IAEI Michigan Chapter 2023 Summer Meeting

All questions are to reference the 2017 NEC and 2023 NEC if significant changes made, or most recent relevant standard.

1. Is there a section in the NEC that prohibits utilizing a common or “shared” neutral with ungrounded conductors of the same phase?
2. Referencing 356.10(8), how does one assure the conductors or cables are not operating at a temperature higher than the listed temperature rating of the conduit?
3. Do the bonding requirements found in 250.92 apply to all metallic raceways attached to service equipment enclosures via an impaired connection, or only those raceways containing service conductors?
4. Does Part V of Article 517 apply to X-Ray installations in a veterinary clinic?  Per 517.1 it would appear 517 only applies for facilities providing services to human beings.  Follow up question; is there another section in the NEC for X-Ray installations in veterinary clinics?
5. Can tinned copper be used for a ground ring?
6. I’m a plans examiner reviewing an automobile vending machine, which also happens to be a seven-story building.  Would the vending machine/building require Class A GFCI protection as per 422.5(A)(5)?
7. When connecting a PV system supply side as permitted per 230.82(6), how would an AHJ enforce the barrier requirement per 230.62(C), when the power source conductors from the point of connection to the first OCPD terminate on the load end of a fused safety switch?  The labeling per the exception to 404.6(C) has been applied.  Is there a manufactured safety switch with a “SUSE” rating with barriers on the load terminals, and would the blades be considered a service bus bar?
8. I have a 2hp, 220-volt, single phase, code letter K fire pump, how do I determine the ampere rating of the OCPD?
9. Are the wire type bonding conductors required per 250.92 sized per Table 250.122?  Follow up; does this answer change when bonding for over 250 volts?
10. Is there a NEC Section(s) where voltage drop is required or are these sections just for informative purposes?
11. Is it permissible to re-identify the white conductor in a two wire cable assembly for a single phase line to line load?
12. Does the NEC permit multiple lay in luminaires to be interconnected with the manufacturer fixture whips?  This particular installation has 4 luminaires “daisy chained” with 18 AWG fixture wire via a luminaire multi-port quick disconnect.  The quick disconnect is suitable for use with 18 AWG conductors and has a 600-volt, 6-ampere rating, and the total current of four luminaires is .8 amperes.
13. What are the primary differences between a NRTL field evaluation and inspection?
14. When underground service conductors are not directly buried but rather installed in a raceway, such as PVC, are they required to have their location identified by a warning ribbon?
15. Is a separately derived system grounded conductor permitted to also be the supply side bonding conductor where the system bonding jumper is installed at the first disconnecting means and not the source enclosure?  Follow up question; if metallic raceways are utilized between the source and first disconnecting means metallic enclosures, could this be considered a path for objectionable current?
16. 310.12(A) permits service conductors to have an ampacity less than the service rating where all conditions are met.  When utilizing a PCS connected in accordance with 705.11, is it permissible to set the PCS current limitations at a value equal to the service rating or should this value not exceed the ampacity of the service conductors?  Example 4/0 Al service conductors for a 200-ampere one family dwelling service, PCS is set at 200-amperes.
17. Where building integrated PV modules, such as “solar shingles”, comply with 690.12(B) (2) (3) is there a voltage threshold within the array boundary for controlled conductors?  Does the answer vary from the 2020 NEC to 2023 NEC?
18. What is the maximum number of receptacles permitted on a small appliance circuit?
19. I’m installing 12 AWG hard-drawn copper overhead service conductors for a controlled water heater, does the neutral need to be larger than the ungrounded conductors?
20. I recently failed an inspection for overhead service conductors (not drops) being less than 8’ above a 3:12 roof.  I explained to my inspector the roof is not readily accessible and I meet exception 5 to 230.24(A) where the nominal system voltage is 120/208.  Who is correct in this instance?
21. Do open overhead service drop conductors need to meet the minimum clearances set forth by 680.9(A)?  The pool was here first!
22. I recently failed an inspection for not lashing and bracing feeder conductors in a large MCC.  The inspector had cited 110.3(B), and 110.10.  She also added “you know the MCC comes with installation instructions, correct?”  Then, note that bracing is required for the large magnetic forces that could be present under fault conditions.  Magnetic forces?  Has she been watching too much Star Wars, and should I be concerned for her mental health?
23. Is it permissible to terminate the high leg conductor on any bus in a CT cabinet?  The inspector and utility each insist on the conductor being terminated to different bus bars.  408.3(E) (1) would only apply to a switchboard, switchgear, or panelboard, and not a CT cabinet, correct?
24. Will a Class A GFCI device perform as intended and open where utilized with balanced loads that do not require a neutral?  Follow up, can a two-pole MCCB with integral Class A GFCI protection perform as intended where only supplying a single line to neutral circuit and one pole remains unused?
25. Where MC cable is ran horizontally through the factory manufactured hole in a 1 X 1 light gage steel stud is it required to provide a steel plate to cover the cable?
26. I’m estimating an addition for an RV park, can I have a reduced size neutral conductor where I am only running two of the ungrounded conductors and the feeders originate from a 120/208-volt, 3-phase service?
27. I am reviewing the service load calculation for a proposed major repair commercial garage building.  The engineer has utilized an energy management system to minimize the size of the service.  One of the managed loads is the ventilation system removing hazardous vapors from working areas below grade, is this permissible?
28. Are loads supplied by a micro grid interconnect device (MID), required to meet the requirements of 702.4(B) (2) or 710.15(A)?
29. Would underground service conductors be considered necessary to supply pool equipment and therefore be permitted under a swimming pool?  The building is only supplied power from a service.
30. Can a motor control center also be used as service equipment?
31. A 480/277 volt service is installed to supply only 3-phase utilization equipment and motor loads, is a grounded (Neutral) conductor required at the service?
32. Are SO type cables allowed as a means for permanent wiring in a grocery store from the ceiling structure to permanently mounted display cases?
33. I have an installation that requires flexible cords to be sleeved in a raceway for protection from physical damage. Is there a maximum length required for this application and should a reduction in conductor ampacity be considered?
34. I recently failed an inspection for not having an individual circuit for the receptacle outlets required per 210.52(E) at a one-family dwelling, is this really a thing or is the inspector sniffing glue?
35. Do EVSE loads need to be included for service calculations where an automatic load management system can remove the EVSE load anytime the total monitored current on the service conductors exceeds their ampacity?
36. I am a PV installer who recently failed an inspection because my insulation piercing type wire connectors utilized for a supply side type connection were not marked as suitable for use as service equipment. Please help me, I’m so lost, where is this in the NEC?
37. I am new to the industry and recently discovered that I should torque light switches and receptacle devices. How would I know if the manufacturer requires it and does this apply to all equipment installations?
38. Does the NEC require electricians to be responsible for drywall gap repairs around device boxes and cabinets? If so, things are going to get ugly, just saying.
39. I’m installing receptacles for a large island, how should I space the required receptacle outlets around the island? Follow up; where two duplex receptacles are installed in a two gang box, would this be considered four receptacle outlets?
40. Where installed in metal wireways or gutters, why are there specific requirements to consider when installing single cables for each phase, neutral, or grounded conductor of an AC system? Why are there no considerations for DC systems?
41. My Inspection of 12 AWG NM cables within a crawlspace failed when I secured them directly to the lower edge of the floor joist, why would this be a concern if this space is rarely visited?
42. What is the maximum rating in amperes under all load conditions for power supply output circuits of Low Voltage Lighting systems operating at no more than 30volts ac or 60volts dc?

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| **Name** | **Questions** |
| Vince Della Croce | 1, 7, 14, 19, 25, 31, 37 |
| Jeff Fecteau | 2, 8, 13, 20, 26, 32, 38 |
| Ryan Jackson | 3, 9, 15, 21, 27, 33, 39 |
| Brian Baughman | 4, 10, 16, 22, 28, 34, 40 |
| Phil Clark | 5, 11, 17, 23, 29, 35, 41 |
| Christine Porter | 6, 12, 18, 24, 30, 36, 42 |