



MINUTES

Orange Empire Division
International Association of Electrical Inspectors

Date: 02 Feb 2010.

Location: Santa Ana Elks Lodge, 212 S. Elk Lane, Santa Ana, California.

Called to order by Randy Buck at 11:42 a.m.

Acceptance of Minutes:

John Shanahan of Power System Dynamics stated that Bill Brownell's pertinent remarks about line/load breakers were not included in the Minutes of 05 Jan 2010 and proposed that the Minutes be amended accordingly. A motion to accept the Minutes as amended was made, seconded and accepted by unanimous vote.

Treasurers Report

The Treasurer's Report was given by Randy Buck.

Membership Comm. Rep by Tom.

Tom reported that there are 451 Chapter Members and 171 current Division members which are made up of: 65 inspector members, 38 trial members, 64 associate members and 4 Agency members; 136 are paid members.

Self Introductions: First time attendees Roger Torrices with Tony Demaria Electric and Dennis Fogel Chief Inspector with the City of Newport Beach.

Announcements

Power Test week in Long Beach, 15-18 February, IAEI partnership with NETA. Tom Griffith added that there will be a link on our website for more information.

Old Business

None addressed.

New Business

Randy Buck proposed that the Division support an upcoming ICC golf tournament with a \$50.00 contribution. The motion passed with a majority vote.

Randy began a discussion of clips that are installed at cell-phone sites on side-by-side circuit breakers to prevent simultaneous closing of the two circuit breakers. Steve Schinko suggested that the serving utility may have issues with the device. Randy suggested that the utilities do not know about it. It was explained that the two breakers should not be closed at the same time because closing them both would connect the generator receptacle, and therefore a generator, to the utility's service conductors. A question arose about the listing of the product, and Randy responded that was one of the things he felt needed to be addressed and answered.

Ted Hernandez of the City of Garden Grove stated that he had looked at three sites that employed the clip and that, at one site, the clip had popped off while removing the dead front. Ted cautioned that the clip would pop off if extra care was not taken when removing the dead front. He added that he did not see any identifying marks on the clip but Siemens had provided information about it. Scott Davis added that there is no NRTL bug on the clip, but there is no need for such. Randy concluded then that in some sense, since it is not a listed device, it is up to the AHJ to approve it; Scott concurred.

Scott suggested that state law requires that a utility be notified whenever another source is interconnected to the utility's system, and that, if we as AHJs asked for proof of such notification, these problematic devices / systems may go away.

Steve Shinko of Eaton/Cutler-Hammer mentioned the possible application of Article 708 once the 2008 NEC is adopted by California.

Larry LeVoir observed, from the discussion, that the clips function could easily be defeated by removing the dead front and if not held in place by tamper-proof screws. He suggested that he would not accept them. Randy asked the group that they try to report, at the next meeting, any observations that they have made of these circuit-breaker clips. Henry Martinez of the City of Costa Mesa asked if the clip could be included in a listing of an equipment package.

Scott cautioned the group that the cell-site utility itself could play the "utility card", i.e. claim that they are a utility themselves and not subject to city or county jurisdiction, if we were to be too uncooperative.

Scott stated that: the board has received no feedback on the class list for 2010; starting in May, class topics are electrically focused but broad enough to be useful to combination inspectors; the board is trying to reach out to a broader audience. Larry LeVoir opined that the selection is diverse and well rounded. Randy stated that executive board always needs and appreciates feedback to help make Division decisions. He then touched on some ideas that the board is kicking around.

Randy (announcement): PV installation training in San Diego continues next Tuesday, 09Feb.

Tom Griffith pointed out that IAEI members have new benefits with outside products such as car rentals, hotel/motels, insurance, roadside assistance, just to name a few. Go to <http://www.iaei.org/membership/benefits.html> for more information.

Consultants' Time

Saum Nour with Absolute Consulting Engineers announced that he is seeking input on the requirements of NEC section 517.17. He explained that that Code section applies to hundreds of buildings throughout the Wilshire corridor in Los Angeles. Scott shared that there were a couple buildings in Santa Ana to which the requirements of 517.17 were applied without great difficulty. Saum stated that he is trying to write an article on the issue that will help others, e.g., architects, understand this. Scott responded that that is the kind of class we should have and Randy parroted the comment. Saum mentioned that he will be giving a talk in Beverly Hills where there are two or three corridors of proposed surgical facilities. Scott suggested that he would go along and help. Saum did not appear real excited about the prospect.

Testing Lab Time

Rich Burman from UL reported that he'd received a report from the City of Los Angeles that there is some NM cable out there that may have been mismarked; it's marked by Cirtex 0 Wire (the manufacturer) marked 12/3 with 14 gauge conductors. Rich asked that we keep an eye out for it and added that it was first reported in southern California.

Scott Davis had a question for Rich Burman: Occasionally I get an e-mail from UL that there is a counterfeit product which is usually retail, blister-pack items, never construction equipment; can the same be done for construction products?

Rich responded that a lot of what we are seeing is when UL makes public announcements regarding things that have been tagged by CPSC (Consumer Products Safety Commission). Rich said that there are two types of announcements that UL makes: one is for when CPSC makes recalls and we try to get that information out there; the other is when CPSC is not involved, e.g., when we get reports from Customs officials about counterfeit products for which we will create public notices. Ultimate Email is a method we use for such notifications. If we find that it is a legitimate mistake by the manufacturer and it is addressed cooperatively, no public notice is made. However, there will be a public notice if there is insufficient cooperation.

Contractor Time

Roger Torrices of Demaria stated that a hot topic for our industry right now is arc-flash labeling and studies, so he was looking forward to today's educational topic.

Manufacturer's Time

Bill Brownell of GE mentioned that GE has a new product that makes the switchgear arc resistant without having to ship any of the baffles and associated hardware. He suggested that he could speak more about it "...one of these days...". He added that it could also be added to existing equipment.

Steve Schinko spoke about the proper way to connect up a d-c disconnect: you must break 2-poles in series and you can't break the grounded conductor. He distributed hand-outs to the group.

Randy Buck asked if a second fuse is also required and Steve replied that the Eaton switch was the only one that could be used with one fuse, and all others would require two unless the AHJ would allow them to provide continuity with something other than a fuse.

Scott suggested that one may be able to find replaceable-link fuses in which a bypass link can be installed.

Steve clarified that the Eaton switch that he mentioned is a d-c switch and that their a-c switch would also require the two fuses in series.

Randy opined that, theoretically speaking, you don't need a second fuse. So the question is whether or not the AHJ is comfortable.

Steve stated that you must have two simultaneous breaks in series in a 600-Volt, d-c circuit.

Scott Humphrey of Intertek suggested that the requirement for two poles is in UL 98 and is based on operation under a d-c motor load. He added the question: Is that comparable to photovoltaic? Scott Davis opined that it was not. Scott Humphrey went on to mention calculations by John Wiles, testing of disconnects and application of Underwriters Laboratories Inc. (UL) 1741 to the issue.

Randy Buck opined that, since loads on a P-V supplied system are different from d-c motor loads, the AHJ might consider accepting single-switch applications.

Larry LeVoir: can we ask Rich to find out what those switches are investigated for as far as being suitable for d-c operation? Rich responded that he can report back in April. To that end it was discussed that the March and April programs be switched. A motion to spend \$20.00 to reprint the CEUs for those dates was approved.

Utility Time

None taken.

Code Questions

John Shanahan began a discussion of section 690.64(B)(3) and the exception therein. He asked the group to discuss what the code-making panel had in mind when they put this in there. What is behind the concern of the Code panel, John Wiles and others that PV connections be made on the line side of ground-fault-protection equipment? John asked if it was an issue of safety for a technician changing the g-fault trip unit. Scott Davis suggested not - because technicians should be qualified to do the work. The discussion was inconclusive about the thinking of the code-making panel and the goal it was seeking.

Dan Vaughan suggested that the issue could be the imbalance created by another source.

John Shanahan added that the question has arisen from the requirements of an inspector in the City of Los Angeles. This led to a brief discussion on handling issues with inspectors.

Inspectors Time

Tom Griffith of Griffith Electric announced that IBEW, NECA and City of Oceanside, have been working together with the training trust down there to put together a program for inspectors. He added that: it's now being held at the City offices in Oceanside and all inspectors and IAEI MEMBERS are invited; it is once per week only, on Wednesdays; starts on the first Wednesday of March (the 3rd) for one month. He also mentioned that they would be trying to open the training lab for it. Tom is currently working with the Los Angeles chapter to bring that type of training up here.

Randy Buck praised Tom for quantity and quality of his work for IAEI and this Division. This was followed by some well-deserved hearty applause.

Education Program by Scott Davis: AFCI, GFCI, and Arc Flash vs NFPA 70E

(Some slides from Sandia Laboratories were shown.)

Scott's program touched on the following.

Inside body current vs outside body current.

Injuries from electrocution may be internal and may not manifest for some time after the incident.

GFCI

210.8(B)(2) Commercial and Institutional Kitchens.

210.8(B)(4) Outdoors and Public Places, and 210.8(C) Boat Hoists.

AFCI

210.12(B) AFCI Protection. "Combination" refers to series **and** ground arcs.

Arcs create vaporized metal. Parallel arc is the most dangerous. A series arc is load-limited.

(Rich Burman (UL) pointed out that a series arc often leads to a parallel arc.)

AFCIs are required for outlets in bedrooms of dwelling units.

An attendee suggested that AFCIs are good on circuits wired with aluminum.

2008 NEC requires more than bedrooms in dwellings be AFCI protected. Steve Schinko: general rule is, if it's not GFCI, it's AFCI.

2008 NEC 210.12, Exception 1 allows an AFCI at the first outlet; Exception 2 is for fire alarms supplied by metal conduit or cable. (What many of us call "smoke detectors" are really "smoke alarms".)

A guest suite with permanent cooking facilities is a dwelling. May also be found in B (office) occupancies.

NFPA 70E

Arc Faults: Arc Flash and Arc Blast. Most rules address Arc Flash. There are many internet videos showing injury.

Arc-flash hazard analysis and signage are required on almost everything that is over 240 Volts or over 125 kVA or more require signage.

Arc Flash suit required to measure bus voltage at a 480-V as in an MCC.

Arc rating is expressed in calories per square centimeter.

Energy of break-open threshold (EBT). It's the failure level of the safety gear one may be wearing.

130.2 Approach Boundaries.

"Voltage" is the highest value that you can measure.

You cannot touch a hot bus.

One is either a qualified person or not; nothing in between. Inspectors may not be qualified if they've not received appropriate training. Qualified persons must warn the unqualified that they are not allowed within the restricted-approach boundary.

Arc Flash Protection Boundary and Limited Approach Boundary:

Before one makes an inspection, there has to be a meeting to discuss what is to be done.

130.3 Analysis must be done every five years or if equipment or supply changes.

Default values may be used rather than analyses.

When one will be working within the arc-flash-protection boundary, one of the following methods should be used for the selection of protective clothing: incident energy analysis or, when no analysis is done, use defaults and PPE accordingly.

Chapter 4 addressed installations and has been deleted in NFPA 70E.

The forward helps one understand the background and applicability of NFPA 70E.

There is one possible overlay for AHJs in 70E: when an arc-fault-hazard analysis has not been performed, you have default hazard risk categories that an inspector can use to determine PPE.

That signage installation could be an inspection issue.

Inspectors could ask for equipment labeling of the incident energy or the required level of PPE.

(130.3)

"Electrical Safety in The Workplace" is the name of the National Fire Protection Association (NFPA) 70E document.

Hidden hazards may exist inside of walls.

LOTO = lock out tag out; they are a big deal in NFPA 70E.

Pre-work briefings are required.

More than 100 workers each year killed from contact with overhead lines.

If the industry you are in is OSHA regulated, NFPA 70E must be applied.

Scott Humphrey advised the group that they not use dryer sheets in the dryer for your work clothes that are to be used near energized equipment. He stated It destroys the fire-rating chemicals.

Meeting adjourned at 2:09 p.m.

Respectfully submitted by Dan Vaughan.