2011 NEC National Electric Code, Code Panel Report on Proposals.

The code panel which reviews the requirements for signs is code panel 18. Panel 18 covers Article 600 Electric Signs and Outline Lighting. Panel 18 also covers Articles 406, 410, 411, 600, 605. The panel had 267 proposals in total and 97 in article 600 to deal with over a three day time frame. This was nearly a hundred more than normal. There are no options when you part of the panel… you must do the work no matter how long it takes. Fortunately, our chairman realized we had an overwhelming amount of work to get done and decided to establish task groups. These task groups would work on the "like type" proposals before the meeting and meet as a sub-committee the night before the scheduled CMP 18 meetings to try and finalize any further conflicts that may have arisen.

There were four task groups formed: one for article 406, one for article 410, one for article 600, and one for 605 (none for article 411). Our group for article 600 consisted of the sign association principal and alternate, the UL representative principal for signs and me the principal as the special expert. Our task group met six times via teleconference and each of us on the group communicated with others for reference, resources and special guidance as we prepared our joint task group report and recommendations. We used engineers from three UL offices, 2 electrical inspectors and others from the sign industry as we tried to shape the recommended changes to the code in the best interest of the sign industry.

600.1 Scope

The task group started with the addition of some words to the scope statement to include " field wiring" and "regardless of voltage" which would include low voltage LED sign illumination systems and a fine print note for clarity, on the additional light sources used in signs and outline lighting. There is again concern about the term "Cold Cathode", while some still feel it should be added to article 600, others remember the separation of neon tubing and cold cathode. Additionally, it was agreed upon to place the term as a fine print note for clarity and not as a requirement, under the Neon Tubing definition.

We all know that Neon and Argon tubing is all "Cold Cathode" by scientific definition and regardless of tube diameter. The basic differences between neon tubing and cold cathode are how the tubes are used for illumination systems and installed. When the cold cathode neon tubes are listed as a system, conforming to the UL Standard (IFAY) as a lighting fixture and used for general lighting, they are referred to as **Cold Cathode**. Cold cathode lighting systems will be installed in accordance with Article 410 of the National Electric Code and will not be required to have secondary-circuit ground fault protection on their power supplies.

When cold cathode neon tubes are used for signs, outline lighting and skeleton tubing they will be referred to as **Neon Tubing** and installed in accordance with Article 600. The power supplies used in those installations will be required to comply with the secondary-circuit ground fault protection requirements in UL 2161.

Unfortunately, the code panel does not have final control of the scope statements; they are controlled by the (TCC) Technical Correlating Committee. The TCC will consider the change to the scope statement based on the recommendation of the code panel, but will have the final say as to the content of the scope statement.

600.2 Definitions

The next task group consideration to article 600 was the definition for the LED sign illumination system and the additions to the neon tubing definition and the inclusion of the FPN (Fine Print note) to the neon tubing definition.

New definition was added as follows:

LED Sign Illumination System A complete lighting system for use in signs and outline lighting consisting of light emitting diodes (LED) light sources, power supplies, wire, and connectors to complete the installation.

Neon Tubing was changed as follows:

Neon Tubing. Electric-discharge luminous tubing that is manufactured into shapes that illuminate signs, form letters, parts of letters, skeleton tubing, outline lighting, other decorative elements, or art forms and filled with various inert gases.

FPN. Where used in illuminations systems for signs, outline lighting or skeleton tubing, decorative elements or art forms, cold cathode luminous tubes are neon tubing as defined by this article

600.3 Listing The wording “regardless of voltage” was added to clarify class 2 requires listing as well.

600.4 Marking

The Marking issue was again revisited about the continued confusion about when the labels need to be visible. The task group recommended the labels be visible at installation or permanently applied where it shall be visible during servicing. This should clarify the concerns about where the label may be placed. There where also concerns about durability of the marking and a new requirement was proposed. The panel developed a panel proposal to include the concerns (A) and (B) shall remain the same and the two below were added and (C) was moved to (E).

(C) Visibility. The markings required in (A) and listing labels shall not be required to be visible after installation but must be permanently applied in a location visible during servicing.

(D) Durability. Marking, labels shall be permanent, durable and when in wet locations shall be weatherproof.

600.5 Branch Circuits There were three proposals to change the branch circuit requirements, since the intent was to include all signs and require when calculating loads that signs would be considered continuous. The panel decided to make a panel proposal to rearrange the section and include the submitter's intend.

600.6 Disconnects

Due to some unfortunate industry electrocutions the disconnect section was reopened and debated. Some do not realize by definition in Article 100 that with-in site also has a distance limit of 50 feet as well. The 2008 code now has requirements for provisions for locking out disconnects that must be permanent and remain in place whether a lock is present or not. The code no longer allows for portable lock-out devises. Some of the recommended changes are to clarify that the disconnect must be for the sign or outline lighting circuit and no other load. This should eliminate the inclusion of sign and lighting loads being combined with general lighting.

The words "Skeleton Tubing" was added to clarify that these systems require disconnects as well.

A proposal was submitted to panel 1 for a new definition of "Lockable Disconnecting Means" which if accepted, would let the panel accept a proposal to remove some repeated requirements.

600.7 Grounding and Bonding

The panel rejected exceptions to the grounding section for class 2 wiring and did accept an exception in the bonding section. The panel was clear in requiring the equipment grounding conductor to extend to the power supply location. Other important issues were how to allow an exception for equipment grounding on secondary wiring. The panel and the task group needed assurance from UL that the secondary output could not get directly connected through fault to the primary and that the equipment grounding would exist where the primary voltage would terminate at the power source. Listed power sources shall require a provision for termination of the equipment grounding connection or shall be required to be installed in a listed or metal enclosure. When the power source is installed in a channel letter the equipment grounding conductor shall extent to the channel letter(s) where termination is required.

New exception is as follows:

Exception: Remote metal parts of a section sign or outline lighting system only supplied by a remote Class 2 power supply shall not be required to be bonded to an equipment grounding conductor.

600.12 Field-Installed Secondary Wiring

The section was revised as follows:

600.12 Field-Installed Secondary Wiring Field installed secondary circuit wiring for electric signs, outline lighting systems and skeleton tubing shall be in accordance with their installation instructions and 600.12 (A),(B) or (C).

600.12 (C) Was revised to remove voltage references and only refer to Class 2.

600.23 Transformers and Electronic Power Supplies.

600.23 (F) Marking was revised as follow:

600.23 (F) Marking. Transformers and electronic power supplies that are equipped with secondary-circuit ground-fault protection shall be so marked.

600.24 Class 2 Power Sources. Was rewritten for clarity as follows:

600.24 Class 2 Power Sources. Signs and outline lighting systems supplied by Class 2 transformers, power supplies, and power sources shall comply with the requirements of Class 2 circuits and of Article 600.24(A), (B), (C), (D).

(A) Listing. Class 2 Power supplies and power sources shall be listed for use with electric signs and outline lighting systems.

(B) Grounding. Metal parts of signs and outline lighting systems shall be grounded and bonded in accordance with 600.7.

(C Wiring Methods on the Supply Side of the Class 2 Power Supply. Conductors and equipment on the supply side of the power source shall be installed in accordance with the appropriate requirements of Chapter 3.

(D) Secondary Wiring. Secondary wiring from Class 2 power sources shall comply with 600.12(C) and 600.33.

Part II Heading was changed as follows:

II Field installed Skeleton Tubing, Outline Lighting, and Secondary Wiring

600.30 Applicability. Was changed to read as follow:

(1) Field Installed skeleton tubing
(2) Field Installed Secondary Circuits
(3) Outline lighting

The task group created and submitted a new section 600.33, with the guidance of the code panel a panel proposal was developed as follows:

600.33 LED Sign Illumination Systems, Secondary Wiring. The wiring methods and materials shall be installed in accordance with the manufactures installation instructions using any applicable wiring methods from Chapter 3.

(A) Insulation and Sizing of Class 2 Conductors. Listed Class 2 Cable that complies with Table 725.154G shall be installed on the load side of the Class 2 power source. The conductors shall not be smaller than 22 AWG.

a. Wet Locations. Class 2 cable used in a wet location shall be identified for use in wet locations or have a moisture-impervious metal sheath.
b. Damp Locations. Class 2 cable used in a damp location shall be identified for use in a damp location or shall have the outer jacket be a sunlight- and moisture-resistant nonmetallic material.
c. Other locations. In other locations any applicable cable permitted in Table 725.154G may be used.

(B) Installation. Class 2 circuits shall be installed in a neat and workmanlike manner. Cables and conductors installed exposed on the surface of ceilings and sidewalls shall be supported by the interior building structure in such a manner that the cable will not be damaged by normal building use. Such cables shall be supported by straps, staples, hangers, cable ties, or similar fittings designed and installed so as not to damage the cable. The installation shall also comply with 300.4(D).

(C) Protection Against Physical Damage. Where subject to physical damage the conductors shall be protected, and installed in accordance with 300.4.

(D) Grounding and Bonding. Refer to 600.7 for grounding and bonding.

The purpose of this section is to have the requirements for low voltage class 2 sign wiring in one place and not continue to refer to sections of 725 which has created confusion about which requirement shall apply. The only reference to 725 that will be maintained is the wire table and this is clear as to the required wires for the type of installation.

This concluded the major proposed changes to the 2011 code, remember this is only the proposal period and the comment period could change things again.

As always questions or comments are welcomed and you may reach me at randy@ussc.org.