MINUTES

Orange Empire Division
International Association of Electrical Inspectors

Date: 01 June 2010.
Location: Santa Ana Elks Lodge, 212 S. Elk Lane, Santa Ana, California.
Called to order by Randy Buck at 11:36 a.m.

Randy read a letter of appreciation from Mickey McGrath, Head of catering for the Elks Lodge, addressed to Scott Davis, for the work Tom Griffith did supplying materials and installing 120 volt outlets for two new screens.

Acceptance of Minutes: The Minutes were approved without dissent.

Treasurer's Report

The Treasurer's Report was given by Randy Buck.

Membership Comm. Rep by Tom Griffith

The Membership Committee Report was postponed.

Old Business

None addressed.

New Business

Randy Buck announced that he had assignments for some attendees. He asked attendees to prepare, for our next meeting, one question or comment about something in the NEC that is appropriate for discussion.

Gary Gluck of Siemens asked about the possible requirement of 4-pole disconnects for branch circuits for modular furniture. Randy opined that multiwire branch circuits are required to have a single throw-of-the-hand but not a 4-pole circuit breaker. He added that multiwire circuits

are starting to leave the NEC. Scott Davis opined that a 4-pole circuit breaker is not required but a single disconnect is required; so, one can use a handle tie for multiple circuit breakers to provide the requirement for a single disconnecting means. Henry Martinez of The City of Costa Mesa asked if the requirement included the opening of the neutral [*grounded conductor*]. Some discussion among members of the group followed the question. Scott read from the NEC that "all ungrounded conductors" were to be disconnected.

Scott Davis announced that, on our website, we now have a forum for California Electrical Code issues. Tom Griffith stated there is a link on the front page of the Chapter website that links to a download with instructions on how to sign up and use the forum. The person signing up also needs to email his/her username to Tom in order to be added to the specific California Electrical Code forum. Anyone with questions should contact Tom at the same email address: Tom@iaeisocal.org

Code Questions

Doug Miller with Laguna Beach asked about PV panels on a flat roof 6 inches above a drain? Discussion followed with comments around the need for maintenance of the roof drain.

Consultants' Time

None taken.

Testing Lab Time

None taken.

Contractor Time

John Hamo with CEMCO Electric, inc. asked how many AHJs are enforcing the AIC rating requirements for variable-frequency-drive systems. Henry Martinez of Costa Mesa suggested that all controllers need an interrupting rating. Discussion followed of AIC issues vis-à-vis various controllers and contactors and SCE's charges for short-circuit-current reports.

Manufacturer Time

Behnam Abrishami ("Ben") with Cooper Bussman introduced himself as a new member.

Utlity Time

None taken.

Inspectors' Time

John Ryder, retired from the City of L.A., suggested that, in the City of Los Angeles, a Short-Circuit-Current Report is required by LADB&S from LADWP.

Education Program by Larry LeVoir of the City of Irvine: Fire Penetrations.

949/724-6377; llevoir@ci.irvine.ca.us

Larry touched on the following.

U. L. has a "Qualified Contractor Program" for firestopping that includes a "Designated Responsible Individual" exam.
Not a lot of certification for “fire stopping”
Larry showed slides of old methods of “fire stopping”.
No directions on the product tube; need to get the info.
There are now several fire stop systems.
Fire stop systems have their own set of directories.
Code rules in Chapter 7 of CBC: UL or ANSI-Standard tested systems.
UL Rules: UL listed systems.
In each fire-stop system, there is information on how to put that system in.

Many systems contain two "membranes", e.g., a stud wall with drywall on each side.
Annular space is the space between the penetrating item and the edge of the assembly.

Letter ratings: F and T ratings (which you are more concerned with); also a W and an L (wet and air leakage)
Walls: F rating is time in hours that the system will limit fire spread through the system; T rating is the time the system can limit the temperature on the non-fire side of the assembly, never for walls but needed for floors.

UL code is XHEZ. UL online certification directory.
A sleeve is not conduit.
NEC section 300.21 says that electrical installations cannot increase the passage of smoke.
CBC has two exceptions for walls: 1) for concrete or masonry walls with an opening of 144 in.^{2} or less, the annular space can be filled with concrete, max 6 in. conduit; 2) a fire-stop system with an F rating (essentially).
UL general rules for the use of UL-listed systems are found in UL Guidance information for through-penetration fire-stop systems. (The electronic version of this presentation contains a link to this on-line certification directory.)
The fire-stop system should not provide support for the penetrating conduit or cable.

Most systems today are "caulk and walk".
Penetrants can be installed at other than orthogonal angles.

Fire-Stop System identifiers.
F= floor.
W= wall.
C=floor or wall (Combo).
W-L = Wall, L for framed wall. A is for floor <= 5"; J is for masonry walls <= 8".

For each project, we should take time before the construction begins to go over the fire-stop methods and systems.

There is a UL disclaimer at the top of every system. UL gets a lot of calls about the use of systems that do not quite match the picture; the disclaimer gives some guidelines including consulting the AHJ. When field issues arise, the people that should be first contacted are the manufacturers of the firestop systems.

Annular space is the space between the penetrant and the surface. There are minimum and maximum.
For walls, a 2-hour rated system is not acceptable in a 1-hour rated assembly; it has not been tested. For a 3-hour concrete rating, you get the 2-hour and 1-hour ratings.
Sealants aren't rated; the assembly is.

There will always be some little thing wrong with any penetration.

Walls are in CBC sec 712. Beware of 3-gang and 4-gang boxes. Max gap to drywall around a box is 1/8". Boxes must be secured to studs, i.e., no cut-in boxes. Requirements for plastic boxes may differ among manufacturers.

Group VI, Sec 6 of UL Guide info.

Smoke is addressed in CBC; smoke barriers and smoke partitions; smoke barriers have at least a one-hour rating and can be horizontal or vertical; covered in section 712. Smoke partitions are not required to have fire-partition ratings unless serving that purpose also.

Horizontal Assemblies: floors or decks; 712.4.
Bus ducts are problematic because they cannot pass the T-rating test. Must be in a shaft; need F and T ratings of equal values. Metal will conduct the heat. Chapter 7 has the rules for

shaft construction. (Easier to do a penetration through 2-hour fire-resistant wall than it is to get a T rating for a bus duct going through a floor.) Must have equal F and T ratings.

Through penetrations must have equal F and T ratings, except that penetrations contained within the cavity of a wall do not require a T rating per the CBC [*sec. 712.4.1.1.2*].

Listed boxes such as "poke-throughs" have limitations. They come with instructions: no closer than 24" and not more than one in 65 ft^2 of floor area. Calculate the area using the area of a floor between its supports divided by 65 which will yield the max number of boxes allowed.

It is not possible to get a T rating with an EMT sleeve. Therefore, use PVC sleeve system to get the T rating in a floor. PVC cannot be used within an assembly occupancy or high-rise construction.

Membrane penetrations are one-half of a through penetration. Boxes must be secured to the joist, 1/8" annular max, 100 in^2 per 100 ft^2.

Bus Duct cannot pass the T rating test.
Larry gave an example of a large bus duct [*busway*] that penetrated a fire-rated, drywall wall but there was no approved firestop system for such a penetration. To comply with the CBC requirements, the contractor replaced the drywall wall with a masonry wall for which there was an approved firestop system for that bus duct.

Some penetrations are allowed with bags around bus duct, conduit trapezes and cable trays. (Larry showed a slide of such bags.)

Larry had three guest speakers: Gary Charles with 3M Fire Protection Products, Jeff Hamilton with Hilti and Mike Zanotelli with STI (Specified Technologies, Inc).

Gary Charles told the group that 3M has over 800 UL-tested , listed systems in its data base. He added that there is a 3M website (www.3M.com/firestop) with a system selector and submittal wizard where you can enter categories of walls or floors or penetrating items to help find an appropriate detail.

Gary introduced two systems. The first involved E-Mat (sp?) used for multiple protection. He focused on the use of the product around steel electric boxes. The E-mat is endothermic, i.e. releases water at 600°F which cools the assembly. The mats roll onto the boxes and can be

used for panelboards in a fire-rated wall. Seams are sealed with foil tape. Larry added that this system has limits for the quantity and sizes of conduits entering the panelboard.

Gary's second system involved a 3M Quick Pass device for through penetrations for cables. The system allows for the addition of cables after the initial installation and contains an intumescent material that will expand to 25 times its size. Putty can be installed at the perimeter to enhance the "L" rating (for smoke).

Jeff Hamilton introduced himself as a Fire-Protection Specialist with Hilti. He introduced a device called a Speed Sleeve and explained that it is designed for wall penetrations for low-voltage cables. He stated that the device could be installed with 0% fill or 100% fill of cable and has an L rating for smoke of 5 or less. He added that such systems are also available for concrete floors.

Mike Zanotelli with STI stressed the value of pre-construction, fire-stop meetings. He showed slides of several penetrations and construction joints. He showed that the heat produced from burning cables can exceed that of equivalent amounts of gasoline. Intumescent products will expand at about 250°F. Slides of the tests conducted for some different systems; included the thermocouples used in measuring the T rating (325°F above ambient). Have over a thousand UL systems. He showed a hose-stream-test slide. Installers should be properly trained. Ask that installers are certified.

Mike introduced three products: cable penetrations Ready Sleeve with intumescent gasket and putty for the exterior; Split Sleeve for retrofit work; and Easy Path, a zero-maintenance cable pathway.

Scott Davis opined about aluminum flex through rated assemblies stating that Santa Ana requires steel flex for the penetrations.

Meeting adjourned at approximately 2:05 p.m.

Respectfully submitted by Dan Vaughan.