REPORT ON DISCUSSIONS
DURING UL MEETINGS
WITH ELECTRICAL INSPECTORS
AT THE
2013 IAEI SECTION MEETINGS

April 19, 2014

TO: Attendees of Underwriters Laboratories Inc. Meetings with Electrical Inspectors at the 2013 IAEI Section Meetings

SUBJECT: Report of Meetings

Underwriters Laboratories held meetings with Electrical Inspectors during the 2013 IAEI Section Meetings. Historically, these meetings have provided for an open exchange between the electrical inspection community and UL regarding any subject of interest to authorities.

UL acknowledges the importance of this feedback. The electrical inspector is an integral part of the UL information loop. It is the inspector, who during the examination of the final installation, can judge under field conditions, the adequacy of the constructions and markings for proper installation. It is the inspector who can pass this installation information to UL for use in modifying product safety requirements.

The questions and answers in this Report present the items discussed during the meetings. This is not a verbatim transcript; only the pertinent points have been recorded. Each question has been identified with the designation of the Section meeting at which the subject was discussed.

UL appreciates all those who took the time to participate in these meetings and provided us with information important for our endeavors and goals toward public safety. I would appreciate hearing from you on any comments or suggestions you have on this Report or the UL/Inspectors meetings.

UNDERWRITERS LABORATORIES INC.

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FROM

UL MEETINGS WITH ELECTRICAL INSPECTORS

AT THE 2013

ANNUAL IAEI SECTION MEETINGS

This report contains questions and answers from the 2013 meetings. Where necessary, the answers have been expanded to include information that may not have been available during the meetings. Where specific actions have taken place in response to the Inspector's input, the status of the actions is indicated. This report may provide insights into UL's intent and efforts that are associated with the certification of electrical equipment so that it meets the purposes of the National Electrical Code® and is installable in accordance with it. The questions have been arranged by subject matter and are identified in the margin with an identifier for the IAEI Section where the question was raised.

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IAEI Section Identifier Legend

(E) Eastern Section
(NW) Northwestern Section
(S) Southern Section
(SW) Southwestern Section
(W) Western Section

1.0 UL LISTING, CLASSIFICATION AND FIELD EVALUATION INFORMATION

1.1 (NW) **Q.** In the summary of the Field Evaluations covering 2006-2013, it was noted that Nameplate Data and Marking have the largest number of violations, why?

A. This has been true since we began keeping statistics. This category is used for all markings that are missing or are non-compliant with the standard. This includes nameplates that often are missing information or the information on them is incorrect. For example we had a machine with a nameplate with two sources, 480 Volt 3-phase and 120 Volt single phase. The nameplate for the 480 Volt stated "480 Volt, 3-phase, 80 Amps" so far so good. The next line had "120 Volt, 3-phase, 80 Amps" when in fact the 120 Volt control power was single phase, 2-wire and maximum current was about 3 amps. The next items commonly missing or incorrect are fuse replacement markings; multiple source markings; electrical hazard – authorized personnel only markings; main disconnect markings; identification of components to match the schematic drawings; identification of operator controls (push buttons) and indicators (pilot lights) etc. on equipment; missing yellow background for EMO pushbutton, and on.

1.2 (NW) **Q.** In the summary of the Field Evaluations covering 2006-2013, the data shows shock hazards, what are some examples?

A. This is where there are openings, such as screens or louvers for ventilation that allow access to live parts with the finger probe or the straight rod. Also, this is where an internal disconnect is interlocked to allow access when open but opening the enclosure has exposed line site terminals (no barrier). Basically, this category is when an operator doing normal functions or a service person doing normal functions is exposed to energized parts above 30 V RMS, 42.4 V Peak, or 60 V DC when doing normal work.

1.3 (NW) **Q.** In the summary of the Field Evaluations covering 2006-2013, from looking at the data, is there any correlation that can be established between states, number of inspectors and type, E.G. combination inspector vs. electrical inspector?

A. We really don't have any correlation in this area. I think one could look at the number of evaluations done in any given state relative to some measure of population and economic activity to draw some conclusions, but the bigger variable is adoption of Codes and Standards and enforcement of those. States that have robust adoption and enforcement have the higher sheer

number of evaluations completed, for example Florida, North Carolina, Alaska, Oregon, Washington and some counties and cities like Shelby County, Alabama, New York City, Chicago and suburbs, the City and County of LA , Phoenix and suburbs, major Texas cities. But also note that in States like Oregon and Washington there is a very different level of enforcement on the western side (more industrialized) than the eastern side (more agricultural but some industry) in both states. But there are states or large parts of some states that have little or no enforcement, such as outside of major cities in Texas, Oklahoma, Arkansas and many more. So to do any analysis one would need to probably filter the geography by enforcement level and then look at population and economic activities to try and draw any conclusions.

1.4 (E) **Q.** Will the Enhanced UL Certification Mark have a QR Code that will link the inspector to the UL File information using a smart phone?

A. At this time it is not part of the Enhanced UL Certification Mark and Badge, it may be incorporated at a future date.

1.5 (E) **Q.** Is there an update on fire resistive cable systems?

A. UL continues its research and offers an interim program to which there are certified fire-resistive cables including metal sheathed cable and cable in electrical metallic tubing (EMT). See System No. 1850, System No. 120, System No. 25A and FPL in EMT, System No. 28A under product category FHIT for additional details. The fire-resistive cable manufacturers that have achieved certification under the interim program Current certifications can be viewed by clicking on the links below and then selecting "View Listings." Within the individual certifications, please note important information directing the user to the manufacturer's installation instructions and a link to the Electric Circuit Integrity System associated with the certified fire-resistive cable.

UL Electrical Circuit Integrity Systems (FHIT)
ULC Electrical Circuit Integrity Systems (FHITC)
UL Fire-resistive Cable (FHJR)
ULC Fire-resistive Cable - Canada (FHJRC)

For current updates, go to www.ul.com/fireratedcables

Those interested in further program details for fire-resistive cable or circuit integrity cable (-CI suffixed cable per the NEC) should contact UL's Principal Engineer, Blake Shugarman at +1.847.664.2022, or at Blake.M.Shugarman@UL.com.

1.6 (SW) **Q.** I have seen FE marks from other field evaluation agencies on products that have only been evaluated in the factory and not at the final installation site. What is UL's position on this practice?

A. UL will permit a preliminary evaluation of certain types of equipment at the manufacturer's facility or other location, but always requires that the equipment also be evaluated as installed at the final installation site. This preliminary evaluation permits necessary corrections to be completed on the equipment before installation.

1.7 (SW) **Q.** We usually hear from UL ahead of time to tell us you will be performing a FE in my jurisdiction, but can we have more dialog before the event, so that we are in agreement regarding what standard will be used as a basis for the evaluation?

A. It is UL's practice to always notify the jurisdiction before a field evaluation takes place. First is a jurisdictional notification letter sent by email when the project order is placed. In addition, when the field evaluation staff schedules the evaluation at the final installation site, we ask them to alert the AHJ to the schedule and also to determine what specific concerns the AHJ has, if any. Sometimes, due to rush projects, this last notification may not be in time for the AHJ to be present. As for the standard, the original notification letter is not sent by UL technical staff and it would not be prudent to have them identify the standard to be used. When the technical staff contacts the AHJ to notify them of the schedule, we would be happy to indicate the standard or standards to be used to the best of our ability at that time.

1.9 (SW) **Q.** Some field evaluation organizations say that they have a responsibility only to the individual or company that contracts with them for the field evaluation and that contacting the AHJ is not required. What is UL's position on this?

A. UL's position is that organization is doing a disservice to both the AHJ and to the company that contracts them to conduct a field evaluation. It is essential to understand the concerns of the AHJ for every field evaluation, and the field evaluation organization should always have open lines of communication with the AHJ. UL's practice is to always attempt to contact the AHJ prior to conducting a field evaluation. As noted in a previous question, this can at times be difficult, as the individual contracting UL for the field evaluation does not always know the name of the AHJ on the project, or incorrect information is provided to UL.

1.10 (SW) **Q.** What is UL's process for responding to inquiries for field evaluations and pricing?

A. UL has established several ways to contact us for field evaluations, including by phone at 1.877.UL.HELPS, prompt number 2, by email at fieldevaluations@ul.com, and via the internet at the website www.ul.com/fequote. UL has dedicated staff available to review requests and provide quotes and scheduling. Upon request from the AHJ, we will share the field evaluation price quote, as it has been reported that AHJs are often times given inaccurate inflated FE price quotes by contractors or building owners, hoping that the AHJ will back off from their request for a field evaluation of unlisted or modified equipment.

1.11 (SW) **Q.** What happens when a piece of equipment does not bear a listing mark, but is shown as eligible for listing on UL's Online Certification Database?

A. As indicated on page 37 of the 2014 UL White Book:

"Only those products bearing the appropriate UL Mark and the company's name, trade name, trademark or other authorized identification should be considered as being covered by UL's Listing or Classification and Follow-Up Service. The UL Mark provides evidence of listing or labeling, which may be required by installation codes or standards."

If the UL Listing Mark is inadvertently left off at the factory, and the product was constructed in accordance with the Listing, UL can conduct a Field Inspection on the installed product. A field inspection (FI) can be done on equipment that is less than 1 year old, was eligible for Listing and application of the UL Listing mark at the time of manufacture, and for whatever reason, was not labeled at the factory. The applicant for the Field Inspection must be the owner of the Listing file, generally the manufacturer. For an FI, a detailed report is not completed, as this is considered to be only an inspection of the equipment in accordance with the UL Follow-Up Service Procedure. This is the same inspection that is done at the factory for normal follow-up inspections to ensure the product complies with the Listing file report.

Our inspection is conducted in the field by the UL Field Representative, who witnesses the placement of the UL Listing Mark on the product, if the product is found to be constructed in accordance with the UL description on file. At the conclusion, the customer and the AHJ receive a letter report that a Field Inspection was completed on the identified equipment and the results, either that it was found eligible to have the UL Listing Mark applied or it was not.

However, there may be other reasons that the product is not labeled. If,

during the manufacturer's production of the product, certain components or construction features were changed on the production line and the end product was not constructed the same as originally submitted to UL for evaluation, then the manufacturer would no longer be authorized to apply the UL Mark to the product, and the product may leave the factory without it. In this case, a Field Evaluation may be needed to investigate these construction features.

Also, if the product were manufactured and shipped before the product was submitted to UL for certification or during the UL investigation of the product, it would not be eligible to bear a UL Listing Mark.

Please contact UL Regulatory Services staff for assistance in these circumstances at 800-595-9844.

1.13 (S) **Q.** What are the provisions for installing used electrical equipment, rebuilt electrical equipment or electrical equipment that is just relocated within the same facility?

A. UL Certifies many different types of rebuilt products. One example may be located under the product category Signs (UXYT), located on page 498 of the 2014 UL White Book, also on UL's Online Certifications Directory at www.ul.com/database and enter UXYT at the category search field. Rebuilt products are subject to the same requirements as new products, however they are typically marked as "Rebuilt," "Refurbished" or "Remanufactured."

Relocating existing UL Certified/Listed electrical equipment within the same general location such as moving industrial control panels, lighting fixtures, or signs is commonly done to accommodate remodeling or renovating projects. Provided the relocation and installation is performed by qualified personnel, the equipment is not modified or damaged and it is intended to serve the same basic function, the approval is typically determined by the AHJ.
The National Electrical Code (NEC) is silent on installing used electrical equipment. However most governmental agencies use the Building Code administrative provisions for all code enforcement and the following is located in the 2012 edition of the International Building Code (IBC):
104.9.1 Used materials and equipment.
The use of used materials which meet the requirements of this code for new materials is permitted. Used equipment and devices shall not be reused unless approved by the building official.

Older electrical equipment that bears a UL Certified (Listed) mark complied with the requirements of the applicable safety standard at the time the product

was manufactured. UL reviews and updates the product safety standards as necessary to make adjustments for new products, technology, and where necessary incremental safety improvements. An example of an updated UL Product Safety Standard would be the Standard for Safety for Electric Signs, UL 48. UL 48, the 15th edition was published September 2, 2011 and therefore signs Certified prior to that date may not comply with the revised requirements of the current edition of UL 48 or the requirements of the current adopted NEC. The use of used signs for a new installation could therefore be considered a violation of the IBC where used materials have to meet the requirements of new materials.

1.14 (W) **Q.** How do we know who has Listing under a product category in the White Book?

A. To see a list of manufacturers who are certified (Listed) under a specific product category in the UL White Book, there are two ways to do it.

The first is to use the 4 letter category code that appears at the end of the product category title (For example- Panelboards (QEUY) and then go online to UL's Online Certifications Directory at www.ul.com/database and enter the category code at the category code search field and click search. That will give you a list of all the manufacturers that have been certified under that product category. Then you can click on the links and view their certifications.

Another way would be to download the linked PDF version of the UL White Book at www.ul.com/whitebook. Once you've downloaded it, you can go to any of the product categories in the book and click on the title and if there are certifications for that category, the link will take you to the results page in UL's Online Certifications Directory displaying all the certifications for that category

1.15 (W) **Q.** What UL Marks/services are effected the New Enhanced UL Certification Mark?

A. The Enhanced UL Certification Mark affects the UL Listing and Classification services. In May of 2013 , UL launched an enhanced version of its certification Mark. Even with the introduction of the enhanced Mark, all current UL Listing and Classification Marks remain valid and should continue to be accepted as an indication of certification.

For over 100 years, designers, architects and code authorities have relied on UL's Marks to determine code compliance. But, products in today's environment must meet a diverse spectrum of certification and compliance requirements. In response to evolving customer needs, UL introduced an

enhanced version of our Certification Mark that manufacturers have the option of using in place of our traditional Listing and Classification Marks.

One important change you will note in the enhanced Mark is the use of the term “Certified.” Certified is a general term encompassing Listed and Classified and complies with the definition of “listed” in all model codes. It’s also a term that is more easily understood by the marketplace.

The enhanced UL Mark also identifies the attributes that UL has certified about a product. For example, “Safety” indicates that a product has been certified in accordance with the applicable safety requirements. “Energy” means that a product has been certified in accordance with the applicable energy efficiency requirements. There are several other attributes that may appear on the enhanced UL Mark, and the enhanced Mark may include more than one attribute to describe the full set of certifications a product has earned.

The enhanced UL Mark includes an ISO (International Standards Organization) country code such as “US” for the United States or “CA” for Canada to identify the country requirements for which the product has been certified.

Another significant feature of the enhanced Mark is the use of a unique identifier (most commonly for products in the built environment, a UL file number). This enables users to easily verify certification information at UL’s Online Certifications Directory. Just go to www.ul.com/database and search by the enhanced Mark identifier using the UL File Number field or Keyword Search (“S123456” in the illustration). That search will send you directly to a product’s certification record, which also includes a link to the product category guide information. This will go a long way to enabling easy verification of the scope of a product’s certification to determine compliance with the Code. If required, a product name or identification will also be on the product near the enhanced Mark to assist in verifying the certification product category in UL’s White Book.

An example of an enhanced UL Mark is shown in the accompanying

illustration, and details on the Mark are included in product category guide information in UL's Online Certifications Directory and in the 2014 UL White Book.

UL expects the transition to the enhanced Mark to happen over time, so you may not see it in the immediate future. For more information on this important development, please go to www.ul.com/markshub > Resources. Access to the Marks Hub is free and open to all regulators, but registration to use it is required.

2.0 Service Equipment, Switchboards, Panelboards, and Power Distribution Equipment

2.1 (E) **Q.** Can you just take a reciprocating saw and cut the jumper bar from one neutral bar to the other?

A. No, an authorized use of the UL Mark is the manufacturer's declaration that the product was originally manufactured in accordance with the applicable requirements when it was shipped from the factory. When a UL Listed product is modified after it leaves the factory, UL is unable to determine if the product continues to comply with the safety requirements used to certify the product without investigating the modified product. UL can neither indicate that such modifications nullify the UL Mark, nor that the product continues to meet UL's safety requirements, unless the field modifications have been specifically investigated by UL. It is the responsibility of the AHJ to determine the acceptability of the modification, or if the modifications are significant enough to require one of UL's Field Engineering Services members to evaluate the modified product. UL can assist in making this determination.
If you desire UL to determine if the modifications made to a UL Listed product comply with UL requirements, a UL Field Evaluation can be initiated to investigate the modifications. This investigation will only be conducted after UL consults with the AHJ to determine that UL's investigation addresses all areas of concern and meets all of the AHJ's needs. Please contact UL at 877-854-3577, menu option 2, to inquire about a Field Evaluation**.**

2.2 (E) **Q.** A manufacturer has stated that power distribution blocks are listed for use in service equipment. How can they say that?

A. The term listed for used in service equipment only stated that it can be installed in the service equipment which is true as long as there is the room needed per the NEC and it is not used on service entrance conductors. UL Certifies (Lists) Power Distribution Blocks under the product category for Power Distribution Blocks (QPQS), located on page 422 of the 2014 UL White Book, and also on UL's Online Certification Directory at www.ul.com/database and enter QPQS at the category code search field.

This category covers power distribution blocks rated 600 V or less and intended to be used on the load side of service equipment. Power distribution blocks are intended for use in installations covered by ANSI/NFPA 70, "National Electrical Code" (NEC), and installed using the manufacturer's installation instructions. Wiring space (75% cross-sectional fill), wire bending space, and final exposure of any uninsulated live parts are determined by the installer and Authority Having Jurisdiction at each installation in accordance with Section 376.56 of the NEC when the power distribution block is installed in the enclosure. Power distribution blocks provided with an insulating cover

have been investigated for nonexposure of uninsulated live parts in a wireway, whether or not the wireway cover is installed. Power distribution blocks are considered suitable for use on circuits having available fault current not greater than 10,000 rms symmetrical amps, unless marked with a larger value. Power distribution blocks are marked "Short-Circuit Current Rating" together with the value of the rating and the maximum voltage. A power distribution block may additionally be marked to identify an overcurrent protective device (fuse or circuit breaker) to be used ahead of the power distribution block.

2.3 (W) **Q.** Some generator transfer switches come with a circuit breakers that get field installed, they put a label on in the field that details what circuit breakers can be used. Is that permitted as part of the Listing?

A. No, that is not permitted to be applied in the field that would have to be done at the factory. I would encourage you to file a Product Incident Report (PIR) at www.ul.com/ahjreport

If that marking was applied in the field that would be a modification to a Listed (certified) product and would require a Field Evaluation to determine if it still complied with UL's requirements. To initiate a Field Evaluation, please contact UL's Customer Service at 877-854-3577, prompt #2 or online at www.ul.com/field.

3.0 Circuit Breakers and AFCIs

3.1 (S) **Q.** Where does the label need to be on a classified Breaker?

A. UL Classifies (Certifies) circuit breakers under the product category Circuit Breakers, Molded Case, Classified for use in Specified Equipment (DIXF), located on page 121 of the 2014 UL White Book, and also on UL's Online Certification Directory at www.ul.com/database. Enter DIXF at the category code search field.

Classified (Certified) breakers covered by this category are certified using both the Standard for Safety for Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures, UL 489 and the Standard for Safety for Panelboards, UL 67. The following required marking information is a compilation of both UL 489 and UL 67, this is located in the UL White Book so that AHJ's have access to information:

Product Markings

A circuit breaker that is Classified only is marked on the side with the statement:

"Classified for use only in specified panelboards where the available short-circuit current is 10 kA, 120/240 volts ac or less. Does not use in equipment connected to circuits having an available system short-circuit current in excess of 10 kA, 120/240 volts ac. For catalog numbers (or equivalent) of specified panelboards, refer to Publication No._____ provided with this circuit breaker. If additional information is necessary, contact [Classified circuit breaker manufacturer's name]."

A circuit breaker that is both Classified and Listed is marked on the side with the statement:

"This circuit breaker is Listed for use in circuit breaker enclosures and panelboards intended and marked for its use. This circuit breaker is Classified for use, where the available short-circuit current is 10 kA, 120/240 V ac or less, in the compatible panelboards shown in Publication No. _____ provided with this circuit breaker. When used as a Classified circuit breaker, do not use in equipment connected to circuits having an available system short-circuit current in excess of 10 kA, 120/240 V ac. If additional information is necessary, contact [Classified circuit breaker manufacturer's name]."

The referenced publication is a compatibility list which tabulates the company

name, catalog number, number of poles and electrical ratings of the Classified circuit breaker, in addition to the company name and catalog number of the applicable UL Listed panelboards, and corresponding UL Listed circuit breakers in place of which the Classified circuit breaker has been investigated. The compatibility list also details the maximum permissible voltage and maximum available short circuit current of the supply system to the panelboard. The Classified circuit breaker is not suitable for the specified application if the system supply characteristics exceed the maximum values indicated in the compatibility list. One copy of the compatibility list is provided with each circuit breaker.

Circuit breakers which are both Classified and Listed have markings as above, with the addition of the Listing Mark, located on the side of the circuit breaker.

UL MARK

The Classification Mark of UL on the product is the only method provided by UL to identify products manufactured under its Classification and Follow-Up Service. The Classification Mark appears on the side of the circuit breaker and consists of the words "Underwriters Laboratories Inc. Classified Circuit Breaker" together with a control number. The words "Underwriters Laboratories Inc." may be abbreviated "Underwriters Lab. Inc." or "Und. Lab. Inc."

4.0 Alternative Energy Systems

4.1 (W) **Q.** Some photovoltaic (PV) inverters are grounded through the ground fault protection (GFP), however, if that GFP opens it becomes an ungrounded system. Is that permitted by the standard?

A. Yes, consistent with NEC 690.5, Certified (Listed) inverters with direct PV inputs from grounded PV arrays are required to be provided with a ground-fault detector/interrupter (GFDI). The GFDI shall be capable of detecting a ground fault, providing an indication of the fault, interrupting the flow of fault current, and opening the ground to do that is permitted. In addition, either isolating the faulted array section or disabling the inverter to cease the export of power is required.

UL Certifies (Lists) PV inverters under the product category Static Inverters and Converters for Use in Independent Power Systems (QIKH) located on page 410 in the 2014 UL White Book and can also be accessed in UL's Online Certifications Directory at www.ul.com/database and enter QIKH at the category code search field.

5.0 Luminaries and Signs

5.1 (W) **Q.** I've encountered luminaires being installed that did not have Listing marks and then the manufacturer shipped the labels to the field to be applied. Is this permitted as part of the Listing?

A. No, either the UL Listing (Certification) Mark must be on the luminaire when it leaves the factory or a Field Inspection/Field Evaluation must be conducted in order for it to be considered UL Certified.

The UL Mark on the product is a declaration by the manufacturer that when the product was manufactured at the factory that it complied with all the UL requirements in effect at the time it was manufactured. This is verified by UL periodic follow up inspection audits conducted at the factory on products that bear the UL Mark. If a product is labeled with a UL Mark after it leaves the factory it is not to be considered Listed (Certified) unless it is labeled under a UL Field Inspection where UL conducts an inspection of the product in the field and witnesses the placement of the UL Mark on the product or under a UL Field Evaluation where the product gets evaluated in the field by UL and if it complies, UL will apply a Field Evaluated Product mark on the product. Either way, the AHJ would be notified ahead of time and then a letter report confirming that we labeled the product.

For more information on field labeling, see page 46 in the 2014 UL White Book.

UL cares about UL Mark integrity and combating counterfeiting activities. Should an AHJ encounter a situation where labels are sent to the field for application to a product from either the OEM or another party, please file a Product Incident Report (PIR) at www.ul.com/ahjreport and UL's Market Surveillance staff will investigate.

6.0 Wiring Systems and Wiring Devices

6.1 (W) **Q.** Can you use a cut in device box in a fire rated wall?

A. No, cut in device boxes rely on the drywall/wall surface for support of the box, not a mounting bracket to secure to a stud or joist. Outlet boxes for use in fire rated construction are required to be fastened to a stud or joist.

For metal outlet boxes see the Guide Information for Metallic Outlet Boxes (QCIT), located on page 389 in the 2014 UL White Book and on UL's Online Certifications Directory at www.ul.com/database and enter QCIT at the category code search field. In the QCIT Guide Information, under the heading "Use in Fire-rated Assemblies" it states that Certified single- and double-gang metallic outlet and switch boxes with metallic or nonmetallic cover plates may be used in bearing and nonbearing wood stud and steel stud walls with ratings not exceeding 2 h. These walls have gypsum wallboard facings similar to those shown in Design Nos. U301, U411 and U425, as covered under Fire Resistance Ratings – ANSI/UL 263 (BXUV). The boxes are intended to be fastened to the studs with the openings in the wallboard facing cut so that the clearance between the boxes and the wallboard does not exceed 1/8 in. The boxes are intended to be installed so that the surface area of individual boxes does not exceed 16 sq in, and the aggregate surface area of the boxes does not exceed 100 sq in per 100 sq ft of wall surface.

Nonmetallic fire-rated boxes would be certified (Classified) under the product category Outlet Boxes and Fittings Classified for Fire Resistance (QBWY) located on page 388 in the 2014 UL White Book and in UL's Online Certifications Directory at www.ul.com/database and enter QBWY at the category code search field. These boxes would have to be installed in accordance with the installation details in their Classification and installation instructions.

6.2 (E) **Q.** Is UF Cable listed for saltwater?

A. UL Listed (Certified) Type UF cables are evaluated for compliance with the Standard for Safety for Thermoplastic-Insulated Underground Feeder and Branch-Circuit Cables, UL 493. UL 493 does not address saltwater, however does cover corrosion and moisture. Each of the materials used for the insulation, spacers, fillers, jacket, and other non-metallic parts of a cable shall be resistant to fungi, moisture, and corrosion. In addition, each of the materials used as insulation on the circuit conductors shall be acceptable for use in wet locations.

UL Certifies (Lists) UF Cable under the product category for Underground Feeder and Branch Circuit Cable (YDUX), located on page 573 of the 2014

UL White Book, and also on UL's Online Certification Directory at www.ul.com/database and enter YDUX at the category code search field.

6.3 (E) **Q.** Does UL test THWN conductors for saltwater?

A. UL Certifies (Lists) THWN conductors under the product category for Thermoplastic-Insulated Wire (ZLGR), located on page 596 of the 2014 UL White Book, and also on UL's Online Certification Directory at www.ul.com/database and enter ZLGR at the category code search field.

THWN conductors are evaluated for compliance with the Standard for Safety for Thermoplastic-Insulated Wires and Cables, UL 83. UL 83,does not address saltwater, however, the standard does cover corrosion and moisture.

7.0 Appliances and Utilization Equipment

7.1 (W) **Q.** We are having trouble finding Listed compressors at big box stores, does UL list air compressors?

A. Yes, UL Certifies (Lists) air compressors under the product category Compressors, Vacuum Pumps and Pneumatic Paint Sprayers (QDGS), located on page 393 in the 2014 UL White Book. By accessing UL's Online Certifications Directory at www.ul.com/database and entering QDGS at the category code search field, you can access the nearly 60 manufacturers that have certification under this category.

This category covers air compressors and vacuum pumps, including pneumatic-type paint sprayers rated 600 volts or less. For industrial compressors that are a customized type, one of a kind compressors, UL can conduct a Field Evaluation on those types of compressors.

Products can be cord-connected or provided with means for permanent connection in the field. Permanently connected products are intended to be installed in accordance with ANSI/NFPA 70, "National Electrical Code" (NEC). The basic standard used to investigate products in this category is ANSI/UL 1450, the Standard for Safety for Motor-Operated Air Compressors, Vacuum Pumps, and Painting Equipment.

If there is an uncertified compressor that is already installed in the field, UL can conduct a field evaluation on the compressor. For more information on field evaluations, or to schedule a field evaluation, call 877-ULHELPS (877-854-3577) or request this online at www.ul.com/field.

7.2 (W) **Q.** Are uninterruptible power supplies (UPS) required to be provided with a short circuit current rating?

A. No, the short circuit current withstand rating is not a required marking on Certified (Listed) UPS's. A UPS manufacturer has the option to request that UL investigate their UPS for a short circuit rating, and if so they may voluntarily apply the marking to that product. UL certifies (Lists) UPS's under the product category Uninterruptible Power Supply Equipment (YEDU), located on page 574 in the 2014 UL White Book and in UL's Online Certifications Directory at www.ul.com/database and enter YEDU at the category code search field.

7.3 (W) **Q.** We are running into unlisted skid packs that show up enclosed in a building intended to be shipped to the oil and natural gas fields. Does UL List these

types of skid packs? Can UL Field Evaluate these skid packs?

A. Yes and yes. UL Certifies (Lists) un-enclosed pumping systems on skids or a steel mounting frame under the product category Packaged Pumping Systems (QCZJ) located on page 393 in the 2014 UL White Book and in UL's Online Certifications Directory at www.ul.com/database and enter QCZJ at the category code search field.

If the skid pack is housed in a prefab building they would be investigated under the product category Commercial and Industrial Prefabricated Buildings and Units (QRXA) located on page 431 in the 2014 UL White Book and in UL's Online Certifications Directory at www.ul.com/database and enter QRXA at the category code search field. These prefab skid pack buildings would not be marked with a UL mark they would be provided with a UL Certificate of Inspection. The UL Certificate of Inspection is the only method provided by UL to identify prefabricated buildings and units inspected by UL under UL's Building Inspection Certificate Services Program.

The prefabricated buildings and units for which UL issues Certificates are considered by UL to comply with the applicable requirements of the NEC at the time of inspection. The Certificate is only valid when accompanied by a completed UL Inspection Report. The UL Inspection Report identifies applicable plan drawings that indicate all the equipment included in the building at the time of manufacturing. UL does not know what the effect of a modification to the electrical system or equipment, or to the construction of a prefabricated building or unit, subsequent to the inspection, may have on the safety of the product or the continued validity of the Certificate unless the modifications have been specifically investigated by UL. Unless UL investigates a modified product, UL cannot indicate that the product continues to comply with the applicable requirements.

If the prefabricated building or unit is shipped in multiple sections or "knocked down," the number and description of the sections required to complete the building or unit are included on a building's nameplate. Instructions for completion of the building, including any wiring connections to be completed at the installation site, are also provided.

The Certificate is not transferable. UL reserves the right to void a Certificate at any time. The Certificate does not indicate compliance with any UL product certification program, nor does it entitle the Subscriber to use the UL Mark. UL assumes no liability for any loss that may result from failure of the equipment, incorrect certification, or nonconformity with requirements.

UL can also conduct a Field Evaluation on the skid pack building if there is an uncertified skid pack building in the field. For more information on a field evaluation, please contact UL's Customer Service at 877-854-3577 or online at www.ul.com/field.

7.4 (W) **Q.** Are Listed mini-split air conditioning units permitted to be provided with flexible cord to field connect the air handler mounted to the wall inside the building to the remote condenser outside? We have encountered several manufacturers of this equipment certified by other NRTLs that permit this wiring method.

A. No, UL does not permit flexible cord to connect these field wired components between the inside of the house to the outside of a building. UL does permit the interconnecting wiring to be provided by the manufacturer, however, the field wiring would have to comply with the NEC, typically the wiring would have to be installed in a raceway system in accordance with the NEC. NEC 400.8, does not permit flexible cord for this use.

UL Certifies (Lists) mini-split air conditioners under the product category Air Conditioners, Room (ACOT), located on page 65 in the 2014 UL White Book and in UL's Online Certifications directory at www.ul.com/database and enter ACOT at the category code search field.

8.0 Other Topics

8.1 (E) **Q.** If a basement of a building gets flooded, do the panelboards have to be replaced if water level never got as high as the panels, but the humidity level was very high?

A. High humidity should not have an effect on the panels in general, if it is condensing within the panel it may be react to the moisture.

Some electrical items may be reconditioned, while others will need to be completely replaced. Corrosion and insulation damage can occur when water gets inside electrical devices and products. For more information on flood water safety, UL publishes a brochure titled “After The Storm”. This information as well as a download of the brochure can be found at:http://www.ul.com/global/eng/pages/offerings/perspectives/regulator/electrical/additionalresources/flooding/

The National Electrical Manufacturers Association (NEMA) also publishes a Guide for Evaluating Water Damaged Electrical Equipment which can be downloaded for free at: https://www.nema.org/Technical/Code-Alerts/Pages/NEMA-Guide-for-Evaluating-Water-Damaged-Electrical-Equipment.aspx