

Question of the Month

[WAC 296-46B-940](#) and [942](#) requires all electricians and trainees to possess, wear, and visibly display their certificates while working in the electrical construction trade. What are the specific exceptions to visibly displaying the certificate? See the correct answer on Page 2.

AFCI Protection Requirements for Residential Smoke Detectors

Many questions have arisen about Arc-Fault Circuit-Interrupter (AFCI) protection requirements for branch circuits supplying residential smoke detectors. There is no exception in NEC® 210.12 allowing a 120-volt branch circuit supplying residential smoke detectors to be installed without AFCI protection. There are two informational notes in 210.12 that deal with power-supply requirements for smoke alarms installed in dwelling units, and fire alarm systems.

[NFPA 72](#), chapter 29 deals with single- and multiple-station alarms and household fire alarm systems. The requirements for the AC primary power source is found in chapter 29.6.3, and does not prohibit branch circuits supplying residential smoke detectors from being AFCI protected. Sub paragraph (5) states that smoke alarms powered by branch circuits protected by AFCIs or GFCIs shall have a secondary power source. The secondary power source is typically a battery backup, which is required by the local building inspection jurisdiction. Department of L&I electrical inspectors do not have jurisdiction to enforce requirements of NFPA 72 for battery backup. For other than residential single- and multiple-station alarms, power supply requirements for fire alarm systems are found in NEC® 760.41(B) and 760.121(B). Branch circuits supplying Non-Power-Limited and Power-Limited fire alarm equipment shall not be supplied through ground-fault circuit interrupters or arc-fault circuit interrupters. See NEC® 210.12(A), Exception for requirements for installing a non-AFCI protected fire alarm branch circuit.

Interconnected Electric Power Production Sources – Point of Connection – Part 1, Supply Side NEC® 705.12(A)

The rules for connecting inverter outputs from solar photovoltaic, fuel cell, or wind electric systems can be confusing and seem to change with each revision of the NEC®. The connection to a premises wiring system must be made in such a way that it does not overload the service conductors, feeders, tap conductors, or busbars, which are connected to multiple sources of supply. The point of connection rules were consolidated and relocated to NEC® 705.12 in 2011. These requirements were expanded in 2014 to include revised methods to determine busbar or conductor ampere ratings for feeders, taps, or busbars. Over the next few editions of the newsletter, we will discuss the various methods of connecting the output of an interconnected electric power production source in accordance with 705.12.

In this issue we will discuss basic requirements of the supply side connection. The advantage of a supply side connection is increased capacity limited only by the ampacity of the service. An electric power production source may be connected to the supply side of the service disconnecting means as permitted in 230.82(6). This may be difficult to achieve in an existing installation because a code compliant method of connecting ahead of the service disconnecting means must be installed. Some meter base manufacturers offer accessory lug kits for this purpose (See Figure 1). Utility requirements for this equipment may vary. Always consult the serving utility for their requirements before ordering or installing this equipment.

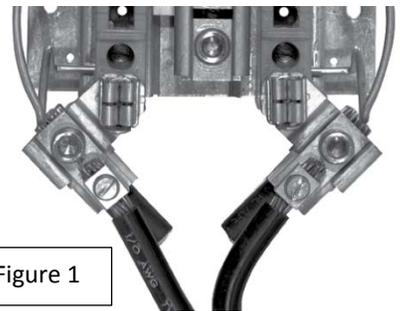


Figure 1

Safety Tip of the Month

Fire Prevention Week is October 5 – 11, 2014.

Working smoke alarms save lives.

Many people do not test their smoke alarms as often as they should. When there is a fire, smoke spreads fast. You need working smoke alarms to give you time and to get out.

Test yours every month!

Visit www.FPW.org.

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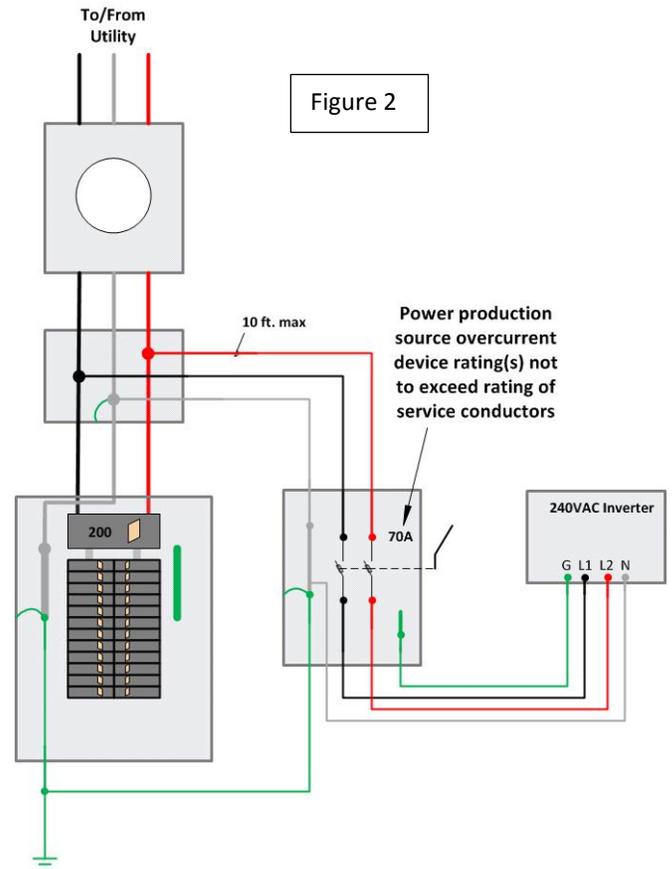
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A separate enclosure, such as a splice or tap box may be installed to provide a point at which to connect the power production source conductors to the service conductors (See Figure 2).

The sum of the ratings of all overcurrent devices of power production sources connected to a service cannot exceed the rating of the service. The disconnecting means for the interconnected power production source should be treated as an additional service in accordance with 230.2(A)(5). It does not count as one of the (up to six) disconnects of the main building service as allowed by 230.71, neither is it required to be grouped with the main service disconnect(s). The wiring methods, grounding, and bonding must be in accordance with Articles 230 and 250 as an additional service.

Overcurrent protection for power production source conductors connected in this manner must be located within 10 feet of the point where the conductors connect to the service in accordance with 705.31.

In installations where a supply side connection is made by connecting the power production source overcurrent device to a main lug service panelboard or switchboard, the sum of the ratings of all interconnected power source overcurrent devices must not be greater than the rating of the service equipment or service conductors. The power production source overcurrent device does not count as one of the main service disconnects. [Click here](#) for example of main lug service.



Answer to Question of the Month: WAC 296-46B-940(3): The certificate may be worn inside the outer layer of clothing when outer protective clothing (e.g. rain gear when working outside in the rain, arc flash, welding gear, etc.) is required. The certificate must be worn inside the protective clothing so that when the protective clothing is removed, the certificate is visible. A cold weather jacket or similar apparel is not protective clothing.

The certificate may be worn inside the outer layer of clothing when working in an attic or crawl space or when operating equipment (e.g. drill motor, conduit threading machine, etc.) where wearing the certificate may pose an unsafe condition for the individual. The certificate must be immediately available for examination at all times. When working as a certified electrician, the electrician must not display a training certificate. When supervising a trainee(s), the supervising electrician's certificate must be appropriate for the work being performed by the trainee(s).

Any person working as an electrician or trainee must also possess government issued photo identification and immediately present that identification when requested by the inspector. Visibly displaying your certificate while performing an electrical installation allows the public, customers, and other workers to have the knowledge that properly certified persons are the ones doing the work.

Wear your certificate with pride – you earned it!

Ugly picture: Click on the picture to open a larger image. Even while off duty, electrical inspectors remain vigilant, and observant for electrical safety violations. Technical Specialist Rod Mutch noticed this little gem while out of state on vacation. Code violations include: NEC® 334.12(A)(1), 334.10(3), 300.15. If you know where this is located, email Rod at ElectricalProgram@lni.wa.gov. The first person to identify the town wins. The prize? A congratulatory call and a fishing tale or two from Rod!



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