC-P01 **Final Action: Accept**
(100.Grounding Electrode Conductor)

Submitter: Michael J. Johnston Plano, TX

Comment on Proposal No: 1-98

Recommendation: Continue to accept the revision of this definition proposed as follows:

Grounding Electrode Conductor. The conductor used to connect the grounding electrode(s) to the equipment grounding conductor, to the grounded conductor, or to both, at the service, at each building or structure where supplied by a feeder(s) or branch circuit(s) from a common service, or at the source of a separately derived system.

(Note: no changes from original proposal)

Substantiation: The revision to this definition is needed to correlate with the proposed revisions to 250.32 which removes the term “from a common service” and inserts the wording “by feeder(s) or branch circuit(s).” The revision to this definition is also consistent with the current provisions of 225.32. The term “equipment grounding conductor” should remain unchanged as a result of the ballot voting action on Proposal 1-2.

Panel Meeting Action: Accept

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-97 Log #1409 NEC-P01 **Final Action: Accept in Part**
(100.Guest Room, Guest Suite)

Note: The Technical Correlating Committee understands that the Panel Action on this Comment should be “Accept in Part” by accepting Proposal 1-101 as written since Panel 2 has accepted the use of both of these terms in two or more articles in the NEC.

Submitter: Lanny G. McMahon Phoenix, AZ

Comment on Proposal No: 1-101

Recommendation: Accept and revise the definition of “Guest Room” and reject the definition of “Guest Suite”.

Substantiation: Adding a definition of “guest room” in Article 100 is acceptable as the term is used in two or more code articles. The definition, however, should be revised to attain parallel construction with the definition of a “dwelling unit”. Parallel construction only requires deleting the word “sanitary” and replacing it with “provisions for sanitation”. Also, the words “ and storage facilities” should be removed as they are unnecessary and may be subject to various interpretations. There is no need for the term “guest suite” to be added as it is not used in the NEC. The NEC Style Manual states: “In general, Article 100 shall contain definitions of terms that appear in two or more other articles of the NEC”.

Panel Meeting Action: Accept in Part

The panel accepts the rejection of the definition of “guest suite.” The panel rejects the remainder of the comment.

Panel Statement: The panel concludes that the term “guest suite” is not presently used in the 2002 NEC. If the panel 2 action on Proposal 2-5 is accepted, resulting in use of the term “guest suite” in two or more articles, CMP 1 requests that the TCC place the definition of “guest suite” as provided in Proposal 1-101 in Article 100. CMP 1 continues to support the definition of “guest room” as stated in NFPA 101.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-98 Log #110 NEC-P01 **Final Action: Reject**
(100.Hand Hole)

Submitter: Robert D. Clark, Clark Consultants

Comment on Proposal No: 1-102

Recommendation: Define “Hand Hole”.

Substantiation: At least three major engineering corporations are marking manholes as “Hand Holes”. They then claim the underground junction boxes do not have to meet the requirements for safety as defined for manholes.

Panel Meeting Action: Reject

Panel Statement: The comment does not provide recommended wording and is not in compliance with the Regulations Governing Committee Projects, Section 4-4.5(c).

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-99 Log #25 NEC-P01 **Final Action: Reject**
(100.Handhole)

Submitter: Alfonso Fernandez-Fraga, Initial Engineers, P.A.

Comment on Proposal No: 1-102

Recommendation: Definition for “handhole”.

Substantiation: There are no fewer than ten proposals requesting a definition for “handhole” and all were rejected. At the same time a proposal using the term “handhole enclosure” was accepted. This latter one is 314-15, Proposal 9-23 (Log #1405), NEC-P09.

Panel Meeting Action: Reject

Panel Statement: The comment does not provide recommended wording and is not in compliance with the Regulations Governing Committee Projects, Section 4-4.5(c).

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-100 Log #3594 NEC-P01 **Final Action: Reject**
(100.Handhole)

Submitter: Jeff Zager, Strongwell

Comment on Proposal No: 1-102

Recommendation: Revise definition to read: “Hand-hole -An access opening provided in equipment into which personnel can reach but generally do not enter for the purpose of installing, operating or maintaining equipment or cable or both.”

Delete low voltage and high voltage wiring color requirements.

Substantiation: Proposals to include “Hand hole Enclosures” in Article 314 were accepted by Panel 9. The word “Generally” is needed so as not to absolutely forbid entry into the enclosure. Entry into the enclosure will occur from time to time. Also, without the “Generally”, the Definition might be interpreted as only applying to smaller style boxes.

Panel Meeting Action: Reject

Panel Statement: Section 3.2.1 of the NEC Style Manual prohibits the use of vague and unenforceable terms such as “generally.” In addition, adding this proposed qualifying term would erase the distinction between a hand hole and a manhole.

Number Eligible to Vote: 12**Ballot Results:** Affirmative: 12

1-101 Log #460 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure)

Submitter: Kenneth L. Groves, Edwards Electric Corp.**Comment on Proposal No:** 1-109**Recommendation:** I disagree with the Panel action to reject inclusion of a new definition for handhole enclose.**Substantiation:** This is a necessary definition to identify a commonly used piece of equipment that has been installed for decades. It correlates with Proposal 3-78, Log 1407, NEC Code-Making Panel 3, which asks for a new 300-15(J) to allow a common installation practice throughout the county and internationally.**Panel Meeting Action: Accept in Principle****Panel Statement:** See panel action and statement on Comment 1-110, which satisfies the intent of the submitter.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 12

1-102 Log #469 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure)

Submitter: James G. DiLullo, Dynaelectric Company, Florida**Comment on Proposal No:** 1-109**Recommendation:** I disagree with the Panel action to reject inclusion of a new definition for handhole enclosure.**Substantiation:** This is a necessary definition to identify a commonly used piece of equipment that has been installed for decades. It correlates with Proposal 3-78, Log 1407 NEC Code-Making Panel 3, which asks for a new 300-15(J) to allow a common installation practice throughout the country and internationally.**Panel Meeting Action: Accept in Principle****Panel Statement:** See panel action and statement on Comment 1-110, which satisfies the intent of the submitter.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 12

1-103 Log #508 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure)

Submitter: Vernon Jay Franke, Jr., Construction Consultants of Florida Inc.**Comment on Proposal No:** 1-109**Recommendation:** I disagree with the Panel Action to reject inclusion of a new definition for "Handhole Enclosure".**Substantiation:** This is a necessary definition to identify a commonly used piece of equipment that has been installed for decades. It correlates with Proposal 3-78 (Log 1407), Code-Making Panel 3, that asks for a new 300-15(J) to allow a common installation practice throughout the country and internationally.**Panel Meeting Action: Accept in Principle****Panel Statement:** See panel action and statement on Comment 1-110, which satisfies the intent of the submitter.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 12

1-104 Log #670 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure (New))

Submitter: Charles M. Trout, Maron Electric Co. Inc.**Comment on Proposal No:** 1-109**Recommendation:** This proposal should be accepted. The term handhole enclosure will be used in 314.15 Exception 300.15(L); 314.29; 314.1 based on the unanimous acceptance of Proposals 9-15; 9-18; 9-23; 9-68; and 3-78.

Based on those acceptances it is more than probable that the term handhole enclosure will be added to Article 100 as a new definition.

Substantiation: The term "handhole enclosure" will be used in 314.15 Exception 300.15(L); 314.29; and 314.1 based on the unanimous acceptance of Proposals 9-15; 9-18; 9-23; 9-68; and 3-78. Based on those acceptances, it is more than probable that the term handhole enclosure will be added to Article 100 as a new definition.**Panel Meeting Action: Accept in Principle****Panel Statement:** See panel action and statement on Comment 1-110, which satisfies the intent of the submitter.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 12

1-105 Log #681 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure)

Submitter: Ron Morgan, Florida Electric Contracting Service Inc.**Comment on Proposal No:** 1-109**Recommendation:** Disagree with the panel action to reject inclusion of a new definition for handhole enclosure.**Substantiation:** This is a necessary definition to identify a commonly used piece of equipment that has been installed for decades. It correlates with ROP 3-78 Log #1407 NEC-P03, which asks for a new Section 300-15(J) to allow a common installation practice throughout the country and internationally.**Panel Meeting Action: Accept in Principle****Panel Statement:** See panel action and statement on Comment 1-110, which satisfies the intent of the submitter.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 12

1-106 Log #688 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure (New))

Submitter: Kevin J. Nuss, Florida Electric Contracting Service Inc.**Comment on Proposal No:** 1-109**Recommendation:** Disagree with the panel action to reject inclusion of a new definition for handhole enclosure.**Substantiation:** This is a necessary definition to identify a commonly used piece of equipment that has been installed for decades. It correlates with ROP 3-78 Log #1407 NEC-P03, which asks for a new Section 300-15(J) to allow a common installation practice throughout the country and internationally.**Panel Meeting Action: Accept in Principle****Panel Statement:** See panel action and statement on Comment 1-110, which satisfies the intent of the submitter.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 12

1-107 Log #695 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure)

Submitter: Donald J. Hicks, Florida Electric Contracting Service Inc.**Comment on Proposal No:** 1-109**Recommendation:** Disagree with the panel action to reject inclusion of a new definition for handhole enclosure.**Substantiation:** This is a necessary definition to identify a commonly used piece of equipment that has been installed for decades. It correlates with ROP 3-78 Log #1407 NEC P03, which asks for a new Section 300-15(J) to allow a common installation practice throughout the country and internationally.**Panel Meeting Action: Accept in Principle****Panel Statement:** See panel action and statement on Comment 1-110, which satisfies the intent of the submitter.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 12

1-108 Log #715 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure)

Submitter: Joseph DeRosa, Florida Electric Contracting Service, Inc.**Comment on Proposal No:** 1-109**Recommendation:** I disagree with the panel action to reject inclusion of a new definition for handhole enclosure.**Substantiation:** This is a necessary definition to identify a commonly used piece of equipment that has been installed for decades. It correlates with Proposal 3-78, log 1407, Code-Making Panel 3, which asks for a new 300-15(J) to allow a common installation practice throughout the country and internationally.**Panel Meeting Action: Accept in Principle****Panel Statement:** See panel action and statement on Comment 1-110, which satisfies the intent of the submitter.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 12

1-109 Log #722 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure)

Submitter: Pascal McFadden, Florida Electric Contracting Service, Inc.**Comment on Proposal No:** 1-109**Recommendation:** I disagree with the panel action to reject inclusion of a new definition for handhole enclosure.**Substantiation:** This is a necessary definition to identify a commonly used piece of equipment that has been installed for decades. It correlates with Proposal 3-78, log 1407, Code-Making Panel 3, which asks for a new 300-15(J) to allow a common installation practice throughout the country and internationally.

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action and statement on Comment 1-110, which satisfies the intent of the submitter.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-110 Log #753 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure (New))

Submitter: Timothy M. Croushore, Allegheny Power

Comment on Proposal No: 1-109

Recommendation: This proposal was forwarded to Code-Making Panel 9 for information and/or comment. The task group responding is comprised of Fred Hartwell and Tim Croushore.

The proposal should be "Accepted in Principle."

Revise the proposed definition to read as follows to include the concept in the original proposed FPN:

"Handhole Enclosures. An enclosure identified for use in underground systems, provided with an open or closed bottom, and sized to allow personnel to reach into, but not enter, for the purpose of installing, operating or maintaining equipment or cable or both."

Substantiation: Code-Making Panel 9 agrees that this definition belongs in Article 100 because the term will be entering the NEC in Articles 300 and 314. This comment makes editorial revisions in the proposal that include the fine print note within the text of the definition. Code-Making Panel 9 believes this material is essential to the content of the actual definition.

Panel Meeting Action: Accept in Principle

Revise the proposed definition to read as follows:

"Handhole Enclosure. An enclosure identified for use in underground systems, provided with an open or closed bottom, and sized to allow personnel to reach into, but not enter, for the purpose of installing, operating, or maintaining equipment or wiring or both."

Panel Statement: CMP 1 modified the recommended text to change "cable" to "wiring" so that it could be applied to the wiring methods in these types of installations. The defined term was made singular for consistency with other Article 100 definitions.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

Comment on Affirmative:

MCMAHILL: The panel action should have been "accept" instead of "accept in principle." Panel 1 modified the definition by changing the word "cable" to "wiring." Since a "handhole enclosure" is typically intended for use with an underground wiring method, such as type USE or UF cables, the use of the word "cable" may have been more appropriate. The word "cable" implies a specific type of "wiring" method. The word "wiring" is more general in nature and may lead someone to believe that the use of any type of conductor is acceptable for use in a "handhole enclosure."

1-111 Log #876 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure)

Submitter: Steven Siems, Florida Electric Service Co. Inc.

Comment on Proposal No: 1-109

Recommendation: Disagree with the panel action to reject inclusion of a new definition for "handhole enclosure".

Substantiation: This is a necessary definition to identify a commonly used piece of equipment that has been installed for decades. It correlates with ROP 3-78 Log #1407 NEC-P03, which asks for a new Section 300-15(J) to allow a common installation practice throughout the country and internationally.

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action and statement on Comment 1-110, which satisfies the intent of the submitter.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-112 Log #883 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure)

Submitter: Harold K. Siems, Florida Electric Service Co. Inc.

Comment on Proposal No: 1-109

Recommendation: Disagree with the panel action to reject inclusion of a new definition for handhole enclosure.

Substantiation: This is a necessary definition to identify a commonly used piece of equipment that has been installed for decades. It correlates with ROP 3-78 Log #1407 NEC-P03, which asks for a new Section 300-15(J) to allow a common installation practice throughout the country and internationally.

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action and statement on Comment 1-110, which satisfies the intent of the submitter.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-113 Log #1285 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure)

Submitter: Paul Yesbeck, Acolite Claude United Sign Co.

Comment on Proposal No: 1-109

Recommendation: Disagree with the panel action to reject inclusion of a new definition for handhole enclosure.

Substantiation: This is a necessary definition to identify a commonly used piece of equipment that has been installed for decades. It correlates with ROP 3-78, Log # 1407, NEC-P03, which asks for a new 300-15(J) to allow a common installation practice throughout the country and internationally.

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action and statement on Comment 1-110, which satisfies the intent of the submitter.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-114 Log #1329 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure)

Submitter: Herbert P. Spiegel, Corona Industrial Electric

Comment on Proposal No: 1-109

Recommendation: Disagree with the Panel action to reject inclusion of a new definition for handhole enclosure.

Substantiation: This is a necessary definition to identify a commonly used piece of equipment that has been installed for decades. It correlates with ROP 3-78 Log #1407 NEC-P03, which asks for a new Section 300-15(J) to allow a common installation practice throughout the country and internationally.

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action and statement on Comment 1-110, which satisfies the intent of the submitter.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-115 Log #1340 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure)

Submitter: Victor Lombardi, Miami-Dade County Building Department

Comment on Proposal No: 1-109

Recommendation: Disagree with the Panel action to reject inclusion of a new definition for handhole enclosure.

Substantiation: This is a necessary definition to identify a commonly used piece of equipment that has been installed for decades. It correlates with ROP 3-78 Log #1407 NEC-P03, which asks for a new Section 300-15(J) to allow a common installation practice throughout the country and internationally.

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action and statement on Comment 1-110, which satisfies the intent of the submitter.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-116 Log #2853 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure)

Submitter: Jose Gonzalez, Miami Dade Bldg. Department

Comment on Proposal No: 1-109

Recommendation: Disagree with the panel action to reject inclusion of a new definition for handhole enclosure.

Substantiation: This is a necessary definition to identify a commonly used piece of equipment that has been installed for decades. It correlates with ROP 3-78 Log #1407 NEC P03 which asks for a new Section 300-15(J) to allow a common installation practice throughout the country and internationally.

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action and statement on Comment 1-110, which satisfies the intent of the submitter.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-117 Log #3081 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure.)

Submitter: Steven Gilbert, Miami Dade Building Department

Comment on Proposal No: 1-109

Recommendation: Disagree with the Panel action to reject inclusion of a new definition for handhole enclosure.

Substantiation: This is a necessary definition to identify a commonly used piece of equipment that has been installed for decades. It correlates with Proposal 3-78 Log 1407, NEC-P03, which asks for a new Section 300-15(J) to allow a common installation practice throughout the country and internationally.

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action and statement on Comment 1-110, which satisfies the intent of the submitter.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-118 Log #3087 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure.)

Submitter: Billy Jackson, Miami Dade County Building Department
Comment on Proposal No: 1-109

Recommendation: Disagree with the panel action to reject the inclusion of a new definition for "Handhole Enclosure."

Substantiation: This is a necessary definition to identify a commonly used piece of equipment that has been installed for decades. It correlates with ROP 3-78 Log 1407 NEC-P03, which asks for a new Section 300-15(J) to allow a common installation practice throughout the country and internationally.

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action and statement on Comment 1-110, which satisfies the intent of the submitter.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-119 Log #3455 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure)

Submitter: Arnold M. Velazquez, Arnold & Associates Inc.

Comment on Proposal No: 1-109

Recommendation: Disagree with the Panel action to reject inclusion of a new definition for "handhole enclosure".

Substantiation: This is a necessary definition to identify a commonly used piece of equipment that has been installed for decades. It correlates with ROP 3-78 Log #1407 NEC-P03, which asks for a new Section 300-15(J) to allow a common installation practice throughout the country and internationally.

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action and statement on Comment 1-110, which satisfies the intent of the submitter.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-120 Log #3632 NEC-P01 **Final Action: Accept in Principle**
(100.Handhole Enclosure)

Submitter: Stephen Kovach, Dade County Building & Zoning Dept.

Comment on Proposal No: 1-109

Recommendation: Disagree with the Panel action to reject inclusion of a new definition of handhole enclosure.

Substantiation: This is a necessary definition to identify a commonly used piece of equipment that has been installed for decades. It correlates with ROP 3-78 Log #1407 NEC-P03, which asks for a new Section 300-15(J) to allow a common installation practice throughout the country and internationally.

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action and statement on Comment 1-110, which satisfies the intent of the submitter.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-121 Log #542 NEC-P01 **Final Action: Accept**
(100.Kitchen (New))

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 1-112

Recommendation: The Technical Correlating Committee directs the panel to reconsider the proposal in consideration of the fact that Code-Making Panel 2 has developed a definition in Proposal 2-85.

This action will be considered by Code-Making Panel 1 as a Public Comment. It was the action of the Technical Correlating Committee that this Proposal be referred to Code-Making Panel 2 for 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 panel action on Comment 1-127.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-122 Log #543 NEC-P01 **Final Action: Accept**
(100.Kitchen (New))

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 1-113

Recommendation: See Technical Correlating Committee Note on Proposal 1-112.

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 panel action on Comment 1-127.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-123 Log #544 NEC-P01 **Final Action: Accept**
(100.Kitchen)

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 1-114

Recommendation: See Technical Correlating Committee Note on Proposal 1-112.

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 panel action on Comment 1-127.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-124 Log #545 NEC-P01 **Final Action: Accept**
(100.Kitchen)

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 1-115

Recommendation: See Technical Correlating Committee Note on Proposal 1-112.

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 panel action on Comment 1-127.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-125 Log #546 NEC-P01 **Final Action: Accept**
(100.Kitchen)

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 1-117

Recommendation: See Technical Correlating Committee Note on Proposal 1-112.

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 panel action on Comment 1-127.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-126 Log #755 NEC-P01 **Final Action: Reject**
(100.Kitchen (New))

Note: The Technical Correlating Committee directs that this Comment be reported as "Reject" to correlate with the Panel Action on Comment 1-127.

Submitter: Michael J. Johnston Plano, TX

Comment on Proposal No: 1-112

Recommendation: The definition of "Kitchen" is needed in the NEC to resolve enforcement issues. I support the panel's action to accept this proposal and suggest rewording the proposed text as follows:

Kitchen: An area with a sink, food refrigeration, and storage and permanent facilities for food preparation and cooking.

Substantiation: In the proposal stage of the process, Panel 2 accepted a definition for "kitchen" that is more descriptive and accurate (Proposal 2-85). I feel that adding the provisions for food storage and refrigeration provides more specifics as to when the requirements for kitchens should be applied. This wording may need to be adjusted, but I feel that the definition is far too broad in nature and does not provide specifics and needed clarity.

Panel Meeting Action: Accept in Principle**Panel Statement:** See panel action on Comment 1-127.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-127 Log #1572 NEC-P01 **Final Action: Accept**
(100.Kitchen)**Submitter:** Jim Pauley, Square D Company**Comment on Proposal No:** 1-114**Recommendation:** Delete the proposed definition of "Kitchen" in Article 100. **Substantiation:** The revision to require GFCI protection on receptacles in kitchens (other than dwelling units) in 210.8(B) during the 2002 NEC prompted the proposals for a definition. CMP 2 developed a definition in Proposal 2-85 that will address those concerns. There is no demonstrated need for a general definition of kitchen.

In addition, the definition proposed by CMP 1 is too broad for the application. There are many areas used to prepare food (like a picnic table) that would not be classified as a kitchen.

Panel Meeting Action: Accept**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-128 Log #1931 NEC-P01 **Final Action: Reject**
(100.Kitchen)**Note: The Technical Correlating Committee directs that this Comment be reported as "Reject" to correlate with the Panel Action on Comment 1-127.****Submitter:** James M. Imlah, City of Hillsboro**Comment on Proposal No:** 1-114**Recommendation:** Revise text to read as follows:

Kitchen: An area used, or designated to be used, for the preparation of food; and includes one or more cooking appliances and a sink.

Substantiation: The definition of "Kitchen" determines if the requirement for GFCI protection is needed. The original intent of GFCI protection was to protect persons from the hazards of small kitchen appliances and other cord connected equipment in the immediate area of water. It is now possible to prepare and cook food without the use of permanent connected appliances, but water is normally necessary for cleaning and sanitation purposes in the area used for food preparation. The new wording allows for both permanently connected and portable connected cooking appliances and at least a sink for the purpose of a kitchen.**Panel Meeting Action: Accept in Principle****Panel Statement:** See panel action on Comment 1-127.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 10 Negative: 2**Explanation of Negative:**

FISKE: Comment 1-128 recommended additional language to the definition of "kitchen" originating in Proposal 1-114. The panel action was reported as "Accept in Principle"; however, the panel "Accepted" Comment 1-127, which recommended deleting the proposed definition.

If no definition exists, then there cannot be modifications to a definition. "Reject" is the only possible panel action on Comment 1-128. Any other action would directly contradict the panel action on Comment 1-127.

MCMAHILL: After reading Mr. Fiske's comment on his negative vote, I must agree and concur with his reasoning. Panel 1, in fact, did "Accept" Comment 1-127 which Rejected adding the definition of "Kitchen" in Article 100. Therefore, Comment 1-128 should be recorded as "Reject" as there is no definition to revise in Article 100 for "Kitchen."

1-129 Log #3402 NEC-P01 **Final Action: Accept**
(100.Kitchen)**Submitter:** Douglas A. Lee, U.S. Consumer Product Safety Commission**Comment on Proposal No:** 1-112**Recommendation:** This proposal should be rejected.**Substantiation:** See CMP 2 task group recommendation on proposal 1-114. This comment was submitted by a task group of CMP 2.**Panel Meeting Action: Accept****Panel Statement:** See panel action on Comment 1-127.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-130 Log #3403 NEC-P01 **Final Action: Accept**
(100.Kitchen)**Submitter:** Douglas A. Lee, U.S. Consumer Product Safety Commission**Comment on Proposal No:** 1-113**Recommendation:** This proposal should be rejected.**Substantiation:** See CMP 2 task group recommendation on proposal 1-114. This Comment was submitted by a task group of CMP 2.**Panel Meeting Action: Accept****Panel Statement:** See panel action on Comment 1-127.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-131 Log #3404 NEC-P01 **Final Action: Accept**
(100.Kitchen)**Submitter:** Douglas A. Lee, U.S. Consumer Product Safety Commission**Comment on Proposal No:** 1-114**Recommendation:** This Proposal should be rejected.**Substantiation:** The proposed definition is too broad. There is no need for a general definition in Article 100. CMP 2 has created a definition for kitchens in Article 210. See proposal 2-85. This comment was submitted by a task group of CMP 2.**Panel Meeting Action: Accept****Panel Statement:** See panel action on Comment 1-127.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-132 Log #3405 NEC-P01 **Final Action: Accept**
(100.Kitchen)**Submitter:** Douglas A. Lee, U.S. Consumer Product Safety Commission**Comment on Proposal No:** 1-115**Recommendation:** This proposal should be rejected.**Substantiation:** See CMP 2 task group recommendation on proposal 1-114. This comment was submitted by a task group of CMP 2.**Panel Meeting Action: Accept****Panel Statement:** See panel action on Comment 1-127.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-133 Log #3406 NEC-P01 **Final Action: Accept**
(100.Kitchen)**Submitter:** Douglas A. Lee, U.S. Consumer Product Safety Commission**Comment on Proposal No:** 1-117**Recommendation:** This proposal should be rejected.**Substantiation:** See CMP 2 task group recommendation on proposal 1-114. This comment was submitted by a task group of CMP 2.**Panel Meeting Action: Accept****Panel Statement:** See panel action on Comment 1-127.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-134 Log #1109 NEC-P01 **Final Action: Reject**
(100.Likely to become energized)**Submitter:** Paul Dobrowsky Holley, NY**Comment on Proposal No:** 1-118**Recommendation:** Accept the proposal.**Substantiation:** The phrase is used in 250.4, 250.10, 250.114, 430.141, 517.11, 517.13, 545.11, 547.10, and 680.43. Including the definition in Article 100 will help the user understand what is meant by the phrase. Many users of the NEC do not read the NEC Style Manual. If the term is not defined then different interpretations can be inferred.**Panel Meeting Action: Reject****Panel Statement:** The proposed definition is not helpful. For example, as used in 250.4, "Failure of insulation on" has no meaning when considering uninsulated metal parts that are likely to become energized. The term is best considered in the context of its use.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-135 Log #124 NEC-P01 **Final Action: Reject**
(100.Location, Wet)**Submitter:** David Shapiro, Safety First Electrical Contracting, Consulting, and Safety Education**Comment on Proposal No:** 15-12**Recommendation:** Accept as intended, as an FPN for Article 100, Location, Wet, not 517.**Substantiation:** Under Patient Care Area, in 517.2, there is a specialized definition for Wet Locations that differs from, and is stricter than, the Article 100 definition, particularly as saturation is not required. This proposal somehow landed in the laps of the Panel responsible for Article 517, which didn't know where the FPN was intended to go.**Panel Meeting Action: Reject****Panel Statement:** It is not necessary to direct the Code user to differing definitions from those in Article 100 that apply generally. Definitions applicable to specific articles are included in those articles and can differ from those in Article 100 without a confusing cross reference.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 12

1-136 Log #1110 NEC-P01 **Final Action: Hold**
(100.Neutral)

Note: Based on the action on Comment 1-145, the Technical Correlating Committee directs that the Panel Action on this Comment be reported as "Hold".

Proposal 1-122 is also reported as "Hold".

Submitter: Paul Dobrowsky Holley, NY

Comment on Proposal No: 1-122

Recommendation: Accept the proposal as submitted.

Substantiation: The revision made does not improve usability and could cause confusion as indicated in the negative ROP ballot comments.

Panel Meeting Action: Hold

Panel Statement: See panel action and statement on Comment 1-145.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-137 Log #1219 NEC-P01 **Final Action: Hold**
(100.Neutral)

Note: Based on the action on Comment 1-145, the Technical Correlating Committee directs that the Panel Action on this Comment be reported as "Hold".

Proposal 1-122 is also reported as "Hold".

Submitter: Donald A. Ganiere Ottawa, IL

Comment on Proposal No: 1-122

Recommendation: Panel should reject this proposal.

Substantiation: While I tend to agree that a definition of the term "neutral" should be in the code, I don't think this is the one that we need. The acceptance of this proposal would require that the grounded conductor of a 120/240 volt 3 phase 4 wire high leg delta system be counted as a current carrying conductor for the purpose of ampacity adjustment because the grounded conductor of this system does not meet the proposed definition of "neutral."

Panel Meeting Action: Hold

Panel Statement: See panel action and statement on Comment 1-145.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-138 Log #2243 NEC-P01 **Final Action: Hold**
(100.Neutral)

Note: Based on the action on Comment 1-145, the Technical Correlating Committee directs that the Panel Action on this Comment be reported as "Hold".

Proposal 1-122 is also reported as "Hold".

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

Comment on Proposal No: 1-122

Recommendation: Accept the proposal in principle and in part. Accept the need to define a neutral conductor. Reject the definition developed by CMP 1 and replace it as follows:

"The conductor (where one exists) of a polyphase circuit or single-phase three-wire circuit that is intended to have a voltage such that the nominal voltage between it and each of the other conductors are equal, and less than the nominal voltage between any two of the other conductors."

Substantiation: The definition in the panel action on the proposal misapplies the IEEE definition and is technically incorrect. A two-wire circuit does not and never will have a neutral conductor because the circuit has no neutral point. Nevertheless, CMP 1 has proposed misapplying the term "neutral" to one of those conductors only because it eventually connects to a neutral point of something. This will make countless training manuals obsolete. This is not the time to lose our intestinal fortitude and rationalize inaccurate trade slang.

This comment adapts a successful and long-standing definition in the Canadian Electrical Code, modified only editorially to accommodate our distribution systems and NEC editorial practice. It is technically correct without the complexities (over 100 words) in the IEEE definition.

Panel Meeting Action: Hold

Panel Statement: See panel action and statement on Comment 1-145.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-139 Log #180 NEC-P01 **Final Action: Hold**
(100.Neutral Conductor)

Note: Based on the action on Comment 1-145, the Technical Correlating Committee directs that the Panel Action on this Comment be reported as "Hold".

Proposal 1-122 is also reported as "Hold".

Submitter: David Shapiro, Safety First Electrical Contracting, Consulting, and Safety Education

Comment on Proposal No: 1-122

Recommendation: Accept but append "to ground".

Substantiation: "Zero voltage" needs a reference.

Panel Meeting Action: Hold

Panel Statement: See panel action and statement on Comment 1-145.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-140 Log #671 NEC-P01 **Final Action: Hold**
(100.Neutral Conductor)

Note: Based on the action on Comment 1-145, the Technical Correlating Committee directs that the Panel Action on this Comment be reported as "Hold".

Proposal 1-122 is also reported as "Hold".

Submitter: Charles M. Trout, Maron Electric Co. Inc.

Comment on Proposal No: 1-122

Recommendation: Continue to "Accept in Principle" Proposal 1-122. Modify wording of proposal for definition of neutral conductor to read:

Neutral Conductor. The common conductor in a multi-wire, grounded or ungrounded, circuit or system that carries the current caused by an unbalance of the load on the phase conductors of a multi-wire circuit or system and by high harmonic neutral currents in a 3-phase, 4-wire, wye-connected power supply to nonlinear loads.

Substantiation: This definition will maintain the technical correctness that a two wire circuit cannot contain a neutral conductor. The panel may want to review the definition of a "Branch Circuit Multiwire" and in the first sentence after the comma where it says "and a grounded conductor that has equal" etc. change the words "grounded conductor" to "common conductor". The present wording incorrectly implies that multiwire circuits can only be used in grounded systems.

Panel Meeting Action: Hold

Panel Statement: See panel action and statement on Comment 1-145.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-141 Log #991 NEC-P01 **Final Action: Hold**
(100.Neutral Conductor (New))

Note: Based on the action on Comment 1-145, the Technical Correlating Committee directs that the Panel Action on this Comment be reported as "Hold".

Proposal 1-122 is also reported as "Hold".

Submitter: Dorothy Kellogg, American Chemistry Council

Comment on Proposal No: 1-122

Recommendation: The Final Action should be accept rather than accept in principle.

Substantiation: The definition as modified by the panel is too complex and is technically flawed. The "common point wye connection" as noted in the modified definition does not apply to all polyphase systems. Also, it is not clear what "zero voltage" is referenced to in the second condition of the definition. The "point of a symmetrical system which is normally at zero voltage" is likely not to be zero voltage under normal conditions unless it is grounded. The ACC believes that Mr. Dobrowsky's originally proposed definition provides more clarity to the term "neutral conductor" than the panel's proposed definition.

Panel Meeting Action: Hold

Panel Statement: See panel action and statement on Comment 1-145.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-142 Log #1003 NEC-P01 **Final Action: Hold**
(100.Neutral Conductor)

Note: Based on the action on Comment 1-145, the Technical Correlating Committee directs that the Panel Action on this Comment be reported as "Hold".

Proposal 1-122 is also reported as "Hold".

Submitter: Noel Williams, Noel Williams Consulting

Comment on Proposal No: 1-122

Recommendation: This proposal should continue to be accepted in principal as modified by panel action.

Substantiation: This definition is still imperfect, but it does recognize and address certain important points that are not in the original proposal. First, a definition is needed. The term "neutral" is used in many places in the code, in some places incorrectly. (For example, as noted by Minick in the comment on negative, a grounded conductor in a delta system is not a symmetrical system. However, Section 250.26(5) calls such a conductor a neutral.) Panel 1 has often referred to IEEE 100 in the past, but the edition mentioned in the panel statement is no longer available from IEEE, and the new edition of IEEE 100 now only applies to IEEE standards according to its introduction and the revised title: "The Authoritative Dictionary of IEEE Standards Terms." Second, the original proposal refers to the neutral point of a system, and that term would require another definition. The revised definition covers this issue. The "zero voltage" is not clear, as noted by Barrios, but I cannot offer a solution to that problem. Third, the definition proposed may help to clear up some misconceptions and provide a term around which the rest of the NEC can become consistent in the future. For example, the comment that "all neutrals are grounded conductors" is incorrect. Obvious examples are given in 250.21 and 250.22, and ungrounded 480 volt wye systems are permitted in the NEC as long as the neutral is not used as a circuit conductor. Fourth, the proposed language "intended for carrying current during normal operations" will produce conflicts in other code language. For example, 250.21(4) refers to impedance grounded neutral systems, and according to 250.36, these systems have neutral conductors, but those neutral conductors are not permitted to be normal current-carrying conductors.

Panel Meeting Action: Hold

Panel Statement: See panel action and statement on Comment 1-145.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-143 Log #1293 NEC-P01 **Final Action: Hold**
(100.Neutral Conductor (New))

Note: Based on the action on Comment 1-145, the Technical Correlating Committee directs that the Panel Action on this Comment be reported as "Hold".

Proposal 1-122 is also reported as "Hold".

Submitter: James M. Naughton, IBEW

Comment on Proposal No: 1-222

Recommendation: Panel 1 should reconsider and reject the proposal.

Substantiation: This comment is the work of a Task Group from Panel 4 assigned to recommend an action, by direction of the Technical Correlating Committee.

The definition of neutral, as submitted, does not accurately reflect a neutral. The revised definition from Panel 1 does not deal with the neutral conductors from a 120/240v single phase system since these are not necessarily considered to be symmetrical systems of zero voltage.

A definition should provide an accurate method to define the word and neither the proposal nor the revised provides an accurate or clear definition of neutral.

Panel Meeting Action: Hold

Panel Statement: See panel action and statement on Comment 1-145.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-144 Log #3047 NEC-P01 **Final Action: Hold**
(100.Neutral Conductor)

Note: Based on the action on Comment 1-145, the Technical Correlating Committee directs that the Panel Action on this Comment be reported as "Hold".

Proposal 1-122 is also reported as "Hold".

Submitter: D. Thomas Branson, Madison Gas & Electric

Comment on Proposal No: 1-122

Recommendation: Panel proposed revised text:

Neutral Conductor. A conductor, other than a grounding conductor, that is connected to the common point of a wye connection in a polyphase system or the point of a symmetrical system which is normally at zero voltage.

We suggest that the word "normally" be replaced by the word "virtually", and adding the words "under ideal conditions" after the word "voltage".

Substantiation: Only under perfectly balanced conditions, will there be no voltage on the neutral. This condition is recognized in the NESC definition, which acknowledges the current flow in the neutral. We also support the negative comment made by Mr. Barrios in Log #2457.

Panel Meeting Action: Hold

Panel Statement: See panel action and statement on Comment 1-145.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-145 Log #3407 NEC-P01 **Final Action: Accept**
(100.Neutral Conductor)

Submitter: Douglas A. Lee, U.S. Consumer Product Safety Commission

Comment on Proposal No: 1-122

Recommendation: This proposal should be held.

Substantiation: Since the term "neutral" is used in many sections of the NEC, the CMP 2 task group requests that the proposal be held for broader discussion by the various code-making panels involved. This comment was submitted by a task group of CMP 2.

Panel Meeting Action: Accept

CMP 1 understands that by accepting this comment, Proposal 1-122 will be held until the 2008 cycle of the NEC.

Panel Statement: The panel recognizes that the definition it accepted in Proposal 1-122 is problematic when considering the many comments received. Some of the comments present new material that has not had public review. In order to properly address a definition of "neutral conductor," the panel will form a task group from CMP's 2, 4, 5 and 13 to review all the comments related to Proposal 1-122 and to submit a proposed definition for the next NEC revision cycle.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-146 Log #2521 NEC-P01 **Final Action: Hold**
(100.Neutral Conductor (New))

Note: Based on the action on Comment 1-145, the Technical Correlating Committee directs that the Panel Action on this Comment be reported as "Hold".

Proposal 1-122 is also reported as "Hold".

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)

Comment on Proposal No: 1-222

Recommendation: Reconsider and reject the proposal.

Substantiation: The addition of this definition will add unnecessary confusion to code users. The technical issues noted in the negative voting amplify the need to reject this proposal and should be considered carefully by the panel.

Panel Meeting Action: Hold

Panel Statement: See panel action and statement on Comment 1-145.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-147 Log #3485 NEC-P01 **Final Action: Hold**
(100.Neutral Conductor (New))

Note: Based on the action on Comment 1-145, the Technical Correlating Committee directs that the Panel Action on this Comment be reported as "Hold".

Proposal 1-122 is also reported as "Hold".

Submitter: Fred W. Brown, HI Electron

Comment on Proposal No: 1-122

Recommendation: Revise the current text by adding "and carries the vectorial summation currents of the ungrounded to grounded conductor loads in multi-wire branch circuit, feeder, and service entrance conductors."

Substantiation: I find the use of the terms "grounded conductor" and "neutral conductor" to be problematic in nature in the electrical industry. It is a concept used to distinguish between the two principles in order to properly apply the National Electrical Code (NEC).

Just by the nature of being grounded does not make a conductor neutral by the NEC. A neutral is a grounded conductor that carries the vectorial summation of line to neutral current loads.

310.15(B)(4) gives us some direction as to the use of the term, "neutral conductor." The basic application of this article is not to count the neutral conductor as a current-carrying conductor in 120/240 volt, single phase, 3 wire; 120/208 volt, 3 phase, 4 wire; 277/480 volt, 3 phase, 4 wire, and 120/240 volt 3 phase, 4 wire multiwire branch circuit, feeder, and service entrance conductor systems. The reason for this is that if the line to neutral loads are balanced per 210.11(B), the vectorial summation of the currents carried by the neutral will be zero. When contrasted with 115/230 volt, 2 phase, 3 wire and 5 wire systems, the neutral will carry a vectorial summation of the line to neutral loads at 140 percent of the ungrounded conductors. It is important to distinguish the true role of a neutral conductor in multiwire systems and circuits.

The term "neutral conductor" is only applicable in some multiwire circuits. Circuits consisting of two or more ungrounded conductors and have a voltage between them, a grounded conductor that has equal voltage between it and each ungrounded conductor, and the grounded conductor carries the vectorial summation of the ungrounded to grounded conductor loads, have neutral conductors. Systems like 240 volt, 3 phase, 3 wire Grounded B phase are multiwire but do not contain neutral conductors. A single two wire circuit that consists of an ungrounded and grounded conductor also does not have a neutral conductor.

I have watched code making committees clean up the use of neutral conductors for the past fifteen years. I would like to commend these efforts to finally put a clear definition in place which the electrical industry can use to apply the NEC correctly.

Panel Meeting Action: Hold

Panel Statement: See panel action and statement on Comment 1-145.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-148 Log #434 NEC-P01 **Final Action: Accept**
(100.Nonincendive Circuit, Nonincendive Fired Wiring)

Submitter: Donald Cook, Shelby County Development Services

Comment on Proposal No: 1-123

Recommendation: NEC CMP 14 supports the proposal and the action of CMP 1 on this proposal.

Substantiation: Code-Making Panel 14 has not been officially balloted through the NFPA process on this Comment. However, 11 of the 14 organizations represented on the panel provided positive responses through the panel chair to the Technical Correlating Committee direction to comment. The other 3 organizations did not respond. Based on that response, I believe this comment represents the position of Code-Making Panel 14.

Panel Meeting Action: Accept

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-149 Log #1420 NEC-P01 **Final Action: Reject**
(100.Outline Lighting)

Submitter: Lanny G. McMahill Phoenix, AZ

Comment on Proposal No: 1-125

Recommendation: Accept and revise the definition of "Outline Lighting".

Substantiation: The reason for the proposed code change here was to address a concern that the existing definition did not include low-voltage light emitting diodes. The original code proposal deleted the words "incandescent lamps or electric discharge" and add the words "devices or equipment". The panel compromised by replacing the words "incandescent lamps or electric discharge" with "lighting equipment". Unfortunately, this change does not resolve the submitter's concerns and only causes more confusion. Outline lighting is not an arrangement of lighting equipment. More appropriately, it is an arrangement of luminaires (fixtures). Luminaire is defined as "a complete lighting unit consisting of a lamp or lamps together with the parts designed to distribute the light, to position and protect the lamps and ballast (where applicable), and to connect the lamps to the power supply". The term "lighting equipment" is not defined in the NEC.

Panel Meeting Action: Reject

Panel Statement: The submitter did not include proposed text in accordance with 4-4.5(C) of the Regulations Governing Committee Projects.

Number Eligible to Vote: 12
Ballot Results: Affirmative: 12

1-150 Log #2245 NEC-P01 **Final Action: Accept**
 (100.Outline Lighting)

Submitter: Frederic P. Hartwell, Hartwell Electrical Services, Inc.
Comment on Proposal No: 1-125

Recommendation: Accept the panel action in principle. Revise as follows: "An arrangement of incandescent lamps, electric discharge lighting, or other electrically powered light sources to outline or call attention to certain features such as the shape of a building or the decoration of a window."

Substantiation: The terminology "lighting equipment" is vague, but presumably includes neon transformers, etc. that are not actually part of outline lighting, although they certainly are essential to its operation. This comment restores the time-honored terms in this definition, and then adds a phrase to capture LEDs, etc.

Panel Meeting Action: Accept
Number Eligible to Vote: 12
Ballot Results: Affirmative: 12

1-151 Log #246 NEC-P01 **Final Action: Reject**
 (100.Plenum, Air-Handling Unit Room, Plenum, Apparatus Casing, Plenum, Ceiling Cavity, Plenum, Duct Distribution, Plenum, Exhaust, Plenum, Furnace Supply, Plenum, Raised Floor)

Submitter: Technical Committee on Air Conditioning
Comment on Proposal No: 1-127

Recommendation: Accept the proposal in Principle in Part.
Substantiation: The proposed definitions of Exhaust Plenum and Furnace Supply Plenum should be rejected because these terms are not used in the NEC. The remainder of the proposal should be accepted in principle. See the comments from the Technical Committee on Air Conditioning on proposals 1-49 and 1-69.

Panel Meeting Action: Reject
Panel Statement: See panel statement on Comment 1-22.
Number Eligible to Vote: 12
Ballot Results: Affirmative: 12

1-152 Log #1614 NEC-P01 **Final Action: Accept**
 (100.Plenum, Air-Handling Unit Room, Plenum, Apparatus Casing, Plenum, Ceiling Cavity, Plenum, Duct Distribution, Plenum, Exhaust, Plenum, Furnace Supply, Plenum, Raised Floor.)

Submitter: Michael I. Callanan, IBEW
Comment on Proposal No: 1-127

Recommendation: Continue to reject.
Substantiation: We agree with the panel action and statement. While these definitions may be necessary for another NFPA standard they are not needed in NFPA 70.

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

Panel Meeting Action: Accept
Panel Statement: See panel statement on Comment 1-22. The panel does not necessarily agree with all of the submitter's substantiation.
Number Eligible to Vote: 12
Ballot Results: Affirmative: 12

1-153 Log #3858 NEC-P01 **Final Action: Accept**
 (100.Plenum, Air-Handling Unit Room, Plenum, Apparatus Casing, Plenum, Ceiling Cavity, Plenum, Duct Distribution, Plenum, Exhaust, Plenum, Furnace Supply, Plenum, Raised Floor.)

Submitter: Marcelo M. Hirschler, GBH International / Rep. Fire Retardant Chemicals Association

Comment on Proposal No: 1-127
Recommendation: *Continue rejecting this proposal. I agree with CMP 1 that the definitions are not needed.*

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, to put the terms into Article 100 of 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, 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
Panel Statement: See panel statement on Comment 1-22. The panel does not necessarily agree with all of the submitter's substantiation.

Number Eligible to Vote: 12
Ballot Results: Affirmative: 12

1-154 Log #28 NEC-P01 **Final Action: Reject**
 (100.Plenums)

Submitter: Stanley Kaufman, CableSafe, Inc.
Comment on Proposal No: 1-49

Recommendation: Accept the proposal as submitted.
Substantiation: The panel rejected the definitions of plenums because they were not used in the NEC. 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-handling unit room plenum in Articles 770, 800 and 820. Since the terms are used in multiple articles, these definitions belong in Article 100. See also proposal 16-9. 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

Panel Meeting Action: Reject
Panel Statement: See panel statement on Comment 1-22.
Number Eligible to Vote: 12
Ballot Results: Affirmative: 12

1-155 Log #533 NEC-P01 **Final Action: Reject**
 (100.Plenums)

Submitter: National Electrical Code Panel 16
Comment on Proposal No: 1-49

Recommendation: Accept the proposal as submitted.
Substantiation: The panel rejected the definitions of plenums because they were not used in the NEC. 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-handling unit room plenum in Articles 770, 800 and 820. See also proposals 16-37, 16-46, 16-64, 16-112 and 16-177 which were accepted by panel 16 and use the terms ceiling cavity plenum and raised floor plenum. See also proposal 16-9. Panel 16 accepted these definitions in its action on proposal 16-9. Since the terms are used in multiple articles, the definitions belong in Article 100.

In accordance with the Regulations Governing Committee Projects, this comment was balloted through Code-Making Panel 16 and is its response to the Technical Correlating Committee request for comment.

Panel Meeting Action: Reject
Panel Statement: See panel statement on Comment 1-22.
Number Eligible to Vote: 12
Ballot Results: Affirmative: 12

1-156 Log #54 NEC-P01 **Final Action: Reject**
 (100.Qualified Person)

Submitter: Michael V. Glenn, Longview Fibre Co.
Comment on Proposal No: 1-130

Recommendation: Reject this proposal.
Substantiation: I request the panel reconsider and reject the proposal. The submitter did not provide any substantiation of any problems with the existing definition just it would be nice to have his scenario. This type of substantiation does not provide any documentation of problems with the existing language or a real need for the change. There are many codes, engineering documents, NFPA documents, manufacturing documents, and many other types of information that determines what training might be required for a particular situation, installation, or piece of equipment all of which needs to be considered to deter-

mine who might be classified as qualified. The Panel's decision to include as a FPN note for some of the different types of things one might consider for training is commendable. However, the types of training needs for the many different situations and equipment in use today in the electrical, instrumentation, computer, and high tech fields makes the FPN note confusing. Training requirements are covered in many different safety codes and need not be repeated in the NEC. Documentation as required by these safety codes should be adequate and need not be stipulated in the NEC. This proposal should have been rejected and at the very least should remain as modified by the panel.

Panel Meeting Action: Reject

Panel Statement: The panel disagrees with the submitter's opinion that the proposal's substantiation is inadequate. The substantiation for this comment tends to indicate that the submitter does not understand that the fine print note focuses on immediate dangers to persons and property.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

ANTHONY: Since original Proposal 1-130 was presented by IBEW, the electrical construction industry has become more competitive. Rejection of this proposal hastens the "race to the bottom" in safety and installation quality.

1-157 Log #674 NEC-P01
(100.Qualified Person)

Final Action: Reject

Submitter: Charles M. Trout, Maron Electric Co. Inc.

Comment on Proposal No: 1-130

Recommendation: Continue to "Accept in Principle" but in panel action add the word "documented" before "safety training."

Substantiation: Having skills and knowledge and safety training are requirements for a qualified person. To say that these already mandatory requirements become unacceptable with the addition of the word documented is I believe incorrect. I don't believe that a definition can be written that does not contain requirements. As an example: Conductor Bare. A conductor having no covering or electrical insulation whatsoever. There are two mandatory requirements here. No covering and no electrical insulation. Conductor, insulated. A conductor encased within material of composition and thickness that is recognized by this code as electrical insulation. There are two mandatory requirements here. Encasement and recognition by this code.

There are five definitions of qualified person on page 291 of the NFPA Glossary of Terms (copy provided). Two of these definitions REQUIRE possession of a recognized degree, certificate, professional standing, or skill, and who by knowledge, training, and experience has DEMONSTRATED the ability to deal with problems associated to the subject matter, the work, or the project.

The panel may want to recommend to the Technical Correlating Committee that 2.2.2 in the NEC Style Manual be revised to correlate with the Glossary of Terms.

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

Panel Meeting Action: Reject

Panel Statement: CMP 1 reaffirms its position that the word "documented" is mandatory language, as it was presented in the original proposal.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

ANTHONY: See my Explanation of Negative Vote on Comment 1-156.

1-158 Log #992 NEC-P01
(100.Qualified Person)

Final Action: Accept in Part

Submitter: Dorothy Kellogg, American Chemistry Council

Comment on Proposal No: 1-130

Recommendation: The panel action should remain accept in principle. However, the FPN added by CMP 1 should be modified as noted below.

Revise the definition of Qualified Person to read as follows (this is extracted text from the final panel action):

Qualified Person. One who has skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training on the hazards involved.

~~FPN: Examples of this safety training include, but are not limited to, training in the use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools and test equipment when working on or near exposed conductors and or circuit parts that are or can become energized. Refer to NFPA 70E for electrical safety training requirements for qualified persons.~~

Substantiation: The new FPN contains a partial list of electrical safety training examples extracted from Part II Section 1.5.4.1 of NFPA 70E-2000. Per NFPA 70E-2000, qualified persons may also need to be able to distinguish exposed energized parts from other parts, determine the nominal Voltage of exposed energized parts, know the safe approach distances, and be able to determine the degree of hazard. Rather than extract a partial list of training examples that may change in NFPA 70E, the ACC recommends referring directly to NFPA 70E for these training requirements.

Panel Meeting Action: Accept in Part

Revise the fine print note to read as follows:

"FPN: Refer to NFPA 70E-2004 for electrical safety training requirements."

Panel Statement: The panel has accepted only the part of the comment that states, "FPN: Refer to NFPA 70E for electrical safety training requirements." The panel rejects the wording "for qualified persons" because NFPA 70E includes training requirements for both qualified and unqualified persons. CMP 1 considered the addition of the date "2004" to be an editorial issue.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

ANTHONY: See my Explanation of Negative Vote on Comment 1-156.

1-159 Log #1072 NEC-P01
(100.Qualified Person)

Final Action: Accept in Part

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

Comment on Proposal No: 1-130

Recommendation: Accept this proposal in principle and revise the Fine Print Note to the definition of Qualified Person to read as follows:

FPN: Refer to NFPA 70E-2003 for electrical safety training requirements. Examples of this safety training include, but are not limited to, training in the use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools and test equipment when working on or near exposed conductors and or circuit parts that are or can become energized. Workers who are undergoing qualification training typically perform certain tasks normally done only by qualified persons, but done safely under the supervision of a qualified person.

Substantiation: This proposal should be accepted in principal. However, Edison Electric Institute agrees with Mr. Barrios' affirmative comment that NFPA 70E should be referenced in the Fine Print Note due its close relationship with 110.16. Workers who are undergoing training and are not yet considered fully qualified need to be addressed in the FPN to recognize that they can perform certain tasks normally done only by qualified persons, but can be done safely during training under the supervision of a qualified person.

Panel Meeting Action: Accept in Part

Revise the fine print note to read as follows:

"FPN: Refer to NFPA 70E-2004 for electrical safety training requirements."

Panel Statement: The panel has accepted only the part of the comment that states, "FPN: Refer to NFPA 70E-2003 for electrical safety training requirements." The panel rejects the remainder of the comment, since the information is available in NFPA 70E. CMP 1 considered the revision of the date "2003" to "2004" to be an editorial issue.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

ANTHONY: See my Explanation of Negative Vote on Comment 1-156.

1-160 Log #2181 NEC-P01
(100.Qualified Person)

Final Action: Reject

Submitter: John H. Schwab, Jr., City of Wauwatosa, WI

Comment on Proposal No: 1-130

Recommendation: Reinsert the word "documented" before "safety training" like it was in the original proposal.

Substantiation: To have qualified persons, have to work with other personnel that say they have had "Safety Training" without having to document it can lead to unsafe conditions if in fact they did not have the training.

Panel Meeting Action: Reject

Panel Statement: See panel action and statement on Comment 1-157.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

ANTHONY: See my Explanation of Negative Vote on Comment 1-156.

1-161 Log #3185 NEC-P01
(100.Qualified person)

Final Action: Reject

Submitter: Michael I. Callanan, IBEW

Comment on Proposal No: 17-129

Recommendation: This proposal should have been Accepted.

Substantiation: The Panel statement reads as follows:

The panel concludes that the word "documented" represents a mandatory requirement. The panel refers the submitter to 2.2.2 of the NEC Style Manual.

With respect to 2.2.2 of the Style Manual, the word "required" is used in Article 100 definitions of Bonding Jumper, Nonadjustable (as applied to circuit breakers), Ground-Fault Protection of Equipment and Power Outlet. Apparently, these uses do not represent a mandatory requirement. Furthermore, the word "shall" is also used in Article 100 for the definition of "in sight of".

This is clearly a mandatory rule, as outlined in 90.5, that exists currently in Article 100. The definition of “Listed” could also be read as a requirement. To hold the definition of Qualified Person to a different standard by not allowing the word documented is contrary to current and acceptable language in use.

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

Panel Meeting Action: Reject

Panel Statement: See panel action and statement on Comment 1-157.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

ANTHONY: See my Explanation of Negative Vote on Comment 1-156.

1-162 Log #89 NEC-P01 **Final Action: Reject**
(100.Raceway)

Submitter: Dan Leaf Rancho Santa Margarita, CA

Comment on Proposal No: 1-131

Recommendation: Accept proposal.

Substantiation: The panel statement is enclosed means surrounding. A dictionary definition of surround is “enclosed on all sides”. Lighting and trolley busway is not enclosed an all sided as is power busway nor is surface metal raceway of Article 322.

Panel Meeting Action: Reject

Panel Statement: The panel reaffirms its statement on Proposal 1-131.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-163 Log #457 NEC-P01 **Final Action: Reject**
(100.Reliable (New))

Submitter: Roy Kampmeyer, Power Electronic Systems, Inc.

Comment on Proposal No: 1-137

Recommendation: Add a definition “Reliable” as follows:

“Reliable. Can sustain a single point failure without compromising the intended function over the lifetime of the item to which “reliable” is directed.”

Substantiation: “Reliable” is already used in the definition of Bonding Jumper and will be used in the definition of Ground-Fault Circuit Interrupter.

Panel Meeting Action: Reject

Panel Statement: The comment recommends wording that is not related to the proposal and is not in compliance with the Regulations Governing Committee Projects, Section 4-4.5(b).

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-164 Log #993 NEC-P01 **Final Action: Accept in Principle**
(100.Separately Derived System)

Submitter: Dorothy Kellogg, American Chemistry Council

Comment on Proposal No: 1-132

Recommendation: The panel action should remain accept in principle. However, the definition should be modified per the recommendation below.

Revise the definition of Separately Derived System to read as follows (this is extracted text from the final panel action):

Separately Derived System. A premises wiring system whose power is derived from transformers, generators, and other a sources of electric energy other than a service. Such systems have no direct electrical connection, including a solidly connected grounded circuit conductor, to supply conductors originating in another system.

Substantiation: As noted in Mr. Barrios’ affirmative comment, the ACC believes that retaining “transformers” and “generators” is important to understanding the definition.

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action on Comment 1-167.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

Comment on Affirmative:

TROGLIA: See my comment on vote on Comment 1-167.

1-165 Log #1220 NEC-P01 **Final Action: Accept in Principle**
(100.Separately Derived System)

Submitter: Donald A. Ganiere Ottawa, IL

Comment on Proposal No: 1-135

Recommendation: Panel should accept this proposal.

Substantiation: Contrary to the panel statement, this section is not clear to many code users as currently written. The proposed text would be more “user friendly.” There are many respected people in the electrical trade that insist that transformers are not SDS because of the grounding connections between

the primary and secondary systems. There have been many long discussions of this issue on the Internet code forums and the panel should accept this proposal as it more clearly states the panel’s intent.

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action on Comment 1-167.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

Comment on Affirmative:

TROGLIA: See my comment on vote on Comment 1-167.

1-166 Log #1295 NEC-P01 **Final Action: Accept**
(100.Separately Derived System)

Submitter: James M. Naughton, IBEW

Comment on Proposal No: 1-132

Recommendation: Panel 1 should continue to Accept in Principle.

Substantiation: This comment is the work of a Task Group from Panl 4 assigned to recommend an action, by direction of the Technical Correlating Committee.

The panel’s version is a good start, although more clarity is needed. This definition has not provided total coverage of a separately derived system. A transformer with an isolated primary to secondary is a separately derived system but technically doesn’t fit with the parameters of the revised definition.

Panel Meeting Action: Accept

Panel Statement: See panel action on Comment 1-167.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

Comment on Affirmative:

TROGLIA: See my comment on vote on Comment 1-167.

1-167 Log #1419 NEC-P01 **Final Action: Accept**
(100.Separately Derived System)

Submitter: Lanny G. McMahill Phoenix, AZ

Comment on Proposal No: 1-132

Recommendation: Revise the definition as follows: “Separately Derived System. A premises wiring system whose power is derived from a source of electric energy or equipment other than a service. Such systems have no direct electrical connection, including a solidly connected grounded circuit conductor, to supply conductors originating in another system”.

Substantiation: Panel 1 did a good job in modifying the text to eliminate the need for a list of electric energy power sources that constitute a separately derived system. However, the revised definition has eliminated equipment that is not an electric power source, such as transformers, inverters, converters, etc. This was likely an oversight. To correct, it would seem appropriate that Panel 1 add the words “or equipment” after “energy”. This would clarify the definition in that in addition to electric power sources, separately derived systems include equipment such as transformers, converters and inverters.

Panel Meeting Action: Accept

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

Comment on Affirmative:

TROGLIA: Edison Electric Institute agrees with definition of “Separately Derived System” as stated in the Panel’s action on Proposal 1-132. Although I am voting in the affirmative on this comment to include a revised definition of “Separately Derived System” in Article 100, I am concerned that including the phrase “or equipment” may result in improper distinctions being drawn between various “sources”.

All circuits and systems, including those that are separately derived, contain only sources (current or voltage) and sinks. Any circuit element that produces a voltage rise is a source and any circuit element that produces a voltage drop is a sink. Therefore the term “source” is broad and includes energy production devices (active sources) as well as transformation devices. Transformers may be a source in some systems and sinks in others. There is no need, nor is it desirable, to itemize equipment that may fall under the broad definition of a source. Any circuit or system meeting the conditions stipulated in the definition is a separately derived system.

1-168 Log #2247 NEC-P01 **Final Action: Accept in Principle**
(100.Separately Derived System)

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

Comment on Proposal No: 1-132

Recommendation: Accept the panel action in principle. Add the words “or distribution point for” after “a source of” and before “electric energy other than a service.”

Substantiation: The panel is to be commended for trying to move this definition away from the laundry list approach. This comment responds to the

concerns in the voting. The word “equipment” is not appropriate because the system would not be powered “from a source of equipment” (which is how it would come out if you ignore the other option). This comment achieves the goal of using generic wording.

Panel Meeting Action: Accept in Principle

Panel Statement: The panel does not necessarily agree with all of the submitter’s substantiation. See panel action on Comment 1-167.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

Comment on Affirmative:

TROGLIA: See my comment on vote on Comment 1-167.

1-169 Log #2950 NEC-P01
(100.Separately Derived System)

Final Action: Reject

Submitter: Michael J. Johnston Plano, TX

Comment on Proposal No: 1-132

Recommendation: Continue to accept the revision of this definition as proposed as follows:

Separately Derived System. A premises wiring system whose power is derived from a battery, from a solar photovoltaic system, fuel cell, or from a generator, transformer, or converter windings, and that has no direct electrical connection, including a solidly connected grounded circuit conductor, to supply conductors originating in another system.

Substantiation: It is appropriate to accept the additional words “fuel cell” in the existing definition without impacting the current definition of this term as originally submitted. Eliminating the list format within this definition would be an even cleaner end result but should be done with consideration of what could be lost in the process. A valid point was made about the definition as adjusted by Panel 1 in the proposal stages has limited the definition to certain courses such as photovoltaic systems, and fuel cells, and could possibly not cover equipment such as transformers, inverters, converters, etc. many of which are separately derived systems. These types of equipment are generally supplied by a feeder from the service, which in reality is a source supplied by the service through a feeder from the service. The definition appears to be best revised at this time by the insertion of the term “fuel cell” to the 2002 definition of separately derived system.

Panel Meeting Action: Reject

Panel Statement: CMP-1 reaffirms its position against a laundry list of items. See panel statement on Proposal 1-132 and panel action on Comment 1-167.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

Comment on Affirmative:

TROGLIA: See my comment on vote on Comment 1-167.

1-170 Log #3891 NEC-P01
(100.Separately Derived System)

Final Action: Accept

Submitter: Technical Correlating Committee on National Electrical Code®

Comment on Proposal No: 1-132

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. The Technical Correlating Committee directs that this Proposal be referred to Code-Making Panels 4, 5, and 13 for comment.

Substantiation:**Panel Meeting Action: Accept**

Panel Statement: CMP-1 has taken the direction of the TCC. See panel action on Comment 1-167.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

Comment on Affirmative:

TROGLIA: See my comment on vote on Comment 1-167.

1-171 Log #1294 NEC-P01
(100.Solidly Grounded)

Final Action: Reject

Submitter: James M. Naughton, IBEW

Comment on Proposal No: 1-136

Recommendation: The panel should reconsider and reject the proposal.

Substantiation: This comment is the work of a Task Group from Panel 4 assigned to recommend an action, by direction of the Technical Correlating Committee.

Proper operation of GFP is critical in protecting solidly grounded wye electrical services and some feeders of more than 150 volts to ground (not exceeding 600 volts phase-to-phase) systems. Solid connection to ground of the grounded conductor is very necessary in the proper operation of the functional GFP and, as such, the definition should remain in 230.95 for ease of use and so Panel 4 has control over any text and exceptions, as in this case that could be proposed.

The new definition being proposed in Article 100 already has modified the meaning, by leaving off the specific reference to the grounded conductor and that this grounded conductor must be solidly connected to ground without any resistors or impedance devices.

Panel Meeting Action: Reject

Panel Statement: The proposed definition of “solidly grounded” is general and is independent of what is to be grounded. The specific Code rules specify what is to be solidly grounded. There is nothing inconsistent with this definition being applied to a grounded conductor as specified in 230.95 or other Code rules.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-172 Log #455 NEC-P01
(100.Structure (New))

Final Action: Reject

Submitter: Arthur Isaacsen, M & J Enterprises International Inc.

Comment on Proposal No: 1-137

Recommendation: I’ve been in the electrical field for 23 years. I feel that it is unsafe to have a standard wall switch located right outside the shower. I feel that when you are “soaking wet” in the shower you can reach out and turn the 110V switch on or off. There should be a code prohibiting a switch to be that close to a shower.

Substantiation: I feel this is a real safety issue and should be addressed.

Panel Meeting Action: Reject

Panel Statement: The comment recommends wording that is not related to the proposal and is not in compliance with the Regulations Governing Committee Projects, Section 4-4.5(b).

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-173 Log #483 NEC-P01
(100.Supplementary Overcurrent Protective Device)

Final Action: Accept

Submitter: James T. Dollard, Jr., IBEW Local 98

Comment on Proposal No: 1-138

Recommendation: Continue to accept proposal 1-138.

Substantiation: This comment is the work of a task group assigned to address the request of Code-Making Panel 1 and the Technical Correlating Committee for comment from Code-Making Panel 10 on proposal 1-138. The task group consisted of the following members of Code-Making Panel 10: Charlie Blizard, Dennis Darling, Carl Fredericks, Clive Kimblin, George Ockuly, Gerry Williams, John Zaplatosch, Rich Lofton, Vince Saporita and Jim Dollard. After significant review and deliberation, the task group recommends that the proposal continue to be accepted. Code-Making Panel 10 agrees with the substantiation and panel action. This definition will prove usability and additional clarity where supplementary overcurrent protective devices are addressed in this code.

Panel Meeting Action: Accept

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

MCMAHILL: The definition as accepted by panel 1 appears to be in violation of the NEC Style Manual Section 2.2.2 as it contains the term being defined. In addition, this panel member is of the opinion that this new definition is unnecessary. Presently, there is no definition in Article 100 for an “overcurrent protective device.” If necessary, it seems logical to define an “overcurrent protective device” first. Once an “overcurrent protective device” is defined, there should be no need to add a definition for a “supplementary overcurrent protective device” as the term “supplementary” is commonly understood.

1-174 Log #1418 NEC-P01
(100.Supplementary Overcurrent Protective Device)

Final Action: Reject

Submitter: Lanny G. McMahl Phoenix, AZ

Comment on Proposal No: 1-138

Recommendation: Delete this new definition.

Substantiation: There is no need for this definition. The term is not used in two or more articles per the NEC Style Manual Section 2.2.2.1. Although various combinations of the words in the term are used in the NEC, in most instances the use of these words is to indicate protection that is over and above any required overcurrent protection - in other words, supplementary. It should be noted that where the term “supplementary protection” is used in the NEC, the text also states that this protection (supplementary protection) does not need to be readily accessible. Again, because the protection is over and above any required protection (supplementary). In addition, the substantiation for adding this term mentions supplemental protectors and supplemental fuses. Supplemental protectors and fuses are devices that are typically provided in

end-use equipment. These devices are not necessarily the same as the supplementary protection addressed in the NEC. Therefore, this new definition should be deleted.

Panel Meeting Action: Reject

Panel Statement: It is not necessarily correct that supplementary overcurrent protection is over and above any required protection. Sections 240.5, 430.72, and 702.6 permit a relaxation of requirements where supplementary overcurrent protection is used. On the other hand, 422.11(F)(1), 424.72(A), and 690.4(C) state that supplementary protectors as defined in Proposal 1-138 are prohibited, as the "supplementary protection" in the equipment covered by those sections must be suitable for branch circuit protection. Finally, 690.9(C) renders branch circuit protectors and supplementary protectors equivalent for purposes of photovoltaic installations. Thus the need of a definition is evident.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-175 Log #1004 NEC-P01
(100.Voltage to Ground)

Final Action: Accept

Submitter: Noel Williams, Noel Williams Consulting

Comment on Proposal No: 1-144

Recommendation: This proposal should continue to be rejected

Substantiation: As noted in the panel statement, the actual voltage to ground of an ungrounded system "may be indeterminate." The current definition does not define what the measured voltage will be, only what the voltage will be considered to be when "voltage to ground" is used in the NEC. This definition is needed for determining workspace requirements under 110.26 and 110.34 and for use with other sections such as 250.97.

Panel Meeting Action: Accept

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

ARTICLE 110 — REQUIREMENTS FOR ELECTRICAL INSTALLATIONS

1-176 Log #13 NEC-P01 **Final Action: Reject**
(110.3)

Submitter: W. Creighton Schwan Hayward, CA

Comment on Proposal No: 1-145

Recommendation: Reconsider, and accept proposal to identify abandoned wiring left in place, or remove it. A more appropriate location is 110.12 (D), Permanent Wiring. (New)

Substantiation: 1. Abandoned wiring left in place adds to the quantity of combustible material, in case of a fire.

2. A strict reading of 110.12, Mechanical Execution of Work requires this.

3. Future maintenance and troubleshooting of the wiring system will be safer by the adoption of this proposal.

Panel Meeting Action: Reject

Panel Statement: The Panel reaffirms its rejection of the proposal for the reasons included in its statement. The comment offers inadequate technical substantiation for a change of this magnitude.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

HICKMAN: Although I agree with the panel statement for Comment 1-176 in part, I do not fully agree with the panel statement in its entirety. I agree that the submitter did not necessarily submit adequate technical substantiation in this comment to substantiate this proposed change. I do not agree with the portion of the panel statement for this comment where "the panel reaffirms its rejection of the proposal for the reasons included in its statement." I do not agree with the portion of the panel statement to Proposal 1-145 stating that the proposed change is not justified "considering it tenuous nexus to electrical safety." To the contrary, it is my belief that there can be a substantial link between electrical safety and permanent wiring abandoned in place. I believe the submitter of Proposal 1-145, and the submitters of Comments 1-176, 1-177, and 1-178 have recognized a safety issue that needs to be addressed.

1-177 Log #15 NEC-P01
(110.3)

Final Action: Reject

Submitter: Randy Barnett Loveland, CO

Comment on Proposal No: 1-145

Recommendation: Add text to read as follows:

110.3. Unused wiring: Unused electrical equipment left abandoned in place shall be tagged and identified at all terminations and junction points, as being a potential hazard. If required by the Authority Having Jurisdiction, unused electrical equipment shall be removed from all accessible areas.

Substantiation: The National Fire Codes and National Electrical Code covers this situation in many locations. See similar requirements here.

See NFPA 76 and 914 identified below.

NFPA 76, 9.10.2 Where practical, unused or dead cable should be mined (removed) and discarded. Care should be taken during the removal process so as to protect the existing live cables from damage. All cables that have been cut and abandoned in place should be capped.

A.1.3.2 Alterations or new installations in existing facilities should not diminish the level of protection below that which existed prior to the alteration except that protection features in excess of those features recommended in this document can be left in service, removed, or abandoned in place. If abandoned in place, such systems should be clearly identified as no longer being in service.

NFPA 914, 9.7.4. Permanent wiring abandoned in place shall be tagged or otherwise identified at its termination and junction points as "Abandoned in Place," or it shall be removed from all accessible areas and insulated from contact with other live electrical wiring or devices.

NEC 2002, 372.13 Discontinued Outlets. When an outlet is abandoned, discontinued, or removed, the sections of circuit conductors supplying the outlet shall be removed from the raceway. No splices or reinsulated conductors, such as would be the case of abandoned outlets on loop wiring, shall be allowed in raceways.

NEC 2002, 374.7 Discontinued Outlets. When an outlet is abandoned, discontinued, or removed, the sections of circuit conductors supplying the outlet shall be removed from the raceway. No splices or reinsulated conductors, such as would be the case with abandoned outlets on loop wiring, shall be allowed in raceways.

NEC 2002, 390.7 Discontinued Outlets. When an outlet is abandoned, discontinued, or removed, the sections of circuit conductors supplying the outlet shall be removed from the raceway. No splices or reinsulated conductors, such as would be the case with abandoned outlets on loop wiring, shall be allowed in raceways.

See also the 2002 NEC Sections 640.2; 640.3(A) 645.5(6); 725.2; 725.3(B); 725.61(A) and (B)(1); 725.61(E); 760.2; 760.3(A); 760.61A) and (B)(1); 770.2; 770.3(A); 770.53(A) and (B)(1); 800.2; 800.52(B); 800.53(A) and (B)(1); 820.2; 820.3(A); 820.53(A) and (B)(1); 820.53(D); and 830.2; 830.3; 830.55(B) and (C)(1).

NFPA 75, Section 4-3.4* Abandoned cables shall not be allowed to accumulate. Cables not identified for future use shall be removed.

NFPA 75, *A-4-3.4 Abandoned cable can interfere with airflow and extinguishing systems. Abandoned cable also adds to the fuel loading.

The references cited above must be considered in order to show compliance with 90.1(B) for proper maintenance.

There was a great deal of justification presented for this change in the NEC, considering its impact to the safety of those who may be subjected to hazards in many public places.

Panel Meeting Action: Reject

Panel Statement: No justification has been presented that unused wiring is a "potential hazard". No objective basis has been presented for an authority having jurisdiction to make a determination to remove unused electrical equipment in any specific instance.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

HICKMAN: I believe the submitter of Proposal 1-145, and the submitters of Comments 1-176, 1-177, and 1-178 have recognized a safety issue that needs to be addressed. Although the submitter may not have submitted adequate technical substantiation to warrant this proposed change, I do not necessarily agree that unused wiring is not a potential hazard.

1-178 Log #41 NEC-P01
(110.3)

Final Action: Reject

Submitter: Joseph A. Tedesco Boston, MA

Comment on Proposal No: 1-3

Recommendation: Reconsider and Accept the proposal.

Substantiation: The potential hazards related to exposed live or unused equipment is one that cannot be ignored!

Panel Meeting Action: Reject

Panel Statement: This comment is in reference to Proposal 1-145. The comment subject matter is outside the scope of the NEC. The submitter is directed to NFPA 70B, which covers maintenance of electrical systems and equipment. The Panel reaffirms its rejection of the proposal for the reasons included in its statement. The comment offers inadequate technical substantiation for a change of this magnitude.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

HICKMAN: Although I agree with the panel statement for Comment 1-178 in part, I do not fully agree with the panel statement in its entirety. I agree that the submitter did not necessarily submit adequate technical substantiation in this comment to substantiate this proposed change. I do not agree with the

portion of the panel statement for this comment where “the panel reaffirms its rejection of the proposal for the reasons included in its statement.” I do not agree with the portion of the panel statement to Proposal 1-145 stating that the proposed change is not justified “considering its tenuous nexus to electrical safety.” To the contrary, it is my belief that there can be a substantial link between electrical safety and permanent wiring abandoned in place. I believe the submitter of Proposal 1-145, and the submitters of Comments 1-176, 1-177, and 1-178 have recognized a safety issue that needs to be addressed. Additionally, I do not necessarily agree that the subject matter is outside the jurisdiction of the NEC.

1-179 Log #206 NEC-P01 **Final Action: Reject**
(110.3)

Submitter: Joe Tedesco Boston, MA
Comment on Proposal No: 1-145

Recommendation: Please reconsider and add a new rule revised as follows in:

110.12(D) Defective or Damaged Electrical Equipment.

Defective or damaged electrical equipment shall be replaced or repaired, or shall be removed from service and discarded.

Substantiation: The removal of defective or damaged electrical equipment will help to minimize the possibility of accidents that could include contact with exposed parts with sharp edges and energized conductors.

Panel Meeting Action: Reject

Panel Statement: The comment recommends wording that is not related to the proposal and is not in compliance with the Regulations Governing Committee Projects, Section 4-4.5(b).

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-180 Log #421 NEC-P01 **Final Action: Reject**
(110.3)

Submitter: Joe Tedesco Boston, MA
Comment on Proposal No: 1-145

Recommendation: Please reconsider and add a new rule revised as follows in:

110.12(D) Defective or Damaged Electrical Equipment.

Defective or damaged electrical equipment shall be replaced or repaired, or shall be removed from service and discarded.

Substantiation: The removal of defective or damaged electrical equipment will help to minimize the possibility of accidents that could include contact with exposed parts with sharp edges, and energized conductors.

Panel Meeting Action: Reject

Panel Statement: The comment recommends wording that is not related to the proposal and is not in compliance with the Regulations Governing Committee Projects, Section 4-4.5(b).

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Abstain: 1

Explanation of Abstention:

ANTHONY: Intuitively speaking, all electrical professionals must admit that removal of old cable just makes sense. The economic burden the requirement places upon users of the NEC may be too great, however. Perhaps, this requirement is better done at the local level. I hope the proposal is debated again in future code cycles.

18-3 Log #547 NEC-P18 **Final Action: Accept**
(110.3 and 110.4)

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 1-146

Recommendation: It was the action of the Technical Correlating Committee that this Proposal be referred to Code-Making Panel 18 for action within Article 406. This action will be considered by Code-Making Panel 18 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

The panel accepts the direction of the TCC on this comment, and has considered Proposal 1 146. The panel rejects Proposal 1 146.

Panel Statement: CMP 18 concurs with the action of CMP 1.

The panel rejects the proposal that receptacles should be mounted with the ground contact in the upright position.

The panel has consistently rejected similar proposals and the submitter has provided no technical substantiation for his recommendation. The orientation of the grounding contact on the receptacle is installation specific.

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

1-181 Log #3486 NEC-P01 **Final Action: Reject**
(110.3(C) (New))

Submitter: David Sroka Turner Falls, MA
Comment on Proposal No: 1-147

Recommendation: New text to read:

110.3(C) Nameplate Data. All labeled equipment which requires electrical connections shall include the following information on the nameplate: fault (current interrupting rating (if applicable); short-circuit (withstand) rating; ambient temperature rating; temperature rating of terminals.

FPN: Applicable equipment includes (but is not limited to): switchboards, motor control centers and VFDs, busway, disconnect and transfer switches, panel boards, central battery inverter units, control cabinets, lighting control cabinets, elevator controllers and HVAC equipment.

Substantiation: This data is often hard/impossible to obtain years after the original installation. This information is important enough to merit being on the nameplate it needs to be readily available - not requiring removal of (SAY) a panelboard cover. So, this is partly a safety proposal. This data is seldom seen in the field for the last five pieces of equipment noted. Some switchboards and motor control centers are still manufactured with bus structures at high enough short circuit ratings to allow for future interrupting rating upgrades with higher AIC overcurrent devices. Side note: NEC Handbook 110.10 notes HVAC equipment short circuit ratings. Could this information transfer to NEC 110.10? Side Note: Suggest short circuit (withstand) rating be a definition in Article 100.

Panel Meeting Action: Reject

Panel Statement: Nameplate data and other required equipment markings are specified in specific product standards. The fine print note would place requirements on certain types of equipment not presently required to be marked with such information. The proposed FPN contains material that could be interpreted as representing a requirement, which is not permitted by 3.1.3 of the NEC Style Manual. Also, the proposed language “all labeled equipment which requires electrical connections” is unacceptably broad and may include types of equipment for which this information is unnecessary. The panel concludes that this subject is already adequately covered by labeling requirements of individual product standards.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-183 Log #548 NEC-P01 **Final Action: Accept**
(110.11)

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 1-152

Recommendation: The Technical Correlating Committee directs that the Panel clarify the Panel Action on this Proposal as to whether the last sentence of the Proposal is deleted. This action will be considered by Code-Making Panel 1 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

The panel accepts the TCC directive and rejects Proposal 1-152. CMP 1 retains the last sentence of 110.11 as in the 2002 NEC.

Panel Statement: The panel action on this comment correlates with CMP 1 action on Comment 1-231.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-184 Log #1417 NEC-P01 **Final Action: Reject**
(110.11, FPN 2)

Submitter: Lanny G. McMahl Phoenix, AZ
Comment on Proposal No: 1-153

Recommendation: Accept the proposed change.

Substantiation: The submitter of this revision is absolutely correct - there is no distinction between “deterioration” and “severe deterioration” in the NEC. Obviously, conductors and equipment should not be subjected to deterioration, be it normal, mild or severe. As the submitter has noted, the NEC Style Manual, Section 3.2.1 states that: “The NEC shall not contain references or requirements that are unenforceable or vague”. The term “severe” is subjective, unenforceable and vague and should not be used if it can be avoided. In this case, it can be avoided. Although this is simply a proposed change to a fine print note, for consistency purposes explanatory information should comply with the guidelines and requirements in the NEC Style Manual too.

Panel Meeting Action: Reject

Panel Statement: Since FPN's contain explanatory material only and not enforceable requirements upon which judgment must be made as to applicability, enforceability of language in the FPN is not relevant.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

MCMAHILL: I disagree with the panel's reason for rejecting this comment. Although "fine print notes" contain explanatory material only and not enforceable requirements, they should still be required to comply with the NEC Style Manual Section 3.2.1. Accepting this comment would have accomplished that goal.

1-185 Log #11 NEC-P01 **Final Action: Accept**
(110.12 (New))

Submitter: Brian E. Rock, Hubbell Inc.

Comment on Proposal No: 1-157

Recommendation: Reject the proposal: ~~H0.12 Enclosure Types. Table H0.12 provides the basis for selecting enclosures for use in specific locations other than hazardous (classified) locations. The enclosures are not intended to protect against conditions such as condensation, icing, corrosion, or contamination that may occur within the enclosure or enter via the conduit or unsealed openings. These internal conditions shall require special consideration by the installer and user.~~

~~Equipment identified only as "dry locations Type 1" or "indoor use only" shall be protected against permanent damage from the weather during building construction.~~

Do NOT insert Proposed Table 110.12 here or renumber the existing Section 110.12 and following sections.

Do NOT move the existing text and table from 430.91 to a new Section 110.12.

Substantiation: Enclosure Type ratings should NOT apply on a mandatory basis to all electrical distribution and utilization equipment by inclusion in Article 110. Any product can be presently rated for Enclosure Type per NEMA Standard 250 or UL Standard UL50 on a voluntary basis. Table 430.91 on a mandatory basis is specific to Motor Control Enclosures.

This new Proposal would introduce Enclosure Type ratings to indoor products presently unrated and would mandate one particular rating scheme to the exclusion of other recognized enclosure rating schemes. Under this all-inclusive, no-exceptions proposal, products presently evaluated and marked as IP56, etc., "Suitable for Wet Locations", "Suitable for Damp Locations", "oil resistant", "liquidtight", "shore power", etc., without any markings of Enclosure Types as defined in NEMA Standard 250 and UL Standard UL50, all these products would have to:

- Be re-evaluated and re-tested for Enclosure Type ratings in compliance with NEMA Standard 250 or UL Standard UL50
- Have tooling or product labels revised to incorporate markings for Enclosure Types
- Possibly be redesigned to meet Enclosure Type test conditons that are somewhat different than the existing end-product enclosure tests for which they were originally designed.

In view of the safe record of field-use of all those products not presently bearing Enclosure Type markings in the intended applications and the negligible safety benefits to users, the associated economic costs ultimately passed along to the consumer cannot be justified.

Many electrical products, particularly those used indoors, are presently Listed as safe by UL and other third-party product certifiers without any enclosure rating whatsoever. These products are already evaluated for incidental contact with the enclosed electrically energized parts as part of the end-product standard's requirement, without ever having to bear an "Enclosure Type 1" marking.

NEC section 314.15(A) and UL Standards UL514A, UL514B and UL514C List outlet boxes, fittings and covers as "Suitable for Wet Locations", "Suitable for Damp Locations", etc. UL514A, UL514B, and UL514C tests for "Wet Locations" are more severe than Type 3 / 3R tests. Neither Table 430.91 nor proposed Table 110.12 addresses those standards' "concretetight" enclosure requirements essential for those applications.

NEC Articles 350 and 356 and UL Standards UL 1660, UL360 and UL514B List liquidtight flexible conduits and fittings for resistance to oil spray, without being marked "Enclosure Type 13".

NEC Article 555, referenced NFPA 302 and UL Standard UL498 Marine List shore-power inlets for water spray conditions of marinas and boatyards, without reference to Enclosure Types.

NEC Sections 210.8(A)(3), 527.2(B) and 527.6, 552.41(C)(4) and 552.41(E), and 555.19 and Articles 550 and 551 and UL Standard UL943 List ground-fault circuit interrupters for wet locations and for dust exposure, without being marked "Enclosure Type 3R" or "Enclosure Type 12".

There is no technical justification for usurping these existing marked enclosure ratings.

Panel Meeting Action: Accept

Panel Statement: The panel concludes that proposal 1-157 should be rejected for the reasons stated in Comments 1-185, 1-227, and 1-232. See panel action and statement on comment 1-231.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-186 Log #184 NEC-P01 **Final Action: Reject**
(110.12)

Submitter: David Shapiro, Safety First Electrical Contracting, Consulting, and Safety Education

Comment on Proposal No: 1-158

Recommendation: Delete introductory sentence of section.

Substantiation: Encouraging use of another standard (however worthy) by reference in an FPN, in order to make this NEC language operationalizable, is indicative of this sentence's vagueness. Non-specifiable requirements violate the language guidelines for NEC rules. Furthermore, it is at odds with 90.1(A) and (B). It is nigh-impossible of consistent enforcement, as acknowledged by Mr. McMahonill, representing inspectors. Equally important, it has exceedingly little to do with practical safeguarding, or with creating an installation that is essentially free from hazard. No one will argue that setting one receptacle at 18 in. AFF and the next at 16 in. is particularly workmanlike, or that setting one at a noticeable angle off vertical is neat; at the same time no one will argue that either installation is inconsistent with 90.1. Ty-wrapping the conductors in a crowded loadcenter will tidy it, but the ties may need to be cut, which can entail some risk, in order to trade a conductor. In that case, neatness increases hazard. Any knowledgeable inspector, even a multi-hat, knows not to require lightning down conductors to follow building angles in order to be neat. Or maybe they don't all know that. Most electricians who have been in the trade for decades will testify that the introduction to 110.12 is the provision less-skilled authorities tend to hang their hats on when demanding "my way or the highway." Getting rid of it will remove that temptation, or at least make it harder to indulge. With it gone, the new FPN is highly unlikely to be misread as incorporating the NEIS by reference as mandatory, which FPNs cannot do.

Panel Meeting Action: Reject

Panel Statement: The comment recommends wording that is not related to the proposal and is not in compliance with the Regulations Governing Committee Projects, Section 4-4.5(b).

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-187 Log #549 NEC-P01 **Final Action: Accept**
(110.12 (New))

Submitter: Technical Correlating Committee on National Electrical Code®

Comment on Proposal No: 1-157

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.

Also, see the Technical Correlating Committee Note on Proposal 1-152. It was the action of the Technical Correlating Committee that this Proposal be referred to Code-Making Panels 8, 9, 11, 12, 13, 17, 18, and 19 for 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 panel action on Comment 1-185.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-188 Log #459 NEC-P01 **Final Action: Reject**
(110-12 (New) & 110-20)

Submitter: Stanley J. Folz, Folz Electric, Inc.

Comment on Proposal No: 1-157

Recommendation: The Panel should continue to accept this proposal.

Substantiation: I agree with Mr. Simmons. This Table has a wealth of information that applies throughout the NEC and should be moved to Article 110.

Panel Meeting Action: Reject

Panel Statement: The panel concludes that enclosure type ratings should not be applied to all electrical distribution and utilization equipment. See panel action and statement on Comment 1-231.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-189 Log #478 NEC-P01 **Final Action: Accept**
(110.12 (New))

Submitter: Robert A. McCullough, Ocean County Construction Insp. Dept.,

Comment on Proposal No: 1-157

Recommendation: Reject the proposal.

Substantiation: Representatives from Code-Making Panel 19 agree with the negative comment by Mr. Minick. This Table is currently referenced by a

Fine Print Note in 547.5 and changing its location within the Code would not directly impact this section.

Panel Meeting Action: Accept

Panel Statement: See panel statement on Comment 1-185.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-190 Log #1381 NEC-P01 **Final Action: Reject**
(110.12 (New))

Submitter: Charles M. Trout, Maron Electric Co. Inc.

Comment on Proposal No: 1-157

Recommendation: CMP-12 agrees with the Panel Action taken by Panel 1.

Substantiation: None necessary.

Panel Meeting Action: Reject

Panel Statement: See panel action and statement on Comment 1-188.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-191 Log #2526 NEC-P01 **Final Action: Reject**
(110.12)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)

Comment on Proposal No: 1-158

Recommendation: Reconsider and reject this proposal.

Substantiation: Reference to a particular standard is inappropriate. The National Electrical Code has always been written in a "standards neutral" tone, and must continue to be so written.

The industry would not agree that ANSI/NECA 1-2000 is the pre-eminent workmanship standard. Other standards may be more appropriate in some locales.

Since removing the reference to a certain standard makes the FPN useless to the reader, the FPN should not be added at all.

Panel Meeting Action: Reject

Panel Statement: The NEC contains many non-mandatory references to other standards in fine print notes where such references may be useful.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

HITTINGER: Accepting a fine print note that refers to ANSI-NECA 1-2000 Standard Practices for Good Workmanship in Electrical Contracting as a superlative workmanship standard is not appropriate in the NEC. Directing users of the Code to a single standard that may not be suitable, practical or accepted in all industry practices is misleading.

1-192 Log #3288 NEC-P01 **Final Action: Reject**
(110.12 (New))

Submitter: David A. Dini, Underwriters Laboratories Inc.

Comment on Proposal No: 1-157

Recommendation: Revise first sentence of proposed new 110.12 as follows: "Table 110.12 provides the basis for selecting only those enclosures which are marked with a Type Rating for use in specific locations other than hazardous (classified) locations."

Delete Note 1 to the table which states, "Enclosure type number shall be marked on the motor controller enclosure."

Substantiation: Existing Table 430.91 provides guidance for those that are not familiar with enclosure type numbers. Enclosure type numbers identify the specific environment for which a type rated enclosure is suitable. Not all enclosures need to be marked with a type rating. Enclosures not marked with a type rating are suitable for indoor use only, or for use in a specific application when marked to indicate such use, such as raintight, rainproof, etc. The proposed revised wording will make this clear.

Footnote 1 as presently indicated in Table 430.91 is not needed as it is no longer relevant to the tables as used in Article 110.

Panel Meeting Action: Reject

Panel Statement: See panel action and statement on Comment 1-188.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-193 Log #3589 NEC-P01 **Final Action: Reject**
(110.12 (New))

Submitter: Don W. Jhonson, ESP of South Florida, Inc.

Comment on Proposal No: 1-157

Recommendation: I agree with the panel action and the Technical Correlating Committee action.

Substantiation: Article 110 is a more appropriate location for Table 430.91.

Panel Meeting Action: Reject

Panel Statement: See panel action and statement on Comment 1-188.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-194 Log #55 NEC-P01 **Final Action: Reject**
(110.12, FPN (New))

Submitter: Michael V. Glenn, Longview Fibre Co.

Comment on Proposal No: 1-158

Recommendation: Reject this proposal.

Substantiation: I request the panel reconsider and reject the proposal. The submitter does not provide any substantiation that the existing article 110.12 is not adequate for the NEC or of any problems resulting from the present code language. The submitter does not provide any documentation that the referenced ANSI/NECA 1-2000 is in fact the industry standard. This FPN would suggest that this standard is accepted by the NEC as the standard for approved installations and I question that this is the accepted industry practice. Is Panel One saying that this is now the standard for accepted industry practices? If not, then this proposal should be rejected.

Panel Meeting Action: Reject

Panel Statement: The FPN contains a reference that may be used at the discretion of the user. It does not represent a mandatory or exclusive reference.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

Comment on Affirmative:

HITTINGER: The original proposal should have been rejected to add the fine print note that references only one standard. See my comment on negative vote in 1-191.

1-195 Log #185 NEC-P01 **Final Action: Reject**
(110.12, FPN (New))

Submitter: David Shapiro, Safety First Electrical Contracting, Consulting, and Safety Education

Comment on Proposal No: 1-154

Recommendation: Accept as proposed, with the addition of a FPN:

"FPN: Installers may wish to consult ANSI/NECA 1-2000, Standard Practices for Good Workmanship in Electrical Contracting, and other ANSI-approved installation standards."

Substantiation: This is a case where the dictionary definition of the terms really does not do the job, especially in terms of the avowed purpose of the NEC. As an FPN cannot contain mandatory material or definitions, its language should not give another document, however well thought-out, the appearance of serving as the basis for compliance with 110.12.

Panel Meeting Action: Reject

Panel Statement: The comment does not provide the Code user with any additional useful explanatory material beyond that accepted in Proposal 1-158.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-196 Log #1006 NEC-P01 **Final Action: Reject**
(110.12, FPN)

Submitter: Noel Williams, Noel Williams Consulting

Comment on Proposal No: 1-158

Recommendation: This proposal should have been accepted in principal and revised to read "FPN: A source of information describing industry practices can be found in ANSI/NECA 1-2000. . ." (remainder as proposed).

Substantiation: The language as proposed implies that these are accepted throughout the industry, and that is simply not true. The comments on Negative by Mr. Hittinger should be heeded by the committee. This proposed revision is based on the rewrite of similar proposals by Panel 3.

Panel Meeting Action: Reject

Panel Statement: ANSI approved standards are, by virtue of ANSI standards development policy, accepted consensus standards. Unanimity in acceptance is not required or necessarily accepted. See panel statement on Comment 1-194.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-197 Log #1222 NEC-P01 **Final Action: Reject**
(110.12, FPN)

Submitter: Donald A. Ganiere Ottawa, IL

Comment on Proposal No: 1-158

Recommendation: Panel should reject this proposal.

Substantiation: "Neat and workmanlike" is a vague and possibly unenforceable term per the NEC style manual. The addition of a Fine Print Note to another standard does nothing to change this. Safety issues should be covered by the code text and not a blanket statement using vague and unenforceable terms.

Panel Meeting Action: Reject**Panel Statement:** See panel statement on Comment 1-191.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 12**Comment on Affirmative:**

HITTINGER: The original proposal should have been rejected to add the fine print note that references only one standard. See my comment on negative vote in 1-191.

1-198 Log #893 NEC-P01
(110.12(A))

Note: The Technical Correlating Committee directs that this Comment be reported as "Hold". See Technical Correlating Committee action on Comment 1-202.

Submitter: David Shapiro, Safety First Electrical Contracting, Consulting, and Safety Education

Comment on Proposal No: 1-160

Recommendation: Revise as follows:

"Unused circuit breaker, cable or raceway, and other similar openings in boxes, raceways, auxiliary gutters, cabinets, cutout boxes, meter socket enclosures, equipment cases, luminaires, or housings shall be effectively...enclosure.

Exception: Those openings intended by the manufacturer for purposes such as ventilation, mounting or drainage."

Substantiation: Per Mr. MacMahill's comment.

Panel Meeting Action: Reject

Panel Statement: The comment does not add clarity to the requirement.

Openings for drainage or ventilation are used for those purposes and clearly are not "unused."

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-199 Log #1221 NEC-P01
(110.12(A))

Note: The Technical Correlating Committee directs that this Comment be reported as "Hold". See Technical Correlating Committee action on Comment 1-202.

Submitter: Donald A. Ganiere Ottawa, IL

Comment on Proposal No: 1-161

Recommendation: Panel should accept in principle, in part.

Unused cable or raceway openings in boxes, raceways, auxiliary gutters, cabinets, cutout boxes, meter socket enclosures, equipment cases, housings shall be effectively closed to afford protection substantially equivalent to the wall of the equipment. Where metallic plugs or plates are used with nonmetallic enclosures, they shall be recessed at least 6 mm (1/4 in.) from the outer surface of the enclosure. Unused mounting holes with a maximum size of 6 mm (1/4 in.) shall not be required to be closed.

Substantiation: The words "cable or raceway" should be deleted from the section. All unused opening should be closed. The safety hazard is caused by the opening itself and not by the purpose of the opening.

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action on Comment 1-202.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

MINICK: See NEMA comment on 1-202.

1-200 Log #2249 NEC-P01
(110.12(A))

Note: The Technical Correlating Committee directs that this Comment be reported as "Hold". See Technical Correlating Committee action on Comment 1-202.

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

Comment on Proposal No: 1-160

Recommendation: The proposal should be rejected contingent on the new provisions being added to Article 408; if that does not happen, then it should continue to be accepted.

Substantiation: Circuit breaker knockouts, etc., involve considerations of panelboard dead fronts and other issues unique to Article 408. At the January ROP meetings, CMP 9 (Proposal 9-111) voted that this change should be made in 110.12(A), and Proposal 1-160 does exactly that. This comment is a companion to one submitted to create a new Section 408.7 as follows:

"408.7 Unused Openings. Unused openings for circuit breakers and switches shall be closed using listed closures, or other approved means that provide protection substantially equivalent to the wall of the enclosure."

In general, it is unwise to repeat code information in different articles because discrepancies can crop up in future cycles. That is why this comment suggests a conditional rejection based solely on jurisdiction and not on the technical merit of the originating proposal.

Responding to the comments in the voting, the reason this material has been recently restricted to cable and raceway openings is that before that modification CMP 9 had to deal with a series of Proposals similar to 1-161 from people who wanted reassurance that we weren't going to make them close bolt holes, weep holes, etc.

Panel Meeting Action: Reject

Panel Statement: The general requirements of this section are not in conflict with any existing or proposed requirements in Article 408.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-201 Log #2528 NEC-P01
(110.12(A))

Note: The Technical Correlating Committee directs that this Comment be reported as "Hold". See Technical Correlating Committee action on Comment 1-202.

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)

Comment on Proposal No: 1-160

Recommendation: Reject the proposal.

Substantiation: We agree with Mr. McMahill. There is no need to expand the list of unused openings that must be closed. The wording is clear that unused openings be effectively closed to provide substantially equivalent protection to that of the original enclosure. UL or equivalent standards development organizations develop the required product standards to ensure that the intent of the Code is met. This ensures that all new products meet the intent of the Code without having to continuously revise the Code for every new product that is introduced.

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action on Comment 1-202. The panel concludes that the action taken on Comment 1-202 meets the intent of the submitter.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-202 Log #3606 NEC-P01
(110.12(A))

Note: The Technical Correlating Committee directs that this Comment and Proposal 1-160 be reported as "Hold" in conformance with 4-4.6.2.2 and 4-4.6.2.3 of the Regulations Governing Committee Projects.

Submitter: Lanny G. McMahill Phoenix, AZ

Comment on Proposal No: 1-160

Recommendation: Reject this proposal and revise the section to read as follows: "(A) Unused Openings. Unused cable or raceway openings in boxes, raceways, auxiliary gutters, cabinets, cutout boxes, meter socket enclosures, and equipment cases; or housings shall be effectively closed..."

Substantiation: Reject this proposal based on the submitter's substantiation that states "By addressing only cable and raceway openings, other unused openings that also require closing appear to be left out of the 2002 edition." Adding the words "circuit breaker" does not change that concern. In theory, if the list continues to expand, only the specific openings listed are required to be closed. For example, if a voltmeter, switch or pilot light were removed from the front door of an enclosure, what code section requires the openings to be closed? A list is always limiting. Generally, there should be no unused openings in electrical enclosures, raceways and equipment except for those that are required for the normal operation or function of the equipment or installation. Instead of adding items to a list, delete the words "cable or raceway", "meter socket", and "case, or housings" from the existing definition. The remaining terms are clearly defined in Article 100. Using these terms eliminates the need to continue to expand the list of "unused openings" that must be closed and allows for a realistic enforcement practice.

Panel Meeting Action: Accept

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

MINICK: The present language should have been retained. There is no substantiation to include all openings in this requirement. Many enclosures have weep or drain holes, which must not be closed. Additionally, many unused mounting holes are not required to be closed to maintain the enclosure integrity. Additionally, this would preclude ventilated enclosures.

1-203 Log #3665 NEC-P01 **Final Action: Accept in Principle**
(110.12(A))

Submitter: Alan H. Nadon, City of Elkhart, IN

Comment on Proposal No: 1-160

Recommendation: Unused circuit breaker, cable, or raceway, and other similar, openings in boxes, raceways, auxiliary gutters, cabinets, cutout boxes, meter socket enclosures, equipment cases, or housings shall be effectively closed to afford protection substantially equivalent to the wall of the equipment. Where metallic plugs or plates are used with nonmetallic enclosures, they shall be recessed at least 6 mm (1/4 in.) from the outer surface of the enclosure.

Exception: Those openings intended by the manufacturer for ventilation, mounting or drainage.

Substantiation: I agree with the panel member Mr. McMahill that this section can be both shorter and more effective. The list of openings for meters, indicator lights, switches, push buttons, circuit breakers, etc. could become a laundry list of what might have been left out. The basic rule is to close openings that have been knocked or punched out. How someone supposedly insisted that vent openings had to be closed escapes me.

Panel Meeting Action: Accept in Principle

Panel Statement: See panel action on Comment 1-202. The panel concludes that the action taken on Comment 1-202 meets the intent of the submitter.

Number Eligible to Vote: 12**Ballot Results:** Affirmative: 12

1-204 Log #181 NEC-P01 **Final Action: Reject**
(110.12(D))

Submitter: David Shapiro, Safety First Electrical Contracting, Consulting, and Safety Education**Comment on Proposal No:** 1-162**Recommendation:** Accept but remove "Field modified" capitalize "Electrical, and change "likely to come into contact to" to "exposed to".**Substantiation:** This tweak removes the uncomfortable term "likely," and serves notice on manufacturers that they too, not only the installers with the tin snips, need to minimize the bloodletting. As for the Code-Making Panel comment, with all due respect 90.1(A) speaks of hazard from use of electricity. Use of electricity entails dealing with electrical equipment; if not for use of electricity, Sparky wouldn't be on site or at risk. The NEC's many provisions for fire or blast protection are not about directly electrical risk.**Panel Meeting Action:** Reject**Panel Statement:** The panel reaffirms its statement on Proposal 1-162. The panel also notes that a sharp edge requirement would be difficult to enforce uniformly. Sharp edge test equipment is described in product standards.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 12

1-205 Log #1007 NEC-P01 **Final Action: Accept**
(110.14(C)(1))

Submitter: Noel Williams, Noel Williams Consulting**Comment on Proposal No:** 1-168**Recommendation:** This proposal should continue to be accepted.**Substantiation:** The current language makes no sense. As noted by Mr. Hartwell, only 310.15(B)(6) can appropriately modify the ampacity used for terminal temperature provisions. Also, without this modification, the special rules of 310.15(B)(6) may be nullified. As currently written, the text leads some to believe that they may need to use different values for parallel terminations or somehow try to account for the temperature in a panelboard wiring gutter.**Panel Meeting Action:** Accept**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 12

1-206 Log #396 NEC-P01 **Final Action: Reject**
(110.14(C)(1)(a) (2), (3), and (4))

Submitter: Mark Kucharski, R W Cooper & Associates**Comment on Proposal No:** 1-235**Recommendation:** Revise text to read as follows:

(2) Conductors with higher temperature ratings provided the ampacity of such conductors is determined based on the 60°C (140°F) ampacity of the conductor size used or up to their ampacity if the equipment is listed and identified for use with such conductors.

Delete (3) and change (4) into (3).

Substantiation: 110.14(C) - Temperature limitations - (1) Equipment provisions should use the same wording for circuits rated 100 amperes or less as for circuits over 100 amperes. The ampacity of the conductors used in the 100A or less circuit should not exceed the 60°C rated conductors. The ampacity of conductors used in the over 100A circuits should not exceed the 75°C rated conductors. Conductors with temperature ratings higher than specified for terminations shall be permitted to be used for ampacity adjustments, corrections or both.**Panel Meeting Action:** Reject**Panel Statement:** The comment recommends wording that is not related to the proposal and is not in compliance with the Regulations Governing Committee Projects, Section 4-4.5(b).**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 12

1-207 Log #443 NEC-P01 **Final Action: Reject**
(110.15)

Submitter: Dan Leaf Rancho Santa Margarita, CA**Comment on Proposal No:** 1-170**Recommendation:** Accept proposal as revised:High Leg Marking. On a 4-wire delta-connected system where the midpoint of one phase winding is grounded only the conductor or conductor having the higher voltage to ground shall be identified durably and permanently marked by an a continuous outer finish that is orange in color Or by other effective means. Such identification shall be placed at each point on the system where a connection is made if the grounded conductor is present.Exception No. 1: Busbars shall only be required to be identified at termination points at equipment and where connections are made to a different wiring method, other than plug-in devices or trolleys. Such identification shall be placed at each point on the system where a connection is made if the grounded conductor is also present.Exception No. 2: Conductors larger than No. 6 AWG shall be permitted to be identified by a durable and permanent orange marking that shall encircle the conductor or other effective means. Such identification shall be placed at each point on the system where a connection is made if the grounded conductor is also present.Exception No. 3: Conductors in multiconductor cables shall be permitted to be identified as permitted in Exception No. 2.**Substantiation:** Conductors 6 AWG and smaller are readily available with orange insulation. 517.60(A)(5) specifies orange, brown, and yellow identification for conductors regardless of size and since it doesn't limit identification to terminals or connections or access points the word "conductor" can be construed as applying to the entire length. Insulated grounding and grounded conductors 6 AWG and smaller are required to have continuous color identification. What considerations exempt high-leg conductors?**Panel Meeting Action:** Reject**Panel Statement:** No substantiation for requiring full length color coding has been submitted. In addition, "conductor or conductors" is redundant.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 12

1-208 Log #2529 NEC-P01 **Final Action: Reject**
(110.15)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)**Comment on Proposal No:** 1-170**Recommendation:** The CMP added the word "only" in the Panel action. This word should be deleted.**Substantiation:** Including "only" confuses the requirement. It implies that when the system is not a 4-wire delta connected system that there are other conductors with the orange color but when it is a 4-wire delta the only conductor that is orange is the high leg. Deleting the word "only" removes this implication and clearly states that the high leg is orange.**Panel Meeting Action:** Reject**Panel Statement:** The requirements concerning high leg marking in Proposal 1-170 make it clear that, where a four-wire delta system is used, the high leg and only the high leg is distinctly marked. The section does not impose a color coding requirement on any other type of wiring system.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 12

1-209 Log #5 NEC-P01 **Final Action: Accept in Principle**
(110.16)

Submitter: Ray A. Jones, Electrical Safety Consulting Services, Inc.**Comment on Proposal No:** 1-173**Recommendation:** Proposal 1-173 should be accepted.**Substantiation:** The proposal identifies a weakness in the language contained in 110.16 that should be corrected. The substantiation offered by the submitter is persuasive. This proposal should be accepted.**Panel Meeting Action:** Accept in Principle**Panel Statement:** See panel recommendation and substantiation on Comment 1-224a.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 10 Negative: 2**Explanation of Negative:**

MINICK: See NEMA comment on 1-224a.

STAUFFER: See the Explanation of NECA'S Negative Vote on Comment 1-224a.

1-210 Log #6 NEC-P01 **Final Action: Accept**
(110.16)

Submitter: Ray A. Jones, Electrical Safety Consulting Services, Inc.**Comment on Proposal No:** 1-178**Recommendation:** Proposal 1-178 should be rejected.**Substantiation:** The proposal seeks to establish a requirement in the NEC to define a work practice to determine certain system characteristics. As indicated by Mr. Minick, the NEC is an installation code and not a work practice document. The current reference to NFPA 70E is appropriate and sufficient to control exposure to an electrical hazard.**Panel Meeting Action:** Accept**Panel Statement:** CMP 1 does not necessarily agree with all of the submitter's substantiation. See CMP 1's recommendation and substantiation Comment 1-224a.

Number Eligible to Vote: 12**Ballot Results:** Affirmative: 121-211 Log #7 NEC-P01 **Final Action: Accept**
(110.16)**Submitter:** Ray A. Jones, Electrical Safety Consulting Services, Inc.**Comment on Proposal No:** 1-172a**Recommendation:** Proposal 1-172a should be rejected.**Substantiation:** In an attempt to clarify a significant number of proposals on existing NEC section 110-16, the panel proposal results in intermingling several different concepts. Each concept is discrete and should be considered separately to adequately consider and address the substantiation associated with each proposal. Proposals 1-173, 1-176, 1-177, 1-178, and 1-182 and only circumferentially related to each other and should not be combined.

The content of both negative and affirmative comments suggests that each concept in the panel proposal should be considered on its own merit.

The substantiation adequately describes what the panel did, but contains no explanation of why the action was taken.

The proposal should be rejected.

Panel Meeting Action: Accept**Panel Statement:** See recommendation and substantiation on Comment 1-224a.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 11 Negative: 1**Explanation of Negative:**

MINICK: See NEMA comment on 1-224a.

1-212 Log #8 NEC-P01 **Final Action: Reject**
(110.16)**Submitter:** Ray A. Jones, Electrical Safety Consulting Services, Inc.**Comment on Proposal No:** 1-182**Recommendation:** Proposal 1-182 should be rejected. Existing notes 1 and 2 should remain unchanged.**Substantiation:** There are five distinctly different reasons Proposal 1-182 should be rejected as follows:

- As indicated in proposed note 2, the scope of IEEE 1584 covers a method to calculate "arc flash hazard distance...". The term "arc flash hazard distance" is not defined in IEEE 1584 or any other consensus standard and should not be considered by the NEC.

- Although the IEEE 1584 working group may have intended to use the term "flash protection boundary," the substantiation provides no information that suggests such an assumption is correct. The panel has no valid basis to make an assumption about the intent of the submitter.

- Although the equations provided within IEEE 1584 are different from previously published equations, no technical substantiation is offered to indicate that the equations are either more or less accurate than other acceptable calculation methods. The NFPA 70E Technical Committee concluded that there are several methods that may be at least as accurate or more accurate than IEEE 1584. See the NFPA 70E Report on Comments.

- Other methods exist to determine the degree of thermal hazard associated with an arcing fault. To include a direct reference to the IEEE 1584 standard would suggest to an NEC user that other well-established methods are unacceptable by indicating a preference for that method when, in fact, another method of determining the degree of hazard might be preferable. Trade issues could be involved. The NEC should not express a preference.

- The proposal suggests including a work practice (calculating incident energy) in the body of an installation code. The NFPA work practice standard is NFPA 70E.

Panel Meeting Action: Reject**Panel Statement:** See recommendation and substantiation on Panel Comment 1-224a. The panel is aware that IEEE 1584 is an industry standard that provides a method of calculating arc flash incident energy.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 11 Negative: 1**Explanation of Negative:**

TROGLIA: The EEI position on this issue is as stated on Comment 1-216. See my comment on vote on Comment 1-224a.

Comment on Affirmative:

HITTINGER: The proposal should be rejected. See my explanation of negative vote on Comment 1-224a.

1-213 Log #182 NEC-P01 **Final Action: Reject**
(110.16)**Submitter:** David Shapiro, Safety First Electrical Contracting, Consulting, and Safety Education**Comment on Proposal No:** 1-172a**Recommendation:** Accept but add "dated" in the first sentence of the proposed version, before "label."**Substantiation:** Level of available fault current can change, and dating the label will indicate how current (sorry) the calculation/recommendation is, adding a measure of safety.**Panel Meeting Action: Reject****Panel Statement:** See recommendation and substantiation on panel Comment 1-224a. The submitter has not provided sufficient technical substantiation to justify adding the date to the label.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-214 Log #774 NEC-P01 **Final Action: Reject**
(110.16)**Note: The Technical Correlating Committee directs that this Comment be reported as "Reject". See the Technical Correlating Committee Note on Comment 1-224a.****Submitter:** Michael J. Johnston Plano, TX**Comment on Proposal No:** 1-172a**Recommendation:** This proposal should be accepted in part. Accept the addition of new FPN No. 2.**Substantiation:** I support this Code rule for electrical safety of industry workers, including workers in the enforcement segment. Electrical safety in the workplace should be addressed in adequate fashion from each applicable electrical safety standard (including the NEC) to achieve overall electrical safety. The additional FPN provides additional necessary guidance for users as to finding information relative to proper application of accurate information on field applied labels for equipment falling under the requirements of 110.16. I have concerns at this time about the proposed requirements for incident energy levels and levels of required protective clothing as a requirement of the NEC currently on the already required label without more reasonable and standardized tools (such as a worst case table) for use by installers, inspectors, etc. for establishing these values. I also have concerns of this requirement being reasonable to understand and comply with for the users (installers, maintenance personnel, etc.) and also being reasonable to understand and enforce for inspectors. Perhaps in time there could be a more simplified and standardized method established that would not lend itself to possible inconsistent application in the field. I also echo the concerns of some of the members of Panel 1 relative to potential legal liability problems for designers, installers, owners, and authorities having jurisdiction. Overall, I do support the concept of this proposal and feel that the NEC will evolve and grow in this area and adequately address these issues in a mutually agreed upon fashion in the future.**Panel Meeting Action: Accept in Principle****Panel Statement:** The panel's recommendation on Comment 1-224a meets the submitter's intent for the inclusion of the fine print note.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 8 Negative: 4**Explanation of Negative:**

HITTINGER: See my explanation of negative vote on Comment 1-224a.

MINICK: See NEMA comment on 1-224a.

STAUFFER: See the Explanation of NECA'S Negative Vote on Comment 1-224a.

TROGLIA: The EEI position on this issue is as stated on Comment 1-216. See my comment on vote on Comment 1-224a.

1-215 Log #1008 NEC-P01 **Final Action: Accept**
(110.16)**Submitter:** Noel Williams, Noel Williams Consulting**Comment on Proposal No:** 1-172a**Recommendation:** This proposal should be rejected.**Substantiation:** Although there can be no argument about the importance of the safety of electrical workers, this proposal does not necessarily advance that end. At the least, alternative markings should be permitted as proposed by Barrios in Explanation of Negative. However, I think the comments under Explanation of Negative by Minick, Troglia, and Stauffer are more to the point. This is an unenforceable rule. I urge that particular attention be paid to the comments by Stauffer. In addition, without considering the accuracy of the posted information, I believe that having this information readily available will actually tend to encourage "hot work."**Panel Meeting Action: Accept****Panel Statement:** See recommendation and substantiation on Comment 1-224a. CMP 1 does not necessarily agree with all of the submitter's substantiation.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-216 Log #1073 NEC-P01 **Final Action: Accept**
(110.16)**Submitter:** Neil F. LaBrake, Jr., Niagara Mohawk, a National Grid Company / Rep. Edison Electric Institute**Comment on Proposal No:** 1-172a**Recommendation:** Reject the proposal.

Substantiation: Edison Electric Institute agrees that this proposal does identify a safety issue for the electric industry. However, the proposed approach is flawed in that it requires equipment to be marked based on a particular calculation of incident energy made at one moment in time and then expect it to be valid at some future time. This proposed labeling is not reasonable, practical nor does it provide for adequate personnel safety. In addition, it may result in a false sense of security and a safety hazard in the future. In fact, any calculation or determination of work conditions, as required by the proposal, actually needs to be made and assessed each time and immediately prior to conducting work on energized equipment if personnel safety is to be assured. The current proposal raises several critical questions, for example.

1. Who is responsible for ensuring accurate calculations are made initially and in the future (i.e. AHJ)?
2. Is re-labeling required each time the utility's or the customer's system is modified?
3. Is the customer responsible for recalculating the value every time they want to work on an energized system?
4. What obligation does the qualified worker have to verify that the posted values are current and accurate?
5. What obligation does the employer of the qualified worker have to verify their safety and the accuracy of the label?

The issue that is actually raised by this proposal is Safe Work Practices and Procedures; something the utility industry is readily familiar with and for which it has adopted standards for its employees who may be subject to similar or the same work conditions. The millions of existing electrical installations worldwide will not benefit from the labeling of incident energy. Only safe work practice and procedures will assure the safety of the qualified worker for both new and existing installations. While some persons may advocate prohibiting the practice of working on energized equipment, it is realized that is not practical as there will be some situations where that practice is unavoidable. It is time for the electric industry to establish a good and reasonable set of Safe Work Practices and Procedures for personnel working on energized equipment; practices that, based on evidence provided by the Proposer, it has evidently failed to do. The requirements are identified in NFPA 70E and it is a good document to provide and to enforce to accomplish the recognition and use of these Safe Work Practices and Procedures. Some may argue that the work practice requirements would not be applicable for all cases, or may be extreme for some cases, but a good field standard needs to be developed and used. It should be considered reasonable and appropriate to develop a general standard practice to be used instead of trying to "tailor" requirements on a specific basis. While it may be considered extreme for some situations, it would provide a general level of safety for all situations. This is similar to what utilities have done for some time. For example, utility work practices and procedures are the same for its personnel whether they are working on an urban or rural installation of the same type. Therefore, the use, application, reference to or extraction of the requirement of NFPA 70E is recommended either as a stand-alone document or for development of industry wide safe work practices and procedures, especially for working on energized equipment.

Panel Meeting Action: Accept

Panel Statement: See recommendation and substantiation on Comment 1-224a. CMP 1 does not necessarily agree with all of the Submitter's substantiation.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-217 Log #2179 NEC-P01 **Final Action: Reject**
(110.16)

Submitter: Danny Liggett Richmond, TX

Comment on Proposal No: 1-180

Recommendation: This proposal should have been accepted.

Substantiation: I would like to address the statements in the "Explanation of Negative." The real situation is that people are "short cutting" the system now because people see the label and don't know what PPE is required. So they don't wear any PPE or the wrong PPE. The worker in the field cannot make the calculations and arrive at the appropriate decision on what PPE is required. It is not the job of the inspector to know if the label has the correct value. It is inspector's job to see that there is a label. Does the inspector measure the voltage to assure that the correct voltage label has been applied? The NEC is an installation Code. So why are we not adequately warning personnel of a known hazard in an installation? If the system changes, such as changing the transformer to a larger one, who checks to see if the equipment downstream has the withstand rating of the added fault current? This is an engineering process that has to be done. The result of an engineering process is what goes on the label. The calculation of incident energy and application of a label is not a work practice, it is an engineering process. Does the inspector check the calculations of the engineering to assure the withstand ratings are correct? Understanding the level of this hazard is as important as understanding issues such as; overload calculations, withstand ratings and fault current levels. These are all installation concepts that have to be addressed and have implications on the design of the system. By adding the level of the hazard to the label, the NEC would require that the calculations be done to safeguard the personnel who will interact with the equipment. Those who have to perform the calculations can use NFPA 70E to perform the calculations. It is imperative that NFPA 70 and NFPA 70E work in conjunction with each other.

Panel Meeting Action: Reject

Panel Statement: See recommendation and substantiation on Comment 1-224a. CMP 1 concludes that the phrase "level of the hazard" is vague and undefined.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-218 Log #2180 NEC-P01 **Final Action: Reject**
(110.16)

Submitter: John H. Schwab, Jr., City of Wauwatosa, WI

Comment on Proposal No: 1-172a

Recommendation:Vote this Proposal in. The TCC said it should be rejected due to not having 2/3 majority on the vote.

Substantiation: This Proposal goes a long way in determining that meter sockets should have an AIC rating. This says it must have an incident energy available which is better than nothing.

Panel Meeting Action: Reject

Panel Statement: The submitter is addressing the NFPA standards-making process. The comment recommends wording that is not related to the Proposal and is not in compliance with the Regulations Governing Committee Projects, Section 4-4.5(b).

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-219 Log #2530 NEC-P01 **Final Action: Accept**
(110.16)

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)

Comment on Proposal No: 1-172a

Recommendation: Reject the proposal.

Substantiation: The proposal is premature. There are several methods for calculating numeric values for Arc Flash Hazard, and these can produce widely varying results. Although the IEEE 1584 "Guide for Performing Arc-Flash Hazard Calculations" was published in 2002, this information is still in its infancy. Even the 70E committee chose not to exclusively endorse the use of this IEEE Guide, but instead specifically stated that there are many methods of quantifying the hazard. In a Paper by Stokes & Sweeting scheduled to be delivered to a Fuse conference this fall, the authors dispute the results of IEEE 1584 calculations.

Also see Mr. Minick's previous Explanation of Negative in the ROP.

Panel Meeting Action: Accept

Panel Statement: See recommendation and substantiation on Comment 1-224a. CMP 1 does not necessarily agree with all of the submitter's substantiation.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-220 Log #2863 NEC-P01 **Final Action: Reject**
(110.16)

Note: The Technical Correlating Committee directs that this Comment be reported as "Reject" because less than two-thirds of the members eligible to vote have voted in the affirmative.

Submitter: Mark Miller, Metropolitan Airport Commission

Comment on Proposal No: 1-178

Recommendation: This proposal should be accepted in principle in part and incorporated in Proposal 1-172a.

Revise as follows:

110.16 Flash Protection. Switchboards, panelboards, industrial control panel, and motor control centers that are in other than dwelling occupancies and are likely to require examination, adjustment, servicing, or maintenance while energized shall be field marked to warn qualified persons of potential electric arc flash hazards. The marking shall indicate the available short-circuit current, the flash protection boundary, the required personal protective equipment, the approach boundaries for shock protection, and shall be located so as to be clearly visible to qualified persons before examination, adjustment, servicing, or maintenance of the equipment.

FPN No. 1: No change.

FPN No. 2: No change.

Substantiation: Section 5(a)(1) of the OSHA Act, federally mandates that the employer furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or likely to cause death or serious physical harm to his employees. These hazards include shock and arc-flash. Furthermore, in several parts of OSHA 29, it mandates recognition and avoidance of unsafe conditions, control or elimination of hazards, use of electrical protective equipment, and training and awareness of safety-related work practices. Because of these federal requirements, labeling of equipment with regard to shock and arc-flash hazards is needed. However, OSHA does not indicate the information required for the label. NFPA 70E provides the information needed for the label in order to comply with OSHA regulations.

In order to comply with NFPA 70E, a flash hazard analysis must be completed prior to approaching equipment not placed in an electrically safe work

condition. This is required even if the task is limited to simply verifying the absence of voltage in order to assure the equipment is deenergized and is in an electrically safe work condition. Thus, it is essential that this information from the flash hazard analysis is marked on the equipment during installation and updated as needed.

In order to complete the flash hazard analysis, several steps are clearly outlined in NFPA 70E. The first step is to determine the flash protection boundary, the second step is to determine and document the level of personal protective equipment, and the third step is to determine the approach boundaries for shock protection. All of these items can be easily selected through the application of formulas, default values or tables. In addition, a variety of methods or sources are available and permitted per NFPA 70E for the user to choose from when determining these levels.

Give the content of the submitter's proposal it appears he was trying to capture the items required from the flash hazard analysis in NFPA 70E. However, the incident energy as suggested in the submitter's proposals is not necessarily needed (if tables are used) and thus should not be in the list of requirements. He also mentions IEEE 1584 in the substantiation, but that is not needed, since it will be mentioned in the new edition of NFPA 70E as an acceptable method. With regard to determining the flash protection boundary or personal protective equipment needed ("level" is not needed), the bolted fault current must be determined. Thus, this value should be added to the label as well. In addition, the submitter should have included the shock protection boundaries since it is required per the flash hazard analysis in NFPA 70E.

Finally, this requirement is enforceable by the inspector. The inspector is not required to verify if the values are correct, simply to assure that the task was completed and documentation exists. This is similar to the determination of the bolted fault current in order to properly apply overcurrent devices or equipment with regards to 110.9 and 110.10.

Panel Meeting Action: Accept in Principle

Panel Statement: See recommendation and substantiation on Comment 1-224a. CMP 1 concludes that flexibility is needed for methods to inform workers of the hazard.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 7 Negative: 4 Abstain: 1

Explanation of Negative:

HITTINGER: See my explanation of negative vote on Comment 1-224a.

MINICK: See NEMA comment on 1-224a.

STAUFFER: See the Explanation of NECA'S Negative Vote on Comment 1-224a.

TROGLIA: The EEI position on this issue is as stated on Comment 1-216. See my comment on vote on Comment 1-224a.

Explanation of Abstention:

ANTHONY: Our interest group recognizes the hazard posed by arc flash. Many colleges and universities have implemented the requirement for protection that appeared for the first time in the 2002 NEC. We have reviewed the loss data, but still believe that this proposal opens the possibility of unintended consequences with respect to electrician safety. Thus, we have opted to continue our abstention on this proposal for another code cycle. We want to see the results of the industry fully integrating the 2002 NEC arc-flash requirement into established practice before more requirements are entered into the 2005 NEC.

1-221 Log #3319 NEC-P01
(110.16)

Final Action: Accept

Submitter: Kevin J. Lippert, Eaton/Cutler-Hammer

Comment on Proposal No: 1-172a

Recommendation: Continue to reject this proposal.

Substantiation: It is premature for this information to be added as a requirement in the Code. At present, there is no single method currently recognized by the industry for calculating such measurements. The IEEE 1584 Guide has been published, but this is just one of several different calculation methods. For example, the methods of NFPA 70E, commercial software programs and others can yield different results. Even the NFPA 70E Panel could not agree to fully embrace a single method of calculating these arc flash related values. Until the calculations become fully accepted, understood, and uniformly implemented, this proposal is premature. The panel is also encouraged to review Mr. Minicks's "Explanation of Negative Comment" in the ROP.

Panel Meeting Action: Accept

Panel Statement: See recommendation and substantiation on Comment 1-224a. CMP 1 does not necessarily agree with all of the submitter's substantiation.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 10 Negative: 1 Abstain: 1

Explanation of Negative:

STAUFFER: See the Explanation of NECA'S Negative Vote on Comment 1-224a.

Explanation of Abstention:

ANTHONY: See my Explanation of Abstention on Comment 1-220.

1-222 Log #3382 NEC-P01
(110.16)

Final Action: Accept

Submitter: Philip M. Piqueira, General Electric Co.

Comment on Proposal No: 1-172a

Recommendation: Continue to reject the proposal.

Substantiation: The proposed revision to 110-16 will create an impractical and unenforceable situation within the NEC. The calculation of the incident energy as required by this proposal depends upon many factors such as the accurate bolted fault current at the equipment location, the system voltage, the duration of the arc, the conductors, the type of equipment, the grounding characteristics of the system, the distance from the worker to the conductor, and the gap distance between the conductors. Complicating these calculations is that it is extremely difficult to obtain accurate data, particularly with respect to the bolted fault current and the arc duration. Consequently, any arc flash calculations obtained must be suspect due to the difficulty in obtaining accurate data. Further, any future modifications to the equipment would invalidate any of the previous calculations obtained.

From an enforcement perspective, who is responsible for calculating this information and, more importantly, verifying its accuracy?

While it is certainly laudable of CMP 1 to attempt to resolve this safety issue, the approach of requiring specific energy calculations to be labeled on the equipment is an approach which is both unreasonable and dangerous, particularly if the data obtained is inaccurate.

Panel Meeting Action: Accept

Panel Statement: See recommendation and substantiation on Comment 1-224a. CMP 1 does not necessarily agree with all of the submitter's substantiation.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Abstain: 1

Explanation of Abstention:

ANTHONY: See my Explanation of Negative Vote on Comment 1-220.

1-223 Log #3587 NEC-P01
(110.16)

Final Action: Accept

Submitter: George D. Gregory, Square D Company

Comment on Proposal No: 1-172a

Recommendation: Reject the proposal.

Substantiation: We are supportive of NFPA 70E and safe work practices. The problem with the subject proposal is that the NEC is not the place to require such markings. The NEC is an installation document and is intended to make sure the electrical installation is installed to operate in a safe manner. The issue at hand with arc flash protection is one of service and maintenance through the operation of the installation. It is clear that workers need to be trained and that they need to have and use the proper personnel protective equipment. However, that is not within the purview of the NEC.

We should all keep in mind that the NEC is intended as an enforcement document. How will an Authority Having Jurisdiction enforce this requirement? Who is responsible for providing the safety information to be marked? NFPA 70E permits multiple methods of calculation of arc-flash. Which one will pass inspection? What if the inspector "accepts" the wrong calculation for an installation? Hazard risk categories are related to the work being performed. Which one gets marked on the equipment?

Placing this requirement in the NEC puts a burden on the installing contractor that is unreasonable. In fact, it requires that the installing contractor make certain assumptions about what might or might not be done to a piece of equipment later. We should be clear that the burden for safe work practice is on the facility operating the equipment and the entity performing the maintenance, not on the initial installer.

Within any installation, the service may change or the mode of operating the equipment may change over the life of the installation, even though the equipment itself does not change. The marked values should reflect the actual operating condition. The NEC and the inspection process is not intended to monitor impact of system changes on safety practices.

The reality is that NFPA 70E must be used in total. We can't piecemeal the situation and give a false impression that as long as you have the protective equipment contemplated by the label, you have everything you need to work on an energized piece of equipment.

Panel Meeting Action: Accept

Panel Statement: See recommendation and substantiation on Comment 1-224a. CMP 1 does not necessarily agree with all of the submitter's substantiation.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Abstain: 1

Explanation of Abstention:

ANTHONY: See my Explanation of Abstention on Comment 1-220.

1-224 Log #3607 NEC-P01
(110.16)**Final Action: Reject****Submitter:** Lanny G. McMahon Phoenix, AZ
Comment on Proposal No: 1-172a**Recommendation:** Revise the existing sentence as follows: **110.16 Flash Protection.** Equipment, switchboards, panelboards, industrial control panels, and motor control centers that are in other than dwelling occupancies, that is and are likely to require examination, adjustment, servicing, or maintenance while energized..."**Substantiation:** Revise this section so as to eliminate the necessity to create a list of equipment that requires the arc flash marking. Continuing to expand the list of applicable equipment that requires the flash protection marking does not make sense. Equipment such as enclosed circuit breakers, fusible switches, transfer equipment, etc., should be required to bear the same flash protection marking as switchboards, panelboards, industrial control panels and motor control center. The hazards are the same when working on this equipment. It also seems reasonable that the requirements in this section should be parallel with 110-26(A). Parallel construction provides consistency for the code user. This minor revision also meets the intent of Proposal 1-176 (Log 1691). Again, flash protection requirements should apply consistently and should correlate with the requirements for working space.**Panel Meeting Action: Reject****Panel Statement:** See recommendation and substantiation on Comment 1-224a. The substantiation presented does not justify marking all electrical equipment.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 11 Abstain: 1**Explanation of Abstention:**

ANTHONY: See my Explanation of Abstention on Comment 1-220.

1-224a Log #CC100 NEC-P01
(110.16)**Final Action: Reject****Note: The Technical Correlating Committee directs that this Comment be reported as "Reject" because less than two-thirds of the members eligible to vote have voted in the affirmative.****Submitter:** Code-Making Panel 1**Comment on Proposal No:** 1-172a**Recommendation:** Revise 110.16 to read as follows:

"110.16 Flash Protection. Switchboards, panelboards, industrial control panels, meter socket enclosures, and motor control centers that are for other than dwelling occupancies and are likely to require examination, adjustment, servicing, or maintenance while energized shall be field marked to warn qualified persons of potential electric arc flash hazards. The marking shall be located so as to be clearly visible to qualified persons before examination, adjustment, servicing, or maintenance of the equipment.

FPN No. 1: NFPA 70E-2004, Standard for Electrical Safety in the Workplace, provides assistance in determining severity of potential exposure, planning safe work practices, and selecting personal protective equipment.

FPN No. 2: Additional markings that may be applied include flash protection boundary, level of incident energy available, and level of personal protective equipment.

FPN No. 3: IEEE 1584-2002, IEEE Guide for Performing Arc-Flash Hazard Calculations, provides assistance in calculating the incident energy workers could be exposed to when working on or near live parts.

FPN No. 4: ANSI Z535.4-1998, Product Safety Signs and Labels, provides guidelines for the design of safety signs and labels for application to products."

Substantiation: The panel reviewed all of the public comments received relating to 110.16 that were submitted for the 2005 NEC. Panel comment Log # CC100 addresses the submitters' concerns. The panel comment incorporates the following actions:

1. The term "meter socket enclosures" was added to the list of applicable equipment based on panel action on Proposal 1-176.
2. The first sentence was revised to clarify that the location of the equipment could be either inside or outside of a building based on panel action on Comment 1-209.
3. A new fine print note 3 was added to reference IEEE Standard 1584-2002 based on panel action to Comment 1-225. CMP-1 concludes that "arc flash distance" is not defined in IEEE 1584, therefore it should not be included in the fine print note.
4. The fine print note for product safety signs and labels was updated to reflect the most recent standard and relocated as FPN No. 4.
5. Reference in FPN No. 1 to NFPA 70E was updated to reflect the current revision date and title. CMP-1 concludes that this change is editorial.
6. A new FPN No.2 was added based on panel action on Comment 1-220. CMP-1 concludes that some of the additional markings recommended by Comment 1-220 were more appropriate to be included as examples in a fine print note instead of as mandatory requirement.

Panel Meeting Action: Accept**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 7 Negative: 4 Abstain: 1**Explanation of Negative:**

HITTINGER: The added Fine Print Note No. 2 and Fine Print Note No. 3 are not appropriate for the NEC that is an installation document not a design

manual. The requirements for electrical safe work practices are identified in NFPA 70E acknowledged in Fine Print Note No. 1. This document can be utilized to enforce and recognize the use of safe work practices and procedures. See my statement for explanation of negative in ROP 1-177.

MINICK: NEMA continues to be a strong supporter of NFPA 70E and safe work practices, however, NEMA also continues to support the position that the NEC is an installation code and not a work practice document. NEMA continues to support the position that personnel safety can best be assured when equipment is de-energized before performing any work.

STAUFFER: NECA repeats its earlier voting comments on Proposal 1-172a, and generally agrees with Mr. LaBrake's substantiation on Comment 1-216. Requiring detailed arc-flash hazard information to be marked on electrical distribution equipment is not practical for the reasons explained in those two statements. NECA could support a future change proposal that was limited to adding "meter socket enclosures" to the list of equipment currently covered by 110.16.

TROGLIA: Edison Electric Institute's position is as stated in the substantiation of Comment 1-216 and does not agree with the addition of work practice requirements nor references indicating work practice safety precautions that can be implemented.

Although 110.16 is already in the 2002 NEC, it clearly represents a work practice by the words of the last sentence. The present FPN No.1 provides a clear informational reference where assistance can be found for work practices related to flash protection. By 90.1(C), the NEC is not intended to be an instruction manual for untrained persons. Hence, the reference to NFPA 70E is sufficient for this section in the NEC.

The Panel's addition in proposed FPN Nos. 2 and 3 of informational examples and means to prevent arc flash hazard is superfluous and opens the NEC to possible judicatory situations through Section 90.4 for enforcers of NEC installation requirements. Therefore, this work practice information proposed needs to reside with other standards and requirements outside of the NEC for the interest of worker safety.

Comment on Affirmative:

FISKE: We are voting to affirm the panel action to Accept Comment 1-224a, which is a Code-Making Panel 1 Comment; however, we harbor serious reservations regarding Fine Print Note No. 2.

By suggesting that flash protection boundary, level of incident energy available, and level of personal protective equipment might be field-marked on the equipment, the NEC will in fact encourage persons to apply those markings. It would be a good thing if those markings were present, if one could be sure that they were correct at the outset AND kept up correct as the electric system on both supply side and load side of the marked equipment is changed. We have serious doubts that such markings will be kept up-to-date, and the unintended consequences will be increased risks to workers, rather than reduced risks as intended.

Notwithstanding these reservations, we are voting in favor of the panel action on this comment, as the inclusion of meter sockets and the Fine Print Note regarding IEEE 1584 are too important to risk having consensus, and reverting to the 2002 NEC (even though that was a major step forward).

FLOYD: At the Report on Comments Meeting in San Diego, and during the Code-Making Panel 1 discussion on action on Committee Comment 100, Michael Anthony raised the question of the availability of loss data that could help us understand the impact of our actions on NEC proposals and comments. I brought to Code-Making Panel 1 members' attention 2 documents that may be useful in understanding the injury and monetary losses associated with electrical injuries, including electric arc flash burns.

In 2003, James Cawley and Gerald Homce of the National Institute for Occupational Safety and Health published Occupational Electrical Injuries in the United States, 1992-1998, and Recommendations for Safety Research. It is perhaps the most comprehensive analysis ever undertaken of workplace electrical injuries. It is the first study that I am aware of that differentiates and quantifies electric arc burn injuries from electric shock injuries. This report was published in The Journal of Safety Research, Volume 34, Issue 2, August 2003, Pages 241-248.

Health Implications of Global Electrification was presented at the Third International Conference on Electrical Injury and Safety, held in Shanghai in 1998. The principal investigator was Ronald Wyzga, who was the Director of Health Studies at EPRI at the time. Economic costs of electrical injuries are discussed. This report was published in Annals of the New York Academy of Sciences, Volume 888, October 1999, Pages 1-7.

Explanation of Abstention:

ANTHONY: See my Explanation of Abstention on Comment 1-220.

1-225 Log #994 NEC-P01

Final Action: Reject

(110-16 and FPN No. 2 and No. 3-(New))

Note: Based on the Technical Correlating Committee action on Comment 1-224a, the Technical Correlating Committee directs that Comment 1-225 be reported as "Reject".**Submitter:** Dorothy Kellogg, American Chemistry Council
Comment on Proposal No: 1-182**Recommendation:** The **Final Action** should be accept rather than reject.**Substantiation:** Proposal 1-182 as incorporated into the panel Proposal 1-172a. Proposal 1-182 received unanimous support from the panel. However, since Proposal 1-172a did not receive a 2/3 majority vote the TCC directed that the Final Action on 1-172a along with its companion proposals was a reject. As a result of this action, Proposal 1-182 became a reject as directed by

the TCC. IEEE Std 1584 is an industry standard for performing flash hazards analysis and should be included as a reference for calculating flash protection boundaries and incident energy levels. Note that none of the negative ballot comments submitted for Proposal 1-172a identified IEEE Std 1584 as an issue. All issues associated with 1-172a involved the proposed labeling requirements, and not the reference to IEEE Std 1584. Therefore, Proposal 1-182 should be evaluated on its own merits and accepted.

Panel Meeting Action: Accept in Part

Panel Statement: See recommendation and substantiation on Comment 1-224a.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 9 Negative: 3

Explanation of Negative:

HITTINGER: See my explanation of negative vote on Comment 1-224a.

MINICK: See NEMA comment on 1-224a.

TROGLIA: The EEI position on this issue is as stated on Comment 1-216. See my comment on vote on Comment 1-224a.

1-226 Log #176 NEC-P01
(110.17)

Final Action: Reject

Submitter: David Shapiro, Safety First Electrical Contracting, Consulting, and Safety Education

Comment on Proposal No: 1-184

Recommendation: Accept with the word “field” removed.

Substantiation: Mr. LeBlanc has identified a possible help for an exceedingly common problem. Enforcement of the working space requirements fails miserably. This will not solve it, but I will testify fervently that it is out of Authority Having Jurisdiction’s control after initial inspection. I don’t see that field marking has an advantage over factory-maybe manufacturers can research how to encourage users to NOTICE and respect the requirements.b

Panel Meeting Action: Reject

Panel Statement: Manufacturers cannot mark equipment with the information proposed without specific knowledge as to how and where the equipment is to be installed. The panel reaffirms its statement on Proposal 1-184.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-227 Log #892 NEC-P01
(110.20 (New))

Final Action: Accept

Submitter: Timothy M. Croushore, Allegheny Power

Comment on Proposal No: 1-157

Recommendation: Reject this proposal.

Substantiation: I agree that making this table available for reference by other code articles is wise, however, I also agree with the comments in the voting that enclosure type designations are not appropriate for many instances of installed equipment. For example, there is no need to require 4-in. sq. boxes on a cinder block interior wall of a store to be marked NEMA 1 or the equivalent.

I believe that specific equipment types are probably outside of the scope of Article 110, which deals mainly with approval, installation, use, access and spaces. I understand that locating the enclosure type table in Article 110 may seem to make sense from an overall code organization standpoint, but, I believe that specific equipment type issues really belong in Chapter 4 with the equipment articles or in Chapter 9 and referenced.

I guess my other issue with locating this material in Article 110 is that the article contains many diverse technical areas. Adding enclosure types to the workload of Code-Making Panel 1 adds another level of complexity and skill set required in that panel. Rather, enclosure types should be handled by Code-Making Panel 9 who already has membership with the skill set to handle enclosures. My belief is that one code-making panel cannot reasonable staff with all of the needed expertise to deal with all of these individual subjects properly.

One possible solution to the issue, in a future code cycle if necessary, would be to place the table in Chapter 9, with the operational text modified to say, “for which specific protection from various environmental conditions is required”. This construction would leave it up to the various code making panels to decide whether to implicitly (or explicitly) reference the new table. For example, 430.91 could say “motor controller enclosures shall be suitable for the specific environmental conditions that apply at their location as evidenced by an enclosure type number marked on the controller.” The other virtue of a Chapter 9 location is that it is immune from the Chapter 5 modification provisions of 90.3. This would then allow the inclusion of NEMA 7, 8, and 9 enclosures in a future code cycle, providing a single location for all the enclosure types, which would be very useful for code users.

Panel Meeting Action: Accept

Panel Statement: See panel action and statement on Comment 1-185.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-228 Log #1005 NEC-P01
(110.20 (New))

Final Action: Reject

Submitter: Noel Williams, Noel Williams Consulting

Comment on Proposal No: 1-157

Recommendation: This proposal should continue to be accepted in principal.
Substantiation: The table of type numbers is a very valuable table for users of the NEC. In its present location it seems to apply only to motor controller enclosures, even though the information is applicable to enclosures in general. The table will help in design, installation, and inspection of electrical systems. Often equipment is only marked with a type number, and the information in this table is needed to determine whether an enclosure type is appropriate for a given installation. However, notes should be included to indicate that not all equipment will have type numbers and a type number is one way rather than a required way of meeting the requirements for identification for a specific use or environment.

Panel Meeting Action: Reject

Panel Statement: See panel action and statement on Comment 1-188.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-229 Log #2430 NEC-P01
(110.20)

Final Action: Hold

Submitter: J. Philip Simmons, Simmons Electrical Services / Rep. National Armored Cable Manufacturers Association

Comment on Proposal No: 1-157

Recommendation: Revise 110.20 from the 2005 NEC ROP Draft as follows:

110.20 Enclosure Types. Table 110.20 provides the basis for selecting enclosures for use in specific locations other than hazardous (classified) locations for the following equipment:

- (1) Power distribution and control equipment enclosures such as cabinets and cutout boxes
- (2) enclosed panelboards and switches
- (3) meter sockets
- (4) enclosed circuit breakers or switches
- (5) industrial control equipment
- (6) motor controllers.

The enclosures are not intended to protect against conditions, such as condensation, icing, corrosion, or contamination, that may occur within the enclosure or enter via the conduit or unsealed openings. These internal conditions shall require special consideration by the installer and user.

Equipment identified only as “dry locations,” “Type 1,” or “indoor use only” shall be protected against permanent damage from the weather during building construction.

Change footnote Number 1 below the table to read:

1 Enclosure type number shall be marked on the ~~motor controller~~ enclosure.

Substantiation: This Comment intends to clarify the application of Table 110.20 as contained in the substantiation for the Proposal that was accepted by CMP-1. Several previous editions of the NEC have located the Table as Table 430.91 where it applied to only motor controllers. UL has had similar requirements for many years for other types of equipment in the White or Green Directories in Electrical Equipment for Use in Ordinary Locations (AALZ). Other equipment categories in the UL directories contain similar requirements.

It makes sense to locate this Table in Article 110 so it clearly has application to all types of distribution and control equipment

Panel Meeting Action: Hold

Panel Statement: See panel action and statement on Comment 1-231.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-230 Log #2523 NEC-P01
(110.20)

Final Action: Hold

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)

Comment on Proposal No: 1-152

Recommendation: Revise the proposed 110.20 to read as follows:

110.20 Enclosure Types. Enclosures (other than surrounding fences or walls) of all switchboards, panelboards, industrial control panels, meter sockets, motor control centers, enclosed switches, enclosed circuit breakers, transformers, and motor controllers, rated not over 600 volts nominal intended for such locations shall be marked with a Type number as shown in Table 110.20.

Table 110.20 provides the basis for selecting the above enclosures for use in specific locations other than hazardous (classified) locations. The enclosures are not intended to protect against conditions such as condensation, icing, corrosion, or contamination that may occur within the enclosure or enter via the conduit or unsealed openings. These internal conditions shall require special consideration by the installer and user.

Equipment not identified for outdoor use and equipment identified only for indoor use, such as “dry locations” “Types 1, 2, 5, 12, 12K, or 13,” or “indoor use only” shall be protected against permanent damage from the weather during building construction.

Proposed Table 110.20 to be placed here
(Table 110.20 to be the same as existing 430.91, with the following modifications:

- Change title to "Enclosure Selection"
- Delete footnote 1
- Renumber footnote 2 as footnote 1)

Substantiation: Rationale for changes:

The proposal is a good start, but needs some additional modifications to make it acceptable as a general rule in the NEC. The following revisions are recommended:

1. The last sentence of the first paragraph is proposed to be deleted because it "requires" an action that is not specified or enforceable by the AHJ.

2. A new second paragraph is recommended that will limit the application of the table to specific equipment. Inserting the requirement into 110 without some limitation will result in it being applied to equipment that is not required to carry a Type number. There are many categories of equipment which use generic markings - Outdoor, Damp Locations, Rainproof, Raintight, Waterproof, etc. - instead of Types. All of the equipment included in this new paragraph is presently required by their respective product standards to be marked with Type numbers corresponding to the proposed table.

3. The words "other than surrounding fences and walls" are proposed because the NEC definition of enclosure includes the use of fences and walls, which are clearly not intended to be covered by the proposed table.

4. The third paragraph comes from Proposal 1-152. The revision is to make it more inclusive of other enclosures which need protection.

5. The table itself would need to be changed only in title and through deletion of footnote 1, which is now covered by the new second paragraph.

Panel Meeting Action: Hold

Panel Statement: The panel concludes that the submitter intended to address Proposal 1-157. See panel action and statement on Comment 1-231.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-231 Log #2524 NEC-P01
(110.20)

Final Action: Hold

Submitter: Vince Baclawski, National Electrical Manufacturers Association (NEMA)

Comment on Proposal No: 1-157

Recommendation: Revise the proposed 110.20 to read as follows:

110.20 Enclosure Types. Enclosures (other than surrounding fences or walls) of all switchboards, panelboards, industrial control panels, meter sockets, motor control centers, enclosed switches, enclosed circuit breakers, transformers, and motor controllers, rated not over 600 volts nominal intended for such locations shall be marked with a Type number as shown in Table 110.20.

Table 110.20 provides the basis for selecting the above enclosures for use in specific locations other than hazardous (classified) locations. The enclosures are not intended to protect against conditions such as condensation, icing, corrosion, or contamination that may occur within the enclosure or enter via the conduit or unsealed openings. ~~These internal conditions shall require special consideration by the installer and user.~~

Equipment ~~not identified for outdoor use and equipment identified only for indoor use, such as "dry locations", "Types 1, 2, 5, 12, 12K, or 13," or "indoor use only"~~ shall be protected against permanent damage from the weather during building construction.

Proposed Table 110.20 to be placed here
(Table 110.20 to be the same as existing 430.91, with the following modifications:

- Change title to "Enclosure Selection"
- Delete footnote 1
- Renumber footnote 2 as footnote 1)

Substantiation: Rationale for changes:

The proposal is a good start, but needs some additional modifications to make it acceptable as a general rule in the NEC. The following revisions are recommended:

1. The last sentence of the first paragraph is proposed to be deleted because it "requires" an action that is not specified or enforceable by the AHJ.

2. A new second paragraph is recommended that will limit the application of the table to specific equipment. Inserting the requirement into 110 without some limitation will result in it being applied to equipment that is not required to carry a Type number. There are many categories of equipment which use generic markings - Outdoor, Damp Locations, Rainproof, Raintight, Waterproof, etc. - instead of Types. All of the equipment included in this new paragraph is presently required by their respective product standards to be marked with Type numbers corresponding to the proposed table.

3. The words "other than surrounding fences and walls" are proposed because the NEC definition of enclosure includes the use of fences and walls, which are clearly not intended to be covered by the proposed table.

4. The third paragraph comes from Proposal 1-152. The revision is to make it more inclusive of other enclosures which need protection.

5. The table itself would need to be changed only in title and through deletion of footnote 1, which is now covered by the new second paragraph.

Panel Meeting Action: Hold

Panel Statement: The comment offers new material that has not had public review and is to be held for the next revision cycle in accordance with 4-4.6.2.2(a) of the Regulations Governing Committee Projects. The panel recommends the appointment of a task group to study the issue presented in Proposal 1-157.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-232 Log #3384 NEC-P01
(110.20 (New))

Final Action: Accept

Submitter: Frederick L. Carpenter, Lithonia Lighting

Comment on Proposal No: 1-157

Recommendation: The Proposal to move the text and table from Section 430.91 should be rejected.

Substantiation: When reviewing the construction of utilization equipment with respect to the "enclosure" definition in Article 100, it is seen that most utilization equipment contains an enclosure. Since nothing in the test of proposed new paragraph 110.20 indicates that the requirement is only to be applied to general purpose enclosures, it can, and will, be applied to enclosures that are integral to listed utilization equipment. As part of their listing criteria, utilization equipment, such as luminaries, are already subjected to testing to verify that they are constructed appropriately for the environments in which they will be used. No substantiation has been provided to justify the need to subject listed utilization equipment to the testing, listing, and marking requirements of motor controller enclosures. No data has been supplied to suggest that the current environmental testing requirements in the utilization equipment listing standards are inadequate.

Panel Meeting Action: Accept

Panel Statement: See panel action and statement on Comment 1-185.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-233 Log #3413 NEC-P01
(110.20 (New))

Final Action: Hold

Submitter: Timothy M. Croushore, Allegheny Power

Comment on Proposal No: 1-157

Recommendation: The proposal should be accepted in principle. Locate the table as a new Table 3, with the same title and footnotes, in Chapter 9. To accomplish this, perform the following additional actions:

1. Delete the phrase "motor controller" from Footnote 1. Locate the first paragraph of text accepted in the ROP as 110.20 below the table in Chapter 9, editorially revised as follows, and then include the fine print note accepted by CMP11 in the action on Proposal 11-61 immediately thereafter.

~~Table 3 110.20 provides the basis for selecting enclosures for use certain equipment for which specific protection from various environmental conditions is required in other than hazardous (classified) locations. The enclosures are not intended to protect against conditions such as condensation, icing, corrosion, or contamination that may occur within the enclosure or enter via the conduit or unsealed openings. These internal conditions shall require special consideration by the installer and user.~~

FPN: The term raintight is typically used in conjunction with Enclosure Types 3, 3S, 3SX, 3X, 4, 4X, 6, 6P. The term rainproof is typically used in conjunction with Enclosure Type 3R, 3RX. The term watertight is typically used in conjunction with Enclosure Types 4, 4X, 6, 6P. The term driptight is typically used in conjunction with Enclosure Types 2, 5, 12, 12K, and 13. The term dusttight is typically used in conjunction with Enclosure Types 3, 3S, 3SX, 3X, 5, 12, 12K, 13.

2. Do not create section 110.20 as proposed. Delete the second paragraph of 110.11, as indicated in Proposal 1-152. Create a new 110.28 worded as follows:

110.28 Enclosure Types, Not Over 600 Volts, Nominal. Enclosures of all switchboards, panelboards, industrial control panels, meter sockets, motor control centers, enclosed switches, enclosed circuit breakers, transformers, motor controllers, and other equipment enclosures required to be identified as being suitable for the specific environmental conditions that apply at their location, shall be marked with a type number marked on the enclosure by their manufacturer in accordance with Table 3 in Chapter 9.

Equipment not identified for outdoor use and equipment identified only for indoor use, such as "dry locations", "Types 1, 2, 5, 12, 12K, or 13," or "indoor use only" shall be protected against permanent damage from the weather during building construction.

3. Revise 430.91 to read as follows: "Motor controller enclosures shall be suitable for the specific environmental conditions that apply at their location, as evidenced by an enclosure type number marked on the controller."

FPN: See Table 3 in Chapter 9 for standard enclosure types.

4. Delete Table 430.91.

5. Revise the "Notes to Tables" located after Chapter 9, Table 1 to read: "Notes to Tables 1, 4, 5, and 5A".

Substantiation: This proposal was forwarded to CMP-9 for information and/or comment. The task group responding is comprised of Fred Hartwell, Tim Croushore, Robert Osborne, Jim Carroll, and Hector de Vega.

CMP-9 agrees that making this table available for reference by other code articles is wise, however, CMP-9 also agrees with the comments in the voting that enclosure type designations are not appropriate for many instances of installed equipment. For example, there is no need to require 4 in. sq. boxes on a cinder block interior wall of a store to be marked NEMA 1 or the equivalent. The solution is to place the table in Chapter 9, with the operational text modified to say, "for which specific protection from various environmental conditions is required". This wording allows the various code making panels to decide whether to implicitly (or explicitly) reference the new table in the future. The fifth action suggested in this comment corrects an error in the present Chapter 9 table notes that will only be exacerbated by the inclusion of the new Table 2 in this cycle (Proposal 8-24a).

The present enclosures required to have this designation then go into Article 110 as provided in this comment. Note that this list does not mention surrounding walls or fences because of the wording in this comment that clarifies that Type numbers are to be marked by their manufacturer. The location in Article 110 suggested in this comment differs from the initial CMP-1 action because these Type numbers only apply at 600 Volts and below, and therefore the requirement must be located in Part II of the article. The last sentence of the corresponding paragraph in the ROP is proposed to be deleted because it "requires" an action that is not specified or enforceable by the AHJ.

The principal reason to place this table in Chapter 9 is that it is immune from the Chapter 5 modification provisions of 90.3. This will then allow the inclusion of NEMA 7, 8, and 9 enclosures in a future code cycle, providing a single location for all the enclosure types, which would be very useful for code users. In fact, this location could also include IEC ingress protection tables as well.

CMP-9 understands that this comment crosses panel jurisdictional boundaries and for that reason will require action by the TCC. CMP-9 has made every effort to keep the subjects of this comment within the scope of material that has had public review, in the hope that this can be completed in this cycle. In terms of public review, CMP-9 notes that the exact wording of Proposal 1-157 is to "move" the text and table from 430.91, and not to "copy" it from that location. However, CMP-9 also understands that this comment may introduce sufficient complexity and need for review by other panels that the comment and underlying proposal may require a report as "hold" as allowed by 4-4.6.2.2(c) of the Regulations Governing Committee Projects.

Panel Meeting Action: Hold

Panel Statement: See panel action and statement on Comment 1-231.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-234 Log #183 NEC-P01 **Final Action: Reject**
(110.22)

Submitter: David Shapiro, Safety First Electrical Contracting, Consulting, and Safety Education

Comment on Proposal No: 1-186

Recommendation: Instead of "The marking shall be unique, so as to enable users to differentiate between disconnecting means serving similar loads quickly and unmistakably"; accomplish this purpose by saying in the second sentence, "the marking shall identify the specific nature and location(s) of the load(s), and shall be of sufficient durability...".

Also add, "The marking shall be permitted to be located up to 15 mm (6 in.) away."

Substantiation: This removes the explanatory material from the original proposal. It also says what information is needed, which may be more useful than just saying the label needs to be "specific" or "unique." It adds relief for installers whose designs result in either of two circumstances. One indicates that where circuiting is poorly rationalized, so either lengthy descriptions are necessary or posting actual diagrams will make it faster to locate disconnects, installers need not try to squeeze them right on the equipment, say by scribbling on panel cover directories. (Lifted from proposal 19-129.)

Panel Meeting Action: Reject

Panel Statement: First, it is often impractical to identify the specific nature at locations of the loads. In many cases, the marking would take more wall space than its associated disconnecting means. Second, the substantiation fails to explain why the marking is so important to be mandatory. Third, no substantiation for the 15 mm distance limitation has been provided.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 11 Negative: 1

Explanation of Negative:

ANTHONY: Electrical professionals routinely face hazards associated with cryptic and/or non-existent marking. This proposal will reduce these hazards.

1-235 Log #513 NEC-P01 **Final Action: Reject**
(110.22)

Submitter: Richard E. Loyd Sun Lakes, AZ

Comment on Proposal No: 1-186

Recommendation: Each disconnecting means shall be legibly marked to indicate its purpose unless located and arranged so the purpose is evident: the circuit and all equipment it disconnects. The marking shall be of sufficient durability to withstand the environment involved.

Substantiation: Proposal 1-186 cites a safety problem. Unique markings will provide maintenance electricians needed information so that they are more likely to shut off the power before working on the circuit or equipment. This will eliminate accidents and make compliance with NFPA 70E and OSHA rules easier so that more electricians will turn off the power before working on the equipment.

I have personally worked things hot and seen others do the same because I was unable to identify the right disconnect, and turning off the wrong equipment would disrupt the operation of the facility.

Panel Meeting Action: Reject

Panel Statement: The comment recommends wording that is not related to the proposal and is not in compliance with the Regulations Governing Committee Projects Section 4-4.5(b).

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-236 Log #3266 NEC-P01 **Final Action: Reject**
(110.26)

Submitter: Daleep C. Mohla, DCM Electrical Consulting Services, Inc.

Comment on Proposal No: 1-195

Recommendation: Delete last sentence of 110-26 starting from "Enclosures housing...".

Substantiation: Sufficient access and working space is required for safety and to ensure adequate space is available. The sentence only describes what is considered accessible to qualified persons. Whether the person is qualified or not is not relevant for access. The implication of inclusion of this sentence implies that sufficient access and working space is not required if access is controlled by a lock and key. Was this the intent of this panel? Definition of what is considered Accessible is included in Article 100 which clearly defines what Accessible is.

Panel Meeting Action: Reject

Panel Statement: The sentence is needed to assure that a locked enclosure is considered as having sufficient access (to those who are qualified and need access), and need not remain unlocked to assure access. NEC rules for accessibility are relaxed for qualified persons, in some cases. See 110.26(A)(1)(c) and 110.27(A). Thus it is necessary to state what shall be accessible to qualified persons.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-237 Log #3640 NEC-P01 **Final Action: Reject**
(110.26(A))

Submitter: W. Creighton Schwan Hayward, CA

Comment on Proposal No: 1-198

Recommendation: In line 2, following "to ground", insert: "of switchboards, panelboards, motor control centers, circuit breakers, fused switches, heating and air conditioning controls, service equipment and other equipment (and) likely to require...".

Substantiation: As presently written, this requirement is unrealistic, and therefore is violated every day. The NEC rules should be practical and constructive. Repeatedly the Panel has stated that 110.26 applies to ALL electrical equipment, an impossibility; impractical.

Panel Meeting Action: Reject

Panel Statement: The panel reaffirms its statement on Proposal 1-198. Section 110.26 applies to "all equipment likely to require examination, adjustment, servicing, or maintenance while energized."

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-238 Log #3641 NEC-P01 **Final Action: Reject**
(110.26(A))

Submitter: W. Creighton Schwan Hayward, CA
Comment on Proposal No: 1-213

Recommendation: Reconsider and accept proposal.

Substantiation: Panel statement for Proposal 1-199 that there is no justification for precluding a toggle switch in a stairway wall is correct, and that is exactly what the present wording does. Access is not only for qualified persons. If a factory worker is reaching for a disconnect switch because someone is caught in the machinery, is the Panel serious in that he should stop to construct a level place to stand?

Panel Meeting Action: Reject

Panel Statement: This code section requires workspace for maintenance of electrical equipment while energized. The submitter has extrapolated that requirement to the normal use of the equipment, which clearly is not the intent of this section.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-239 Log #175 NEC-P01 **Final Action: Reject**
(110.26(A) Exception (New))

Submitter: David Shapiro, Safety First Electrical Contracting, Consulting, and Safety Education

Comment on Proposal No: 1-199

Recommendation: Accept as proposed with the following:

“Exception: Where no other locations are practicable and these are acceptable to the Authority Having Jurisdiction.”

Substantiation: Toggle switches normally can be located on level landings. Uneven spaces indeed can be hazardous to work from, and while savvy and intrepid installers and repairers can make do in the types of locations described, I also have safely (or, at least without injury) worked on service equipment by straddling the washing machine located right in front of it. Hello, OSHA.

Panel Meeting Action: Reject

Panel Statement: No justification for a change of this magnitude was presented. The code already precludes the installation of a washing machine immediately in front of equipment that is maintained while energized.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-240 Log #550 NEC-P01 **Final Action: Accept**
(Table 110.26(A)(1))

Submitter: Technical Correlating Committee on National Electrical Code®
Comment on Proposal No: 1-208

Recommendation: The Technical Correlating Committee directs the panel to consider similar changes in Table 110.34 for consistency among the conditions. 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 recommendation and substantiation Comment 1-252a.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-241 Log #997 NEC-P01 **Final Action: Reject**
(110.26(A)(1))

Submitter: Noel Williams, Noel Williams Consulting

Comment on Proposal No: 1-207

Recommendation: The proposal action should be “accept” rather than “accept in principal.”

Substantiation: The panel refers to the action on Proposal 1-208. However, the accepted language in 1-208 does not address the issues in this proposal. The proposed new sentence should be accepted because it corrects two common misconceptions. First, many people think that each space must be separate, for example, that each 20” wide panel must have its own 30” space. Second, the current language does not say how far we must go before there are no live or grounded parts on the other side of the space. Experienced users of the NEC may think this is silly (as I do) but the misinterpretations are widespread and should be addressed.

Panel Meeting Action: Reject

Panel Statement: Proposal 1-207 dealt with the depth of the working space. The comment seems to be concerned with the width of the working space. The panel concludes its action on Proposal 1-208 addressing the depth of the required working space is clear.

Number Eligible to Vote: 12
Ballot Results: Affirmative: 12

1-242 Log #3655 NEC-P01 **Final Action: Reject**
(110.26(A)(1))

Submitter: Stephen W. McCluer, American Power Conversion Corp

Comment on Proposal No: 1-206

Recommendation: Add a new paragraph under 110-26(A)(1):

(d) Condition 2 working clearance shall be permitted in hot aisles of Information Technology (IT) centers complying with Article 645 and characterized by alternating rows of electronic equipment racks in which the rear of the equipment faces into each side of the “hot” aisle when:

(i) conditions of maintenance and supervision ensure that written procedures have been adopted to prohibit equipment on both sides of the hot aisle from being open at the same time;

(ii) qualified persons who are authorized will service the installation; and

(iii) examination, adjustment, servicing, or maintenance while energized will normally be done from the front of the equipment in the cold aisle.

Substantiation: The original proposal was submitted in response to numerous inspector interpretations requiring “Condition 3” clearance in Information Technology Equipment rooms. The Panel states that the authority granted to the AHJ by Section 90.4 to waive the code requirements will serve the concerns expressed. **The panel’s claim is not supported by experience.**

Inspectors have routinely enforced wider hot aisles because the Code gives no guidelines for when a waiver would be justified. This proposal provides the guidelines. They are identical to guidance already allowed in 110-26(A)(1)(c) for Existing buildings; i.e.,

- conditions of maintenance ensure that written procedures have been adopted;

- equipment on both sides of the hot aisle cannot be open at the same time
- routine service and maintenance will be done from the front of the equipment (cold aisle);

AND

- only qualified persons who are authorized will service the installation

All of these conditions must be met to qualify for this easement.

Panel Meeting Action: Reject

Panel Statement: The panel reaffirms its statement on Proposal 1-206. There is no justification presented for a further relaxation of the requirements for other than the specific equipment listed in 110.26(A)(1)(c) for existing buildings. Section 90.4 provides the mechanism for addressing a specific installation.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-243 Log #3605 NEC-P01 **Final Action: Reject**
(110-26(A)(1)(a))

Submitter: Lanny G. McMahon Phoenix, AZ

Comment on Proposal No: 1-209

Recommendation: Accept this proposal as submitted.

Substantiation: The change made in the 2002 NEC to this section has a major impact on code enforcement. The submitter’s proposed change to revert back to the 1999 NEC language makes sense. Where electrical parts on the back of equipment can be de-energized for servicing, a minimum 30 in. working space has been the standard enforcement practice. Changing the word “de-energized” to “nonelectrical” in the 2002 NEC did not add clarity to the requirement and simply caused confusion for industry. Based on the 2002 NEC change, if any terminals are on the back of assemblies, then working space minimum (clear distance) requirements apply. This applies even if the terminals are not likely to require examination, adjustment or servicing while energized. It should also be noted that almost all assemblies manufactured today require that the back of the equipment be de-energized before servicing terminals. Where de-energized, a minimum 30 in. of working space is reasonable. In addition, the existing text does not correlate with the requirement in 110.34(A), Exception. Was this the intent of Code Panel 1? Again, accept this proposal and correct the oversight made in the 2002 NEC.

Panel Meeting Action: Reject

Panel Statement: As stated by the submitter, the equipment described is not likely to require maintenance while energized. As stated, the equipment manufacturer requires the back of this equipment to be deenergized prior to servicing. In this case, 110-26(A) does not require a specific workspace and the general requirement in 110.26 for “sufficient access and working space” applies. The panel reaffirms its statement on Proposal 1-209.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 10 Negative: 2

Explanation of Negative:

MCMAHILL: The comment and the original proposal should have been accepted. Based on the panel’s statement and the code as now written, it seems to indicate that where terminals are on the back of a switchboard, only “sufficient access and working space” is required to service those terminals.

Unfortunately, the word "sufficient" is an unenforceable and vague term. It appears that the panel's intent is that for large equipment only 24 inches of working space is required to service deenergized terminals on the back of a switchboard. This is based on the minimum width of the entrance to the working space. Yet, a minimum of 30 inches of working space is required to service nonelectrical parts on the back of that same switchboard. This makes no sense! In addition, parallel structure is lost with Section 110.34(A) Exception. That exception requires a minimum 30 inches of working space to work on de-energized parts.

STAUFFER: NEMA agrees with the reasons expressed in Mr. McMahon's explanation of negative vote.

1-244 Log #3642 NEC-P01 **Final Action: Reject**
(110.26(A)(1)(a))

Submitter: W. Creighton Schwan Hayward, CA

Comment on Proposal No: 1-209

Recommendation: In line 7, replace "nonelectrical" with "deenergized"

Revert to 1999 wording. 2002 change "for clarity" was based on insufficient supporting comment.

Substantiation: From the 1965 NEC when there was NO requirement for working space, to the 1996 NEC when the 30 in. was introduced for de-energized parts, there have been no reported injuries, no property damage. 1965 to 1999 a good safety record. Also see 110.34(A) for HV.

Panel Meeting Action: Reject

Panel Statement: See panel statement on Comment 1-243.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-245 Log #1573 NEC-P01 **Final Action: Accept**
(110.26(A)(1)(c))

Submitter: Jim Pauley, Square D Company

Comment on Proposal No: 1-211

Recommendation: Reject the proposal.

Substantiation: The new language accepted by the panel extends the present requirement to equipment that was not intended to be covered. This rule went into the 1996 NEC as an exception to 110.16. The issue that led to the change was the fact that some large users had misinterpreted the code language to say that Condition 2 applied to working space between two pieces of equipment facing one another. CMP 1 made it clear at that time that this was a Condition 3 situation. The compromise, was to add the new exception with extensive limitations. Those limitations included:

- 1) existing buildings where equipment was being replaced
 - 2) limited to written practice and conditions of maintenance and supervision
 - 3) specifically limited to panelboards, switchboards and motor control centers
- Item 3 was key because it was recognized that this equipment was typically in an equipment room and this was the equipment that caused the greatest problem when it was removed and new equipment installed.

The revision accepted by the panel would allow the reduced spacing to apply for practically anything that has a cover. There was no substantiation presented in the proposal to allow for such an expansion when you consider that the original exception added by CMP 1 was intended to be very specific in its scope.

The panel should leave the language as it appears in the 2002 NEC.

Panel Meeting Action: Accept

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-246 Log #3263 NEC-P01 **Final Action: Accept**
(110.26(A)(1)(c))

Submitter: Michael I. Callanan, IBEW

Comment on Proposal No: 1-211

Recommendation: This Panel should have rejected this proposal.

Substantiation: The submitter did not provide technical substantiation. Section 110.26(A)(1)(c) is an exception that permits some relief for installations being upgraded when switchboards, panel boards, or motor control centers are replaced in an existing building. Using the term electrical equipment of the dead front type changes the scope of section 110.26(A)(1)(c) by allowing the use of all dead front equipment.

We agree with the Negative vote of Mr. Hickman. This proposal broadly expands the scope of the exception without providing any technical substantiation.

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: 12

Ballot Results: Affirmative: 12

1-247 Log #1223 NEC-P01 **Final Action: Accept**
(110.26(C)(2))

Submitter: Donald A. Ganiere Ottawa, IL

Comment on Proposal No: 1-217

Recommendation: Panel should accept this proposal.

Substantiation: A travel distance of 5 ft. 8 in. through the work area is not any safer than the travel distance through a 6 ft. 1 in. work area if there is a fault condition. What if you have a single wall line up with the high power equipment on the end closest to the door? A fault on the high power equipment would trap anyone in the room at the other end if a fault would occur. The hazard is caused by the size of the arc blast and not the physical size of the equipment that creates the arc blast. The size of the arc blast is directly related to the electrical rating of the equipment and not the physical length of the equipment. I can only assume that the panel members would be happy to walk by the 5 ft. 8 in. 1200 amp gear while it is in a fault condition to get out of the room, but that they would be afraid to walk by the 6 ft. 1 in. 1200 amp gear under the same conditions.

Panel Meeting Action: Accept

Number Eligible to Vote: 12

Ballot Results: Affirmative: 9 Negative: 3

Explanation of Negative:

BARRIOS: The panel action should have been to "reject" rather than "accept". During the proposal stage, CMP1 rejected Proposal 1-217 by an 11 to 1 vote, and yet reversed its decision during the comment stage based on no additional technical substantiation. Physical size of the equipment should continue to be a criteria used to determine the amount of entrances needed for safe egress from an electrical equipment room or building. It is the physical size and placement of the equipment inside a room which creates barriers and obstructions for safe egress, not the equipment's continuous current rating alone.

In his substantiation, the submitter indicated that the size of the arc blast is directly related to the electrical rating of the equipment. This is not necessarily true. The arc blast, or available incident energy at a location, is based on the voltage, available short circuit current, separation between the electrodes (phases), the distance a worker's body parts are from the arcing fault, and the duration of the fault. The continuous current rating of the equipment is not a direct factor in determining the available incident energy or level of the arc blast. Equipment and systems with 1200A or larger continuous current ratings can be designed to expose workers to less arc blast than lower-rated equipment. Likewise, equipment with smaller than 1200A continuous current ratings can pose a more severe arc blast hazard than equipment rated 1200A and above.

Therefore, this is not solely an arc blast issue. The issue is providing an unobstructed path for persons to exit the area not only under equipment fault conditions, but also including fire and other events requiring emergency egress. The 6-foot wide equipment criteria has been in the NEC since 1978 (increased from 4-foot prior to that). Providing unobstructed paths is based on the physical size and location of the equipment and the size of the area in which the equipment is installed. It should not be based solely on the continuous current rating of the equipment.

MINICK: This change should not be accepted. There is no substantiation to eliminate the 6-foot dimension from the requirement. Many panelboards rated at 1200 amp may be only 3 ft wide and there is no reason to require 2 entrances to this small workspace.

TROGLIA: See my comment on vote on Comment 1-248.

1-248 Log #3262 NEC-P01 **Final Action: Accept**
(110.26(C)(2))

Submitter: Michael I. Callanan, IBEW

Comment on Proposal No: 1-217

Recommendation: This Panel should have accepted this proposal.

Substantiation: The submitter's concerns were not addressed by the panel. It is true that this section is not intended to provide protection from arc blasts or flashes. However, the presence of an additional door for large equipment installations does in some measure provide additional protection for personnel. The 6 foot designation was not intended to provide a means for designers to avoid the requirement for an additional door by installing smaller sections. The ampacity designation seems to be the relevant factor in this case.

We agree with the Negative vote of Mr. Hickman. The Panel statement that "physically small equipment results in a shorter travel distance and only one required exit" does not seem to flow conditionally.

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

Panel Meeting Action: Accept**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 9 Negative: 3**Explanation of Negative:**

BARRIOS: See my Explanation of Negative Vote on Comment 1-247.

MINICK: See NEMA comment on 1-247.

TROGLIA: The substantiation provided with the proposal and this comment is insufficient to revise this section's long standing requirement of 1200 amperes minimum, and 6 ft. maximum as the criteria for additional workspace access. It would appear to be unreasonable to require multiple accesses to the workspace (or two doors) for physically small 1200 ampere equipment.

1-249 Log #3261 NEC-P01
(110.26(D)(1))**Final Action: Reject****Submitter:** Michael I. Callanan, IBEW**Comment on Proposal No:** 1-218**Recommendation:** This Panel should have accepted this proposal in principle.**Substantiation:** The submitter's concept has merit. Emergency power illumination could be installed near switchboards, panelboards, or motor control centers where there is not a path of egress.

We agree with the Negative vote of Mr. Anthony. This appears to be a case where the need for the provision can be assumed considering the sequence of events that could result in an increased risk to personnel working on the equipment. The Proposal does not expand the requirement to all the equipment at a facility, as the panel statement suggests, but only in the areas that contain electrical equipment. Mr. Anthony's comments indicate that the specific space where emergency illumination should be required is for service equipment. This would more closely limit the scope of the new proposal than for all "electrical panels."

This Comment represents the official position of the International Brotherhood of Electrical Workers Codes and Standards committee.

Panel Meeting Action: Reject**Panel Statement:** The submitter did not include proposed text in accordance with 4-4.5(C) of the Regulations Governing Committee Projects.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 11 Negative: 1**Explanation of Negative:**

ANTHONY: The merits of the proposal have a sound, gut-feel to them. Electricians and others who would be the first to go to an electric service to assess the scope of a power outage, should be assured of adequate illumination, but scope and procedural issues limit the adoption of original Proposal 1-217, as written.

Comment on Affirmative:

HICKMAN: Although I do agree that Code-Making Panel 1 took the technically correct action in rejecting this comment since the recommendation of the submitter was to accept Proposal 1-218 in principle yet no proposed text was included in the recommendation, I believe there is great merit, at least conceptually, in the recommendation of the submitter of Proposal 1-218. Code-Making Panel 1 spent a great deal of time attempting to massage the language of Proposal 1-218 before rejecting this comment. My notes of the panel discussion on this issue indicate that the illumination contemplated could be provided by unit equipment as described in 701.11(F) rather than be connected to an emergency system, and that the proposed scope including "the areas around electrical panels" was perhaps too broad and that illumination of service equipment would be more feasible language.

1-250 Log #530 NEC-P01
(110.26(F)(1)c., FPN 1 (New))**Final Action: Reject****Submitter:** David Sroka Turner Falls, MA**Comment on Proposal No:** 1-224**Recommendation:** Add new text to 110.26(F)(1)(c):

"FPN No. 1: Two hour fire rated room construction may relieve the designer of the need for electrical room sprinklers. Installation of smoke detectors should be considered."

Substantiation: Water and electricity don't mix well. Non-conductive extinguishing agents such as Class C fire extinguishers are preferred. Water is a destructive extinguishing agent. There is also the inherent safety hazard water presents on live equipment.

Although it is a code violation, storage of flammable materials in electrical rooms is a common practice. Deletion of smoke seems preferable to shorting out of energized equipment with water.

Panel Meeting Action: Reject**Panel Statement:** Panel 1 reiterates that sprinklers are an effective means in preventing the spread of fire, even a fire in electrical equipment. In addition, the requirement for sprinklers is not regulated by the NEC.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-251 Log #432 NEC-P01
(110.31(A))**Final Action: Reject****Submitter:** Michael V. Glenn, Longview Fibre Co.**Comment on Proposal No:** 1-227**Recommendation:** Accept this proposal and delete 110.31(A).

Substantiation: I request the panel reconsider and accept this proposal by deleting 110.31(A). There is no specific definition for an electrical vault. An electrical vault or a room that contains listed metal enclosed starters that are properly short circuit and overload protected and that have the conductors installed in conduit does not pose a fire hazard. The requirement for a 3-hour fire rated room for a room with 2300 volt starters is excessive and unnecessary. 110.31 "Enclosure for Electrical Installations" states the type of enclosure used in a given case shall be designed and constructed according to the nature and degree of the hazard(s) associated with the installation. However, Section (A) as written supersedes this provision and requires the 3-hour fire rating. In the case of this room as an example with 2300 V UL listed properly protected metal enclosed starters, the enclosure for electrical installations would not require a 3-hour fire rating. The potential for fire is minimal and the source for continued combustion is minimal. This article as written is too restrictive and excessive and should be eliminated or at least clarified. I believe the confusion comes from what one considers an electrical vault. The code is very unclear on this issue.

Panel Meeting Action: Reject**Panel Statement:** This section does not necessarily require a vault for the equipment described in the comment. The requirements are needed where a vault, not containing a transformer, but containing equipment having a degree of hazard that warrants a vault, is constructed.**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-182 Log #2372 NEC-P01
(110.31(C)(1))**Final Action: Accept****Submitter:** James M. Daly, General Cable**Comment on Proposal No:** 1-228**Recommendation:** The Proposal should be Accepted.**Substantiation:** Changing the requirement to "Parts I, II, and III of Article 225" is not the same as referencing Article 225. 225.1, Scope, and 225.2, Other Articles, are not included in Parts I, II, or III of Article 225.

Accepting the Proposal will permit compliance with 4.1.1 of the NEC Style Manual and not change the intent since only 225.1 and 225.2 will not be referenced.

Panel Meeting Action: Accept**Number Eligible to Vote:** 12**Ballot Results:** Affirmative: 121-252 Log #3260 NEC-P01
(110.34(A))**Final Action: Hold****Submitter:** Michael I. Callanan, IBEW**Comment on Proposal No:** 1-231**Recommendation:** This proposal should be rejected.

Substantiation: The Submitter did not provide adequate technical substantiation to support the proposed recommendation. Section 110.26(A) is for equipment with 600 volts or less. Section 110.34(A) is for equipment with 601 volts or more. Section 110.32 states the minimum requirements for the height and width of working space. Section 110.32 also refers the user to 110.34(A) for the required depth of working space in the direction of access to live parts. Therefore, the Authority Having Jurisdiction (AHJ) would be correct in interpreting the provisions of Section 110.34(A). The present text is clear and addresses the concerns of the submitter. The term "likely" as per Section 3.2.1. and Table 3.2.1 of the NEC Style Manual is vague and unenforceable.

We agree with Mr. Hickman's negative vote that states that Section 110.34(A) is a stand-alone provision addressing clear working space in the direction to live parts. CMP-1 has strongly moved in the right direction over the past few

Code cycles in regards to improvements about defining and maintaining working space. Acceptance of this proposal would be a step backwards.

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

Panel Meeting Action: Hold

Panel Statement: Although the Panel agrees with the intent of the proposal, other modifications of Part III of Article 110 would be required to accomplish it such as in 110.32. The panel will hold the proposal and comment for consideration along with any proposal on this subject for the next NEC revision cycle.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-252a Log #CC101 NEC-P01
(Table 110.34(A))

Final Action: Accept

Submitter: Code-Making Panel 1

Comment on Proposal No: 1-230

Recommendation: CMP-1 revises the conditions under Table 110.34(A) to read as follows:

“Condition 1 - Exposed live parts on one side of the working space and no live or grounded parts on the other side of the working space, or exposed live parts on both sides of the working space that are effectively guarded by insulating materials.

Condition 2 - Exposed live parts on one side of the working space and grounded parts on the other side of the working space. Concrete, brick, or tile walls shall be considered as grounded.

Condition 3 - Exposed live parts on both sides of the working space.”

Substantiation: The panel concludes that the editorial changes add clarity and parallel construction by Section 3.3.5. of the NEC Style Manual. The recommendation addresses the concerns of the TCC as expressed in Comment 1-240.

Panel Meeting Action: Accept

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12

1-253 Log #82 NEC-P01 **Final Action: Accept in Principle in Part**
(110.34(B) and (C))

Submitter: Dan Leaf Rancho Santa Margarita, CA

Comment on Proposal No: 1-233

Recommendation: Accept revised as follows:

(B) Separation from Low-Voltage Equipment. Where switches, cutouts, or other equipment operating at 600 volts nominal ‘or less’ are installed in a vault, room, or enclosure where there are exposed live parts or conductors wiring operating at over 600 volts, nominal, the high voltage equipment shall be effectively separated from the space occupied by the low-voltage equipment by a suitable partition, fence, or screen.

Exception: Switches or other equipment operating at 600 volts, nominal, or less and serving only equipment within the high-voltage vault, room, or enclosure shall be permitted to be installed in the high-voltage vault, room or enclosure without a partition, fence, or screen if accessible to qualified persons only.

(C) Locked Rooms or Enclosures. The entrance to all buildings vaults rooms or enclosure containing live parts, or exposed conductors operating at over 600 volts, nominal, shall be kept locked, access being allowed only to qualified persons, unless such entrances are under the observation of a person authorized to forbid entry, at all times.

Substantiation: Same as proposal substantiation.

Panel Meeting Action: Accept in Principle in Part

Revise the text to read as follows:

(B) Separation from Low-Voltage Equipment. Where switches, cutouts, or other equipment operating at 600 volts, nominal, or less are installed in a vault, room, or enclosure where there are exposed live parts or exposed wiring operating at over 600 volts, nominal, the high voltage equipment shall be effectively separated from the space occupied by the low-voltage equipment by a suitable partition, fence, or screen.

Exception: Switches or other equipment operating at 600 volts, nominal, or less and serving only equipment within the high-voltage vault, room, or enclosure shall be permitted to be installed in the high-voltage vault, room or enclosure without a partition, fence, or screen if accessible to qualified persons only.

(C) Locked Rooms or Enclosures. The entrance to all buildings, vaults, rooms, or enclosures, containing exposed live parts or exposed conductors operating at over 600 volts, nominal, shall be kept locked unless such entrances are under the observation of a qualified person at all times.

Panel Statement: In item (B) accept the addition of the word “vault” and remove quotations around the words or less. In (B) reject the change “exposed wiring” to “conductors wiring”, as the present wording is clearer than the proposed wording. The panel accepts the revised wording to the exception. In item (C) the panel accepts the addition of the word “vaults”, and rejects “Observation by person authorized to forbid entry”. The panel rejects this wording since this person’s attention and presence cannot be guaranteed at all times.

Number Eligible to Vote: 12

Ballot Results: Affirmative: 12