

Indiana IAEI Chapter Meeting February 2005
Don Shields, NFPA

6. Is it permissible to put a duplex GFCI receptacle under the cover that covers the pool cover, for the use of a sump pump? Also, is a skimmer considered pool sanitation equipment?

680.21(A)(5), .22(A)(1), .26(B)(4), .27(B)(1)

It is not permissible. The Code has no specific language regarding the use of sump pumps in the pool cover pit area. The pool cover motor and controller must be GFCI protected, bonded, and shall be at least 5 feet from the inside wall of the pool. If this is associated equipment, for the cover, and the cover can be considered part of the pool sanitation system as well as a safety cover then the rules in 680.22(A)(1) would demand that the receptacle power be of the single locking type and be GFCI protected and bonded in accordance with 680.26(B)(4). Pool skimmers are part of the sanitation system since they are part of the water circulation system and connect to pool filter.

14. I have a portable generator that I plug into my transfer box at my service. Can I install a 4 wire cord with an equipment grounding conductor connecting to the grounding of the house transfer box and not install a grounding electrode at the portable generator?

250.30, 250.34(C)

It depends on the neutral configuration of the generator and at the switching configuration of the transfer device. To eliminate the need for a ground rod at the generator and comply with the NEC, the installation would need to be considered a "non-separately derived" system (see Exhibit 250.6, 2002 NEC Handbook). Therefore the following must be in place: the transfer switching device does not break the "neutral or grounded conductor," the generator must have the neutral bond jumper removed from the generator case, generator grounded conductor is connected to the grounding electrode system at the house service equipment. The equipment grounding conductor in the cord would connect the generator chassis to the transfer equipment enclosure.

Most portable generators are GFCI protected and do not have the capability to remove the internal neutral bonding jumper, tampering would more than likely violate the product listing causing a violation of Section 110.3(B) as well as the product warrantee. These factors should be considered.

22. I have a hot tub with an underwater light. I want to install nonmetallic sealite type "B" as a building wiring method. This sealite is rated sunlight resistant and approved for direct burial to my understanding. Am I allowed to run this nonmetallic sealite type "B" from my main service rated panel directly through my studs, crawl space, into the ground and to my hot tub without a break if my hot tub is manufactured with a built-in GFI and breaker to serve as my form of disconnect? Am I required to have a separate disconnect 5 feet away from that hot tub also?

680.21(A)(1), .21(A)(4), .23, .42, .42(C)

Outdoor pools and spas must comply with Parts I and II of 680. Section 680.21(A)(1) does not permit the use of Type B, LFNC as a wiring method for the outdoor part of the installation. However, 680.21(A)(4) would permit LFNC as a wiring method in the interior portions of the dwelling with an insulated equipment grounding conductor. This installation would consist of a two wiring methods, one for the interior and one for the exterior. If the package unit comes with a disconnect switch/breaker in the controller then no additional disconnecting means is required.

30. I have a dock over a river. I want to install a receptacle, switch and light on my dock over the water. How high must these devices be mounted?

682.2(3) & (4), 682.12

It depends on the type of dock (floating or fixed). If it is a fixed dock and subject to (3) of 682.2 definition section, then it would be 2 feet above the highest water level for the area occurring under normal circumstances (basically the high water mark). If dock is floating, the datum plane is established at 30 inches above the water line. The electrical connections shall be located at least 12 inches above the deck of a floating structure.

38. The 2005 NEC Article 511 refers to when Class I liquids or gaseous fuels are transferred. What does this mean? Would it be removing a fuel tank or fuel filter in an Article 511 area?

511.3(A)(4), (5), & (6). Transfer of Class I liquids is simply the conveyance of fluid from one tank or vessel to another, for example gasoline dispensers transfer fuel from a storage tank to your car through a controlled piping system. The removal of a fuel tank or filter would not be considered as transfer of product.

46. Gas pump installers want me to route power and low-voltage control cable in the same conduit to gas pumps. Is this right to allow this?

725.55(A)

No. If there are 125 volt power conductors or Class 1 conductors, then Class 2 or 3 conductors cannot be installed within the same raceway.

54. Can I use Type UF cable in PVC conduit to feed an outdoor hot tub?

680.21(A)(1), .21(A)(4),

Outdoor pools and spas must comply with Parts I and II of 680. Section 680.21(A)(1) requires an insulated equipment grounding conductor for the outdoor portion of the installation. The equipment grounding conductor in UF is considered "covered" just the EGC is in type NM and therefore not permitted as a wiring method for the outdoor portion of the installation. Type UF would be permitted as the indoor portion of the wiring installation in accordance with Section 680.21(A)(4).

62. What is the classification of areas around an aboveground gas tank used on a farm site?

514.3, NFPA 497-5.2, Annex A Fig. 5.9.4(e)

In NFPA 497 (Recommended Practice for Classification of Flammable Liquids), the Div. I area extends 3 ft and the Div. II extends 15 ft. from open fill ports or tank vents in a hemisphere pattern to the ground. In Section 514.3 for dispensers, the Div I area surrounds the dispenser from grade level to the top of the island and the Div. II area extends 20 ft horizontally and up to 18 inches above grade to include the hose fill length. The critical areas are tank fill opening and the opening at the end of the hose relative to the vehicle or implement being filled.

70. When wiring an RV park where does it tell me I need to establish one service? Am I allowed to have multiple service locations and what would be the guidelines to use?

551 Part IV

The language that describes service is in the singular form and therefore means only one service to the park. However, there are no prohibitions in Part IV that would prohibit more than one service especially for large RV park areas. However, due to the transient nature of RV users, it could prove difficult to facilitate the frequent disconnection and reconnection of customer service, but that is not an NEC issue.

78. I have a range hood only over my range with a 1/3-horse power motor. I am aware that I cannot share this load with the small appliance branch circuits. May I share this range hood appliance load with a 15-amp general lighting branch circuit serving the living room?

210.23(A)(2), 422.16(4), 430.248. Yes it can if hard wired, since it does not exceed the 50% rule. A 1/3hp. motor has a 7.2 ampere rating (Table 430.248) which is 48% of the 15 ampere rating of the circuit. However, if cord and plug connected is shall comply with 422.16(4) and be on an individual branch circuit.

86. I am performing a demand load calculation to discover the minimum service size for my dwelling. I have a garage door opener, a table saw, and a band saw all in my garage and I am the only person working in that garage. Can I apply the non-coincidental load rule and omit the two smaller loads including the band saw and the garage door opener and only count the table saw in my demand load calculation. My table saw and band saw is bolted to the floor.

220.60

Non-coincidental loads are typically the heating/air-conditioning loads used in calculation values in Article 220. The NEC does not limit these loads to heating/AC, so it would be permitted.

94. A health care facility is installing a new emergency generator in a weatherproof enclosure located 50 feet from the building. The generator has a main breaker properly sized to protect the feeder's conductors to the automatic transfer switch located in the basement electrical equipment room of the facility. The feeder from the generator main breaker runs underground to the "emergency" side of an automatic transfer switch, which is mounted against the basement exterior wall. Is this code compliant? What if a non-suitable disconnect were installed just ahead of the automatic transfer switch.

517.30(B)(4), NFPA 99-4.5.2.2.1, 700.12(B)(6)*

Yes. This appears to be Type 2 Essential Electrical System of 150kVa or less continuous load since only one transfer switch is involved. It is permissible to place a generator in this location and at the distance indicated. If the generator installation meets the 50 foot requirement by careful orientation based on the position of the disconnect, and it meets the distance requirement, no additional outside disconnecting means is required. Non-suitable disconnects are not a consideration of the NEC.

Modify the question above with the following changes: The distance from the generator to the building is now 75 feet and assume "non-suitable means non-fusible." Are we still code compliant?

517.30(B)(4), NFPA 99-4.5.2.2.1, 225.31, 225.32 & 225.36.

No. The distance change to 75 feet now imposes the outside feeder requirements of Article 225. Section 225.31 requires an additional disconnection means in accordance with 225.32. It shall be installed either inside or outside of the building or structure served. It shall be in a readily accessible location nearest the point of entrance of the conductors. The disconnect shall be suitable for use as service equipment in accordance with 225.36. Assuming that the disconnecting means on the generator has overcurrent protection, the disconnect could be of the non fused type if size and SUSE rating permit. Otherwise, it must be of the fusible type and SUSE rated.