

1) I am upgrading an electrical service, the present panel is located in the basement in a room which has the clothes washer, clothes dryer, laundry sink, toilet and a 2nd sink next to the toilet. Is this a bathroom?

Answer: Yes.

Code Reference: Article 100 Definitions

The room has a basin and a toilet, therefore it is a bathroom.

2) I see a lot of "blue tarps" protecting services for houses under construction. Is this legal? Obviously, some inspectors are accepting them.

Answer: No.

Code Reference: 110.11, 110.28, Article 100 Location, Dry

Enclosure Types shall be marked with an enclosure-type number as shown in Table 110.28. NEC Table 110.28 . "Enclosures (other than surrounding fences or walls) of switchboards, panelboards, industrial control panels, motor control centers, meter sockets, enclosed switches, transfer switches, power outlets, circuit breakers, adjustable-speed drive systems, pullout switches, portable power distribution equipment, termination boxes, general-purpose transformers, fire pump controllers, fire pump motors, and motor controllers, rated not over 600 volts nominal and intended for such locations, shall be marked with an enclosure-type number as shown in Table 110.28."

Table 110.28 shall be used for selecting these enclosures for use in specific locations other than hazardous (classified) locations. The enclosures are not intended to protect against conditions such as condensation, icing, corrosion, or contamination that may occur within the enclosure or enter via the conduit or unsealed openings.

Table 110.28 states NEMA 1 enclosures protect from contact to internal parts and falling dirt. There is no protection from rain, sleet or snow.

3) The inspector says: "No more GFCI's under the hydro-tub". Is this a new code requirement?

Answer: Yes.

Code Reference: 110.11, 110.28

Ground-fault circuit-interruption for personnel shall be provided as required in 210.8(A) through (C). The ground-fault circuit-interrupter shall be installed in a readily accessible location.

Definition of Accessible, Readily (Readily Accessible): "Capable of being reached quickly for operation, renewal, or inspections without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders, and so forth.

Equipment associated with a hydro-massage bathtub is typically cord- and plug-connected. The supply receptacle is accessible through a service access opening. The receptacle shall be installed so that its face is within direct view and not more than 300 mm (1 ft) of the opening.

The GFCI device is not readily accessible if the access cover to the motor is screwed in place or requires tools to remove the cover.

A hinged door may allow readily access. This is similar to walking down stairs to get to a GFCI mounted in an electrical panelboard.

4) I was told I had to GFCI protect a receptacle in the back entry area of my new house. The receptacle is 4-feet from the laundry room sink. Is this correct?

Answer: Yes.

Code Reference: 210.8(A)(7)

Sinks — located in areas other than kitchens where receptacles are installed within 1.8 m (6 ft) of the outside edge of the sink. If the receptacle is within 6 feet of the sink, it would require GFCI protection. There is no exception because it is not in the same room.

5) Is arc-fault protection required on a branch circuit supplying smoke or carbon monoxide detectors?

Answer: Yes.

Code Reference: NEC 210.12, Article 100-Outlet

“All 120-volt, single phase, 15- and 20-ampere branch circuits supplying outlets installed in dwelling unit family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, or similar rooms or areas shall be protected by a listed arc-fault circuit interrupter, combination-type, installed to provide protection of the branch circuit.”-NEC 210.12(A) . There is no exception for CO detectors, same as there is no exception for smoke detectors. In addition, both are required to have battery back up.

6) We wired a basement recreation room. Do we have to provide arc-fault protection for the receptacles by the wet bar? They include the refrigerator, garbage disposal and microwave outlets. Do we also have to AFCI protect these outlets? They are within 6 feet of the wet bar sink.

Answer: Yes. Yes.

Code Reference: 210.12(A), 210.8(A)(7), Article 100-Kitchen

All 15- or 20-A, 125-volt receptacle outlets within 6' of a wet bar sink requires AFCI protection. It is assumed there are no provisions for cooking in the wet bar other than portable microwave oven(s).

7) Do branch circuits serving rooms or areas near the kitchen require AFCI protection. The plan often calls the area a “breakfast nook” or “dinette”. The use of the area seems to be primarily eating food rather than preparing it.

Answer: Yes.

Code Reference: NEC 210.12(A)

A kitchen is defined as “an area with a sink and permanent provisions for food preparation and cooking.”

“All 120-volt, single phase, 15- and 20-ampere branch circuits supplying outlets installed in dwelling unit family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, or similar rooms or areas shall be protected by a listed arc-fault circuit interrupter, combination-type, installed to provide protection of the branch circuit.”-NEC 210.12(A)

8) We have installed a 20-ampere circuit to supply a garage door opener and receptacle outlets in a garage. Electrical Inspector has rejected the installation. The door opener nameplate is 10-amperes. Do we need two circuits?

Answer: No.

Code Reference: NEC 210.23(A)(2), 210.21(B)(2)

The rating of the equipment cannot exceed 50 percent of the branch circuit rating. This applies where the circuit also supplies lighting outlets or outlets for cord-and-plug connected equipment that is not fastened in place.

9) I installed a 20 amp circuit in the kitchen to supply the garbage disposal and the dishwasher. The inspector rejected it. The dishwasher was rated 12 amperes. The garbage disposal was 1/3hp and the nameplate says 5.6 amperes. Are both appliances permitted on the same circuit?

Answer: Yes.

Code Reference: NEC 422.10, NEC 210.23

NEC 422.10 indicates the rating of a branch circuit supplying two or more appliances shall meet NEC 210.23.

NEC 210.23 Permissible Loads indicates “in no case shall the load exceed the branch-circuit ampere rating”.

NEC 210.23(A) (1) This section does not apply since both are fastened in place.

NEC 210.23(A) (2) This section also does not apply since both are fastened in place.

Since the total load is 17.6 amperes it does not exceed the branch circuit ampere rating, and both appliances are allowed on the same circuit.

The ampere rating of listed motor-operated appliances is the nameplate rating regardless of horsepower. NEC 430.6(A)(1) Exception No. 3

10) I have a wall space in a dining room where the wall is covered by a built in bench, two pantries and a built in cabinet, so there is no visible wall space due to the permanently installed cabinets. Are receptacles required for this wall?

Answer: No.

Code Reference: 210.52(A)(2)(1)

Fixed cabinets were added in the 2011 NEC to the list of architectural features that are not considered wall space.

11) I have a kitchen in a small single family dwelling which I have been hired to rewire. The kitchen has a 4' countertop with cabinets against the wall. The owner will be adding a peninsula cabinet and counter that is perpendicular to the wall counter. The peninsula will extend out 3' from the wall counter. Will I need to have a receptacle for the peninsula portion of the counter? Am I required to install 2 -20 amp circuits for the receptacles on 4' wall countertop? I do have another 20 amp circuit in the kitchen supplying a refrigerator. There are no other countertop surfaces.

Answer: Yes. Yes.

Code Reference: 210.52(C)(3); 210.52(B)(1)

At least one receptacle is required at each peninsula with a length of 24 inches. Both small appliance branch circuits must serve the countertop surfaces.

12) I heard there were some outlets that you could cut into the kitchen or bathroom countertop that "pop up" when you want to use them. Can you I use them as the required counter surface outlets?

Answer: Yes.

Code Reference: 210.52(C)(5)

Receptacle outlet assemblies listed for use in the countertop are permitted.

13) Would a receptacle installed on the house wall and above an "at grade" deck be considered "accessible from grade"?

Answer: Yes.

Code Reference: 210.52(E)(1)

Yes, if the deck is at grade level. Or you can reach the receptacle from grade if the slab is elevated above grade. Discuss with the AHJ and request approval prior to installation.

14) Are 120 volt, 15 ampere receptacles required to be the tamper-resistant style when installed within a detached residential garage? How about a garden shed on a residential property?

Answer: Yes. Yes.

Code Reference: NEC 210.52(G); NEC 406.12

In most cases they are required to be tamper-resistant style. There are some exceptions listed in NEC 406.12 on page 273.

15) A meter pedestal is installed by the utility power pole near the road. Does the State Electrical Code require a service disconnect (circuit breaker) located at this location? Two ground rods? This electric service serves only a dwelling unit.

Answer: No. No.

Code Reference: SPS 316.230 (3).

A disconnect or a grounding electrode is not required where only a single structure is served. SPS 316.230 (3) applies only where more than one building or structure on the same premises is supplied from the service.

Check with the power supplier. Some require a service disconnect at the meter when located at the lot line.

16) I have run 2 12-2 NM cables to a kitchen countertop area. I put the GFCI receptacle on the first outlet of each run. I then ran a 12-2 from each GFCI (on the load side) to the rest of the receptacles serving the countertop. I broke the tabs on the "hot" and "neutral" sides of the duplex receptacles so I have both circuits on each of the "downstream" duplexes. I put the two circuits on a two pole circuit breaker. Is this legal?

Answer: Yes.

Code Reference: NEC240.85; White Book RTRT

Duplex receptacles rated 15 and 20 A that are provided with break-off tabs may have those tabs removed so that the two receptacles may be wired in a multi-wire branch circuit or multiple branch circuits. This would be a legal installation.

17) A new house typically has no rebar in the footing or rebar in the walls. The outside of the foundation is covered with foam board. Is this still considered a "concrete-encased electrode"?

Answer: No.

Code Reference: NEC 250.52(3) Informational Note

Informational Note: Concrete installed with insulation, vapor barriers, films or similar items separating the concrete from the earth is not considered to be in "direct contact" with the earth. It does not appear there is a concrete encased electrode in this instance.

18) A rewired service had the ground rods connected to the EMT on the outside of the house. There is a connection on the inside to the metal water supply. Is the connection of the rods to the EMT legal?

Answer: Yes.

Code Reference: 250.53(D)(2)(3)

The supplemental electrode shall be bonded to one of the following: (1) Grounding electrode conductor (2) Grounded service-entrance conductor (3) Nonflexible grounded service raceway (4) Any grounded service enclosure (5) As provided by 250.32(B).

The supplemental grounding electrode conductor is permitted to be connected to the service EMT using an approved connector or clamp.

19) I installed SER cable for a service. The inspector said I have to tie one end of the bare equipment grounding conductor to the enclosure or the neutral bar. This conductor doesn't do anything and we have cut the ends off for years. Do I have any other options?

Answer: Yes.

Code Reference: NEC 250.4(A)(4)

The Code requires normally non-current carrying electrically conductive materials that are likely to become energized to be connected together and to the electrical supply source in a manner that establishes an effective ground fault current path. So it could be tied to ground on one end.

It also could be cut back and/or taped such that it was not likely to become energized.

There are no special Code rules to address "spare" conductors within an electrical enclosure. However, the method of installation must ensure that spare conductors are unlikely to be come energized via contact with live parts in the same enclosure.

20) I inspected a service upgrade. The new 100-A service was connected to the existing grounding electrode conductor. An 8 AWG solid copper conductor ran through a conduit with branch circuit conductors. The GEC eventually connects to the water pipe within 5 feet of the meter. The contractor did replace the clamp. Can I require a new conductor? Can it be in the same conduit as other conductors?

Answer: No. Yes.

Code Reference: NEC 250.66; NEC Table 250.66; NEC 250.64(E)

8 AWG copper GEC is permitted for a 100 ampere service. The 8 AWG would be permitted to be used for the new service provided:

1. Any splices are made using an approved method
2. All the boxes and each end of intervening raceways were bonded per 250.64(E). The bonding jumper for a raceway or cable containing a grounding electrode conductor shall be the same size as, or larger than, the enclosed grounding electrode conductor.

If a raceway is used as protection for a grounding electrode conductor, the installation shall comply with the requirements of the appropriate raceway article.

21) Is an intersystem bonding terminal block required when upgrading a residential service? The entire service is replaced.

Answer: No.

Code Reference: NEC 250.94 Exception

NEC 250.94 Exception, page 117: "In existing buildings or structures where any of the intersystem bonding and grounding electrode conductors required by 770.100(B)(2), 800.100(B)(2), 810.21(F)(2), 820.100(B)(2), and 830.100(B)(2) exist, installation of the intersystem bonding termination is not required."

22) The instructions for a self-contained spa with non-metallic walls say that a 50-amp circuit is required. It also states that 6-AWG conductors are required. It says that an Equipment Grounding Conductor shall be used in compliance with the NEC but does not give a size. Could the EGC be a 12 AWG green insulated conductor for this installation?

Answer: No.

Code Reference: NEC 250.122; NEC 680.6

The EGC shall be sized according to 250.122. 10AWG is the minimum size.

23) The new PV modules come with the inverter built in. The output is 120-volts AC. Often the home run back to the electrical panel is very long. And PV specifications limit the voltage drop to less than 1%. If the conductors are oversized for voltage drop does the equipment grounding conductor also have to be increased? What about if the conductors are run in EMT and a supplementary equipment grounding conductor is also used?

Answer: Yes.Yes.

Code Reference: NEC 250.122(B)

NEC 250.122(B) Requires that 'Where conductors are adjusted in size for any reason, equipment grounding conductors shall be adjusted proportionately.

The calculation is:

Step I- Determine the proportionate Increase

Selected feeder or Branch circuit conductor area/ required feeder or conductor area= Ratio.

Step II – Adjust the Size of the EGC proportionally

Ratio X Table 250.122 Equipment grounding conductor Circular mil Area= Required EGC circular mil area

Note: Table 8, page 721, give AWG sizes in Circular mils.

24) Does landscaping bark qualify as "fill" for cover in an underground installation?

Answer: Up to AHJ.

Code Reference: None

Cover is defined as the shortest distance in millimeters (inches) measured between a point on the top surface of any direct-buried conductor, cable, conduit, or other raceway and the top surface of finished grade, concrete, or similar cover. The type of material used for "cover" is not stipulated by the Code. Landscaping bark may not be a solid or permanent cover as it may be easily moved, blown away or settled and compressed.

Discuss with the AHJ and request approval prior to installation.

25) Do wirenuts in an outside light pole have to be rated for wet or damp locations?

Answer: Yes

Code Reference: NEC 310.10(C)

Metal or nonmetallic poles shall be permitted to be used to support luminaires and as a raceway to enclose supply conductors. Where raceways are installed in wet locations above grade, the interior of these raceways shall be considered to be a wet location. Insulated conductors and cables installed in raceways in wet locations above grade shall comply with 310.10(C). This category covers sealed wire-connector systems intended for wet or damp locations and other installations, such as direct burial, below grade, or above grade where protected from direct exposure to sunlight. These systems may also be used indoors or in dry locations.

26) Can Table 310.15(B)(7) be applied to the overhead riser conductors on a single-phase service which supplies 3 apartments? Can this table be applied to the conductors to the conductor to each apartment's panelboard and the house panel?

Answer: No. Yes.

Code Reference: NEC 310.15(B)(7)

Table 310.14(B)(7) does not apply to the riser conductors. However, it applies for the individual dwelling units. NEC 310.15(B)(7), page 153.

27) A self-contained spa instructions say that it requires a 50 amp breaker with GFCI protection. It gave no wire sizes, so using Table 310, would 8 AWG THWN be acceptable?

Answer: Yes.

Code Reference: NEC 310.15(B)(16)

The allowable ampacity is 50-amperes at 75 °C. Use of a 60°C conductor would require a larger size.

28) The meter pedestal and panel for a manufactured home are located on the outside of the attached garage. My question is on the utility transformer. It is located directly opposite the panel and within 32-inches. Can I require 36-inches clearance in front of the panel? The utility says they don't have to follow our rules.

Answer: Yes.

Code Reference: SPS 316.002(1)&(2), NEC 110.26(A)

You can require working space for the customer-owned service equipment. It falls under the Scope of the State Code.

SPS 316.002 (1) "COVERED. This chapter covers: (a) Installations of electric and communication conductors and equipment in places of employment, within or on public and private buildings or other structures, including mobile homes, recreational vehicles, and floating buildings; and other premises such as yards, carnivals, parking and other lots, mines, trenches and tunnels, and industrial substations. (b) Installations of conductors and equipment that connect to the

supply of electricity. (c) Installations of other outside conductors and equipment on the premises;”

SPS 316.002 (2) “NOT COVERED. This chapter does not cover: (a) Installations of electric conductors and equipment in ships, watercraft other than floating buildings, railway rolling stock, aircraft, or automotive vehicles other than mobile homes and recreational vehicles.(d) Installations, including associated lighting, under the exclusive control of electric utilities for the purpose of communications, metering, generation, control, transformation, transmission or distribution of electric energy. Such installations shall be located in buildings used exclusively by utilities for such purposes; outdoors on property owned or leased by the utility; on or along public highways, streets, roads or similar public thoroughfares; or outdoors on private property by established rights such as easements.”

29) I was inspecting a service upgrade. I noticed that the new panel supplied an existing subpanel. The subpanel was on the other side of the building and used three conductor cables. The neutral was bonded on both ends. I know that this does not meet the current code. Is it “grandfathered” in?

Answer: No

Code Reference: SPS 316.003(3)

“EXISTING INSTALLATIONS. Existing electrical installations shall conform to the electrical code that applied when the installations were installed. An existing electrical installation may be required to be brought into compliance with the current code’s requirements by the department and within the time period determined by the department when a hazard to life, health or property exists or is created by the installation.”

It is not likely that the existing feeder was correctly installed. The grounding or neutral has not been permitted as the equipment grounding conductor for a feeder within a building for decades.

30) If I put an addition on an old house, do I have to run a new 20 amp circuit to the bathroom(s)? Install two 20-ampere circuits for the kitchen? What about a separate circuit for the furnace?

Answer: No. No. No.

Code Reference: SPS.316.003 (3)

Check for local rules as they may be more restrictive. But only for dwellings not built under the Uniform Dwelling Code

SPS 316.003 (3) “EXISTING INSTALLATIONS. Existing electrical installations shall conform to the electrical code that applied when the installations were installed. An existing electrical installation may be required to be brought into compliance with the current code’s requirements by the department and within the time period determined by the department when a hazard to life, health or property exists or is created by the installation. There would be no reason to rewire a house that was compliant at the time it was installed unless there are safety hazards.”

31) Can type AC cable be supported by cable ties?

Answer: Yes.

Code Reference: NEC 320.30(A)&(C)

“Type AC cable shall be supported and secured by staples, cable ties, straps, hangers, or similar fittings, designed and installed so as not to damage the cable.” Also, refer to NEC 320.30 (C) on page 187 .

32) Can EMT conduit be direct buried?

Answer: No.

Code Reference: SPS 316.358

“Electrical metallic tubing may not be used in direct contact with earth, in concrete slabs or floors poured on earth, or in exterior concrete walls below grade.”

33) I have recently installed a Samsung “mini-split” Air Conditioner unit. A factory supplied SOOW cord is used to interconnect the power from the outside compressor unit to the inside units. The Inspector says I have to replace the SOOW cord with a Chapter 3 wiring method. The unit is listed and the cord factory supplied. Can I run the cord through the wall?

Answer: No.

Code Reference: NEC 400.8(1) & (2), SPS 316.110

Flexible cords shall not be used as a substitute for permanent wiring, or where run through walls. Wisconsin accepted listed equipment where the listing, instructions, or labeling does not conflict with SPS 316 and the NEC.

34) What is the maximum height off the floor for a circuit breaker?

Answer: 6-foot, 7-inches.

Code Reference: NEC 404.8(A)

The maximum is 6 ft 7 inches above the floor.

35) I have a vaulted ceiling in a closet. The walls do not go all the way to the ceiling. Can I put recessed cans in the vaulted ceiling? The bottom of the cans will be at least 6 feet above the clothes rod or shelf.

Answer: Yes with enclosed trim.

Code Reference: NEC 410.16(C)(3)

Recessed cans may be installed if the can light trim completely encloses the light source. Refer to 410.16 (C) on page 281.

36) Can I install a paddle fan in a 1st floor living room ceiling? The 100 year-old knob and tube wiring supplies the existing ceiling fixture. The ceiling is inaccessible from above as this is a 2 story house. Installing a new non-metallic sheathed cable is almost impossible.

Answer: No.

Code Reference: NEC 250.110, NEC 410.44 Exception No. 3

The metallic enclosure of the fan assembly must be grounded. There is an exception for luminaires. GFCI protection is required in this case.

37) I installed LED lighting in a cove for a new kitchen. The parts have a backwards "UR" prominently marked on them. The inspector rejected the installation. What is wrong with the installation? I don't think the lighting company would sell us anything we couldn't install properly.

Answer: UR does not equal listing.

Code Reference: NEC 411.3(B)

NEC 411.3 permits either a listed system or an assembly consisting of listed parts. "UR" means recognized component. This is not the same as "listed".

"Assembly of Listed Parts. A lighting system assembled from the following listed parts shall be permitted: (1) Low-voltage luminaires (2) Low-voltage luminaire power supply (3) Class 2 power supply (4) Low-voltage luminaire fittings (5) Cord (secondary circuit) for which the luminaires and power supply are listed for use (6) Cable, conductors in conduit, or other fixed wiring method for the secondary circuit The luminaires, power supply, and luminaire fittings (including the exposed bare conductors) of an exposed bare conductor lighting system shall be listed for use as part of the same identified lighting system."

When installing an "assembly of listed part", those parts do not include recognized components unless they have a separate listing mark. Recognized components do not undergo the same testing procedures as listed products.

38) How far do I have to install landscape lighting from an outside swimming pool?

Answer: 10-feet.

Code Reference: NEC 411.4(B)

In outdoor pool areas, low-voltage lighting systems shall be installed not less than 3 m (10 ft) horizontally from the nearest edge of the water, unless permitted by Article 680. Line voltage, landscape lighting may be installed between 5 and 10 feet from the edge of the water if it is GFCI protected. Once line voltage landscape lighting is installed beyond 10 feet from the edge of the pool it no longer requires GFCI protection unless the manufacturer or other circumstances require it.

39) I have installed a cooktop and 2 built in ovens. They are directly connected with ½" flexible conduit. The Inspector has now required me to install either a disconnect means at the appliances or a lock off device at the breaker. Is this correct?

Answer: Yes.

Code Reference: NEC 422.31(B)

Either a breaker lock or disconnecting means within sight of the cooking appliance is needed.

40) Do I use the HP of an AC unit to determine wire and circuit breaker size?

Answer: No. Use nameplate values.

Code Reference: NEC 422.31(B), NEC 440.22(A)

Use branch-circuit selection current value to pick conductor size. NEC 240.4(D) does not apply to motor loads. Use maximum fuse or circuit breaker size to pick the branch circuit protective device.

41) How long can a cord for a 120-volt room air conditioner be?

Answer: 10-feet.

Code Reference: NEC 440.6

The length is 10ft for a 120 volt, and 6ft for a 240 volt.

42) Is a "splash pad" considered a swimming pool? Are the bonding requirements of 680.26 applicable?

Answer: Yes. Yes.

Code Reference: NEC 680.2; NEC 680.26

A pool is defined as "Manufactured or field-constructed equipment designed to contain water on a permanent or semi permanent basis and used for swimming, wading, immersion, or therapeutic purposes." The hazards to the public are similar in that individuals are in contact with a wet, grounded surface. Equipotential bonding is required by NEC 680.26.

43) What is a "storable pool"? The pool has a vinyl liner. The supports are plastic but the wall is metal. Do the bonding requirements of NEC 680.26 apply?

Answer: Pool where liner or wall is nonmetallic. No.

Code Reference: NEC 680.2; NEC 680.30; NEC 680.26

"Storable Swimming, Wading, or Immersion Pool. Those that are constructed on or above the ground and are capable of holding water to a maximum depth of 1.0 m (42 in.), or a pool with nonmetallic, molded polymeric walls or inflatable fabric walls regardless of dimension."

The pool does not have to be taken down each year to meet the definition. The definition was revised several Code cycles ago to reflect this typical use.

“Electrical installations at storable pools shall comply with the provisions of Part I and Part III of this article.” - 680.26 is located in Part II of Article 680.

The bonding requirements of 680.26 do not apply to storable pools.

44) I have a storable pool. The inspector said I had to move it because there were underground power lines running to my house that were too close. Is this enforceable? Could you also let me know how close I can install receptacles?

Answer: Yes. 6-feet with conditions.

Code Reference: 680.10; 680.34

Underground wiring shall not be permitted under the pool or within the area extending 1.5 m (5 ft) horizontally from the inside wall of the pool unless this wiring is necessary to supply pool equipment permitted by this article. Where space limitations prevent wiring from being routed a distance 1.5 m (5 ft) or more from the pool, such wiring shall be permitted where installed in complete raceway systems of rigid metal conduit, intermediate metal conduit, or a nonmetallic raceway system. All metal conduit shall be corrosion resistant and suitable for the location. The minimum cover depth shall be as given in Table 680.10.

Receptacles shall not be located less than 1.83 m (6 ft) from the inside walls of a pool. In determining these dimensions, the distance to be measured shall be the shortest path the supply cord of an appliance connected to the receptacle would follow without piercing a floor, wall, ceiling, doorway with hinged or sliding door, window opening, or other effective permanent barrier.

45) I will be installing a packaged hot tub/lap pool outside a single family home. This unit will be installed above ground on a poured concrete slab. The unit requires 2 separate supply circuits. Are these 2 circuits required to be disconnected simultaneously? Can I install the underground PVC conduit under this hot tub/lap pool unit? Is there a requirement to have an emergency disconnect switch within sight of this unit?

Answer: No. No. No.

Code Reference: NEC 680.10, NEC 680.12, NEC 680.41

NEC 680.12, page 577. One or more disconnecting means is permitted for all utilization equipment except for lighting. Each disconnecting means shall simultaneously open the ungrounded conductors.

The disconnecting means has to be within sight of the pool equipment it is associated with.

NEC 680.10 IMC, RMC or PVC conduit is allowed under the unit where space limitations exist.

The requirement for an emergency stop that is both within sight and readily accessible to the users of the unit does not apply to spas or hot tubs associated with a one-family dwelling (NEC 680.41).

46) The inspector says to use Table 680.10 for underground installations around a swimming pool. We have been using 300.5 for years. This would mean the PVC would have to

be installed 18" below the finished surface rather than 4" or 12". Do we have to use Table 680.10?

Answer: Yes.

Code Reference: NEC 680.10; NEC 300.5

Table 680.10 shall be used where the conductors are under or within 5 ft of the inside walls of the pool.

47) Is a twist lock receptacle required for a swimming pool pump which is located 15' from the permanently installed swimming pool?

Answer: No.

Code Reference: NEC 680.22(A)(1)

According to 680.22(A)(1) a twist-lock receptacle is one of the conditions for a receptacle located between 6 and 10-feet from the pool.

48) We have an above ground pool with metal support legs and metal top cap. Would this need to comply with 680.26 (B)(2) to bond at four points?

Answer: No.

Code Reference: NEC 680. 26 (B)(2)(a)

It is likely to have a vinyl liner. It is a storable pool and it is not required to have equipotential bonding.

49) While installing a pool deck, the pool installer had us bond to the rebar next to the pool area out 3' from the water. On the second pour we went back to bond the rest of the rebar that is within 5' of the inside walls of the pool. Do we have to bond the steel in the first pour to the steel in the second?

Answer: Yes.

Code Reference: NEC 680.26(B)(5)

NEC 680.26(B) "Bonded Parts. The parts specified in 680.26(B)(1) through (B)(7) shall be bonded together using solid copper conductors, insulated covered, or bare, not smaller than 8 AWG or with rigid metal conduit of brass or other identified corrosion-resistant metal. Connections to bonded parts shall be made in accordance with 250.8. An 8 AWG or larger solid copper bonding conductor provided to reduce voltage gradients in the pool area shall not be required to be extended or attached to remote panelboards, service equipment, or electrodes."

"(5) Metal Fittings. All metal fittings within or attached to the pool structure shall be bonded. Isolated parts that are not over 100 mm (4 in.) in any dimension and do not penetrate into the pool structure more than 25 mm (1 in.) shall not require bonding."

50) Can a transfer switch be installed between the meter pedestal and an existing 200 amp main breaker panelboard for a single family home? If so, are there any issues that I should be aware of?

Answer: Yes. Yes.

Code Reference: NEC 702.4; NEC 702.5, NEC 230.89, NEC 230.82, NEC 230.94

The transfer switch must be service rated.

A transfer switch without overcurrent protections must be grouped with the Service Equipment
The transfer switch must meet the available short circuit rating requirements.

51) I have been asked to install a 20kw generator at a single family dwelling. I plan to install a manual transfer switch between a 200 amp circuit breaker in the meter pedestal and the 200 amp panelboard. Is this arrangement permitted?

Answer: Yes.

Code Reference: NEC 702.4(B)(1)&(2)

If a manual transfer switch is used, the user of the system is permitted to load shed. If an automatic transfer switch is used, the system has to be capable of supplying the full load, or automatically shed loads down to system capacity.

52) Someone told me that if the plumbers installed the "black" jacketed CSST that the bonding to the electrical system was not required. Is this statement true? Which manufacturers have this black CSST available?

Answer: Not an electrical Code requirement.

Code Reference: NEC 250.102(B)

Not an electrical code issue. The installer of the CSST must follow manufacturer's instructions.

53) Can I bury a gas line and an electric line in the same trench?

Answer: Yes.

Code Reference: None. Check with local utility

Utilities may have regulations.