

## Electrical Board Opportunity

There is an opening on the Electrical Board for the Telecommunications Utility representative. I would like to thank Dennis Townsend for his service to the citizens of Washington in his position on the board. Anyone interested in applying for this position must be an employee or officer of a facilities-based telecommunications service provider regulated by the Washington state utilities and transportation commission. The electrical board meets four times per year and plays a vital role in advising the department on all matters concerning Washington's electrical laws, rules, and policies. You can submit an application using the form on the Governor's [Boards & Commissions website](#). Application must be made using the Governor's form. Send your resume and any additional information you would like considered, such as letters of recommendation in a separate email to the Boards and Commissions mailbox at: [GovernorBoardsandCommissions@gov.wa.gov](mailto:GovernorBoardsandCommissions@gov.wa.gov). If you have questions about the position or the Electrical Board, contact Bethany Rivera at 360-902-5249.

## Safety Tip of the Month

As an electrical professional, be alert for electrical hazards on the jobsite that may injure or kill unsuspecting co-workers. Never leave an energized electrical panel without a cover. Make sure receptacles used for temporary power are GFCI protected, and be on the lookout for improper temporary wiring splices and damaged cords or tools.

## Classification of a Building or Area

Who determines the classification of a building or space (e.g. place of assembly, occupancy, hazardous location)?

The phrase "Authority Having Jurisdiction" (AHJ) is used in NFPA documents in a broad manner, since jurisdictions and approval agencies vary, as do their responsibilities. The 2014 NEC says the AHJ is the organization, office, or individual responsible for approving equipment, materials, an installation, or a procedure.

Where public safety is concerned, the AHJ may be a federal, state, local, or other regional department or individual such as a fire chief, fire marshal, health department, building official, electrical inspector, or others having the authority and responsibility in statute or ordinance.

Department electrical inspectors will not define a building's classification. If the design and construction methods of the project raise doubts about classification (e.g., assisted living, nursing home, patient care areas, child care, institutional occupancy, educational occupancy, assembly occupancy for 100 or more persons, any hazardous location, etc.), the electrical inspector may require documentation from the AHJ regulating the occupancy. Likewise, the electrical inspector may require documentation from the owner verifying that a building will not be used in a specific manner before the building electrical construction and wiring methods can be approved.

## NEC® 210.63 Heating, Air-Conditioning, and Refrigeration Equipment Receptacle Outlet

Since the 2002 edition, NEC® 210.63 has required a 125-volt, single-phase, 15- or 20-ampere rated receptacle outlet to be installed at an accessible location for the servicing of heating, air-conditioning, and refrigeration equipment. The receptacle shall be located on the same level and within 25 feet of the heating, air-conditioning, and refrigeration equipment. The receptacle shall not be connected to the load side of the equipment disconnecting means. An exception states that a receptacle shall not be required at one- and two-family dwellings for the service of evaporative (swamp) coolers.

This requirement must be met on installations where the branch circuit or feeder supplying heating, air-conditioning, and refrigeration equipment is a new installation or where a unit is relocated further than 25 feet from a service outlet meeting the requirements of 210.63. When the work is limited to replacement of a heating, air-conditioning, or refrigeration unit using the existing branch circuit, the service outlet in 210.63 is not required.

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## Nonmetallic-Sheathed Cables in Contact with Spray-Foam Insulation

Use of polyurethane spray-foam insulation in residential construction is very prevalent today. The question arises frequently about whether nonmetallic-sheathed cable is allowed to be in contact with, or encased in spray-foam insulation.

The first issue is one of access to the cables to perform a visual inspection. [WAC 296-46B-010\(4\)](#) states “Electrical wiring or equipment subject to this chapter must be sufficiently accessible, at the time of inspection, to allow the inspector to visually inspect the installation to verify conformance with the NEC and any other electrical requirements of this chapter...”. Until all of the wiring in the areas that will be covered with spray-foam insulation has been inspected and approved for cover by the electrical inspector, the wiring must not be covered with spray-foam insulation or anything else that would conceal the conductors.

There are two other concerns with encasing nonmetallic-sheathed cables with spray-foam insulation. They are:

- 1) Potential reduction in heat dissipation properties of the conductors causing them to reach an operating temperature above that for which they are designed. Research has been conducted by the University of Toronto and published in [Bulletin Number 95](#) by the National Electrical Manufacturer’s Association (NEMA) which states:
  - The National Electrical Code® (NEC®) does not prohibit installing Type NM-B cable in spray-foam insulation.
  - The NEC® contains requirements for derating conductors when bundled together. These, and all other Code requirements, must be followed.
  - The University of Toronto study indicates that the conductors will not be subjected to objectionable temperatures even under very severe conditions.
  - Type NM-B cable is routinely installed within heavily insulated walls, ceilings, and floors with no reported detrimental effects.
- 2) Potential deteriorating effects of the polyurethane spray-foam insulation on the nonmetallic-sheathed cables. NEC® 110.11 states: “Unless identified for use in the operating environment, no conductors or equipment shall be located in damp or wet locations; where exposed to gases, fumes, vapors, liquids, or other agents that have a deteriorating effect on the conductors or equipment; or where exposed to excessive temperatures.”
  - The NEMA bulletin states, “The manufacturers of Type NM-B cable allow encasing the cable in foam insulation”.
  - Research has been conducted by Southwire, (a manufacturer of nonmetallic-sheathed cable) which states, “Based on product information sheets and field information regarding typical residential and industrial spray-foam insulation products and contact with Type NM-B cable, there does not appear to be a reason to suspect that any adverse reactions would take place between these insulation products and Type NM-B cable as long as the insulation products are installed according to the manufacturer’s directions. Neither the UL listing nor the operational integrity of the cable will be compromised by the contact.”

Summary: Based on the above findings, the department will not prohibit the encasement of nonmetallic-sheathed cables (i.e., Type NM-B, communication cables, community antenna TV, fiber, power limited circuit cable, power limited fire alarm cable, network powered broadband, USE and SE-R, tray cable and other non-metallic cables used in wiring structures), with polyurethane spray-foam insulation provided the spray-foam insulation is applied in accordance with the manufacturer’s instructions after the nonmetallic-sheathed cables have been visually inspected and approved for cover.

**Ugly Picture:** *If viewing this document online, click on the picture to open a larger image.* This fire appeared to have started in the junction box for this light fixture. Improper connections or possibly oversized lamps may have started the heating that eventually caused the fire.



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