



MINUTES

Orange Empire Division
International Association of Electrical Inspectors

Date: 05Apr2011.

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

Called to order by Randy Buck at 11:49 a.m.

New attendees introduced themselves. L. A. Unified School District: Greg Flores; Jim with City of Westminster, and Gene Cahoon, City of San Bernardino.

Minutes of last month's meeting accepted without dissent.

Membership Comm. Rep.

116 Current members

Treasurers Report

By Randy Buck

Old Business

Scott Davis announced that the Mike Holt Library has arrived. Randy Buck reminded the group that we have a library for the use of our members.

Randy encouraged the group to develop questions for our membership.

New Business

Tom Leinhart: Can the meetings be webcast? Randy responded that, for now, the board feels that we do not have the resources to undertake this.

Tom Griffith spoke about www.IAEISW.com, 8/28 – 9/1, Sparks, Nevada. Education will include PV, 2011 changes, 2014 Code proposals, Smart Grid, EV charging, NEC 725 power limited circuits.

Randy Buck : We intend to obtain a more intense projector and a PA system & microphone; finance a trip to SW Section; add to library; etc.

Code Questions

1) Plastic Petrochem Plumbing (PEC) system; bonding isolated parts? Scott: a) Any equip that has electrical to it is connected to the equipment ground conductor b) equipment without electrical to it and small metal pieces, code does not require bonding when it is not likely to become energized. Russ: referred to the steel manufactures', Scott: Code requires that systems be bonded – not isolated parts.

2) Two stand-alone switchboards/panelboards: A & B. Can branch circuits from B pass through the A panel? Scott: I would not accept using panel A as a raceway. Randy: I would not allow it because there would be live wires in panel A even after all the breakers in A are open. Russ: on multimeter, feeders are okay, but branch circuits are not okay. Gene Cahoon: I need a Code section; Randy: use 90.4;

Scott, these are all code references that may be used to disallow that condition:

- 408.3(A)(3) restricts wiring to circuits intended to terminate in that section.
- 312.8 Generally limits the fill to a gutter space in a switchboard or panel to 40% and conductors, splices and taps to 75% at any one point.
- 312.7 Limits the conductors by disallowing “crowding”. This subjective determination will give a field inspector another reason to disallow that use of a cabinet.
- OSHA requires distribution cabinets to be deenergized remotely so that when a cabinet is opened everything inside is dead. Of course, not all installations are OSHA supervised. Still that certainly is a safety perspective.

Consultant Time

Bill Brownell: see upcoming conference on the IEEE website.

Testing Lab Time

Rich Berman: 2011 White book is here and available for all attendees.

Contractor Time

None taken.

Manufacturer Time

None taken.

Utility Time

None taken.

Inspector Time

Humidistats: Contractors can't find them per the Cal Green Code.

Randy: residential code requires hard wired smokes when there will be no damage to the building. The exception for exterior work is no longer.

LED retrofit for incandescent cans for Halo and a few others made by Cree and Nora. Randy & Scott: it's on the Energy Commission website.

Education Program: Analysis of Changes, 2008 NEC, Part 4.

Highlights and brief explanations by Scott Davis. This record of 2008 National Electrical Code changes is a by-section list of what was discussed.

Get your IAEI Code Analysis at a Division meeting!

Chapter 5, Special Occupancies

Articles 500 -504 – Scope ... gasses and vapors

501.10(B)(1) Class I , Division 2 now allowed to use Schedule 80 PVC.

501.30(B) Types of equipment ground conductors - must use an equipment bonding jumper; external up to six foot allowed. See 250.102

503.30(B)

505.7(A) Implementation of Zone Classification system; An electrical engineer (PE) is no longer required to design Zone wiring.

511.2 and 511.3 two new definitions; Major Repair Garage and Minor Repair Garage.

511.3, (A) – (E) address area classifications.

517.2 Patient Care Vicinity (NFPA 99 is for Medical Facilities.) Wet Procedure Location.

Doctors offices and clinics are under local jurisdiction.

Leakage current is the big issue in patient-care facilities. Ed Ginsburg: equipment in a patient care area must have leakage-current tested by a bio-electrical engineer. Russ Helmick: we did tests; 100 mA will put heart into fibrillation; in the 1950's, people died because of potential difference between the operating table and nearby equipment.

517.2 Wet Procedure Location should be written "Wet-Procedure Location"

517.19(D) Panelboard Grounding and Bonding MC healthcare cable with a sheath that qualifies as a grounding conductor is now okay in patient care areas.

517.32(E) Generator Set and Transfer Switch Location.

517.32(F) Life Safety Branch.

Chapter 6.

600.2 Section Sign (The transformer box is considered to be a section.)

600.4 (C) Section Signs.

LED transformers (drivers) and the LEDs supplied must be listed for use with one another.

600.7 Grounding and Bonding

600.32(K) Splices (splices in the high-voltage secondary)

600.42(A) Points of Transition.

IAEI and NECA published a very good “NEON” book.

620.2 Remote Machine Room and Control room.

620.21(A)(1) (e) wiring Methods in Hoistways

620.21(A)(3)(e) Elevators Flexible cords and Cables. Flexible cores and cables are permitted in machine rooms or spaces and control rooms or spaces without raceways under the following conditions: not longer than 6ft., flame retardant, protected from physical damage, and they’re part of the elevator equipment or driving machine.

In Santa Ana, the disconnect must be reachable from the door to the machine room.

620.21(C)(3) Platform Lifts and Stairway Chairlift Raceways.

620.51(A) Disconnect switch, Exception No. 2.

625.2 Electric Vehicle Neighborhood electric vehicles are not intended for use on highways.

Does not apply to off-road vehicles.

Service calculations should include future EV charging loads.

626 Electrified Truck Parking Space, Parts I – IV.

626.31 Disconnects and Receptacles.

640.6 Mechanical Execution of Work.

645.2 Information Technology Equipment Definition Changes. Not terminated cables must be removed or tagged with detailed information.

Article 645 Info Tech Equipment; 645.10 Disconnect for IT equipment and HVAC. See NFPA 75-2003.

645.5(D) Under Raised Floors. Cords under floor okay if it’s an Article 645 IT Room.

645.5(F) and (G). Life Safety 101 says you can’t have holes where people work; can’t have a desk in a 645 room – people in there only to work on the equipment.

645.10 Disconnecting Means. Must also shut down the air flow.

680.12 Maintenance Disconnecting Means. More than 5 ft from pool or spa.
640 Receptacle Locations. 10-ft rules now changed to 6 ft in most but not all locations.
680.22(B) GFCI Protection. Always required for pool water circulation motors – hardwired or cords.
680.22(E) and FPN – Other Outlets. (No change)
680.259A) Feeder Wiring Methods. Aluminum conduit is not permitted to be installed for feeders in pool areas where subject to corrosion.
680.26 Equipotential Bonding
680.26(B)(1) (a) Structural Reinforcing Steel.
680.26(B)(1)(b) Copper Conductor Grid, Perimeter Surfaces.
680.26(C) Bonding of Pool Water. (Major revisions; see the Handbook.)
680.31 Pumps. Cord and plug – connected filter pumps require GFCI protection. Hardwired too.
680.52(b)(2)(b) Under water Junction Boxes. J boxes for luminaires and other equip in fountains can be supported by conduit.
680.71 Protection.
680.74 Bonding. for massage tubs. Not required for double-insulated motors. For a pool, the bond wire must be there anyway.

690.4(D) Equipment. Required to be listed and identified for the application: Inverters, Motor generators, PV modules, PV inverters....
690.31 Methods Permitted. > 30 V must be in a raceway if in a readily accessible location.
690.31(E) Direct-Current PV source and Output Circuits Inside a Building.
690.31(F) Flexible Fine-Strand Cable.
690.33(C) and 690.33(E) Connectors. Tool required to open connectors.
690.45(B and FPN. For other than dwelling units. Note: the short circuit current of photovoltaic modules sources is slightly above the full-load manual
690.53 D-C Power Source. A permanent label.

695.69B)(2) and 3 Circuit Conductors. 2-hr min now.

Ch 7

700.6(C) Automatic Transfer Switches. Generators must be listed for emergency use.
700.9(B)(5) Wiring.
700.9(D)(1)(4
700.9. Emergency Generators must be listed.
700.12(B)(6) Outdoor Generator Sets. Must be service rated.
700.27 and 701.18 Exceptions

702.5 & 702.11 changed.

708 COPS Critical Operations Protection Systems – New section.

725 Class 1, Class 2 and Class 3 Remote-Control, Signaling and Power-Limited Circuits. Article was renumbered and reorganized to improve usability and consistency with NEC format. Mike Holt's book is in our library.

725.21 Access to Equipment Behind Panels

725.48(B)(4) In Cable Trays

725.130(B) Exception No. 3

760 Fire Alarm systems. Reorganized. Cable

760.24 ties now allowed for support.

760.3(G) Installation of conductor with Other Systems

760.419(B) and 760.121(B) Branch Circuit. not supplied through GFCI or AFCI.

760.41(B)

760.46 and 760.130(B)

760.139. added Cable Trays

760.176 Listing and

770.133(A) Exception No.5. fiber optical cables are allowed in same box if permanent barrier/divider separated.

770.154(F) Hazardous Location.

800.2 Communications Circuit.

800.24 cable ties are recognized.

800.100(A)(1, 820.100(A)(1, 830.100(A)(6) ?????

800.100(A)(6

800.100(B) Electrode. Intersystem bonding termination at service.

800.156 Dwelling Unit Communications Outlet. At least one phone cable is required for a new dwelling unit.

810.21(D) Mechanical Protection

810.21(F)(2)(6) Bonding Device may not interfere with cabinet door.

820.93(C) and (D) Locations of primary protector.

820.100(A)(1) Cable Grounding.

Chapter Nine.

Tables are not applicable unless code language refers one to such table.

Ch 9, Table 1, Note (9).

Table 4 (in part)

Annex D

Example D3(a)