

**DIVISION 305  
ELECTRICAL CODES AND STANDARDS**

**The Electrical Specialty Code — In General**

**918-305-0000****Existing Electrical Installations**

Wiring installation in existing buildings in the State of Oregon that complied with the minimum electrical safety code standards, **National Electrical Code** or **Oregon Electrical Specialty Code** in effect at the time of installation shall not be considered in violation of the current minimum **Electrical Specialty Code** standards, unless the use or occupancy of the building is changed requiring different methods, alterations, or additions.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: DC 10, f. 4-13-72, ef. 5-1-72; DC 12-1981, f. 9-29-1981, ef. 10-1-81; Renumbered from 814-022-0135; BCD 19-1996, f. 9-17-96, cert. ef. 10-1-96, Renumbered from 918-260-0280; BCD 19-2002, f. 8-1-02, cert. ef. 10-1-02

**918-305-0005****Interpretations**

All interpretations dated prior to April 1, 2008, issued by the Building Codes Division, Electrical Safety Section, are withdrawn.

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: BCD 19-2002, f. 8-1-02, cert. ef. 10-1-02; BCD 23-2004, f. 12-15-04, cert. ef. 4-1-05; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

**918-305-0010****Scope of the Electrical Specialty Code**

The **Electrical Specialty Code** applies to all nonexempt electrical installations except as covered by the electrical provisions of the **Oregon Residential Specialty Code** and is inspected by an **Electrical Specialty Code** inspector.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: BCD 19-1996, f. 9-17-96, cert. ef. 10-1-96; BCD 19-2002, f. 8-1-02, cert. ef. 10-1-02; BCD 23-2004, f. 12-15-04, cert. ef. 4-1-05

**918-305-0020****Governing Codes**

The applicable **Electrical Specialty Code** for electrical installations and alterations is:

(1) The Electrical Specialty Code provisions in effect at the earlier of a request for plan review or application for a permit; or

(2) At the option of the applicant, the current Electrical Specialty Code.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 470.730

Stats. Implemented: ORS 479.730

Hist.: BCD 19-1996, f. 9-17-96, cert. ef. 10-1-96

**918-305-0030****Other Codes or Publications that Impact Electrical Installations**

Other codes and publications that impact electrical installations include, but are not limited to those listed below:

(1) Chapter 9 of the **Oregon Structural Specialty Code** (OSSC) as adopted in OAR chapter 918, division 460 relating to fire protection systems and Chapter 3 of the **Oregon Residential Specialty Code** as adopted in OAR chapter 918, division 480 relating to smoke alarm installations.

(2) ORS 455.420 requiring individual electric meters for dwelling units.

(3) Chapter 13 of the **Oregon Structural Specialty Code** as adopted in OAR chapter 918, division 460 which addresses the energy efficiency issues of motors, electric lighting and other electric equipment; and

(4) Chapter 16 and 17 of the **Oregon Structural Specialty Code** as adopted in OAR chapter 918, division 460 which addresses the seismic requirements of nonstructural components and special inspection requirements.

(5) Publications and requirements of the serving utility.

(6) Public Law 101-336, the Americans with Disabilities Act, Part III; Department of Justice Regulations of Friday, July 26, 1991; 28 CFR Part 36, as amended January 1, 1995, including Americans with Disabilities Act Accessibility Guidelines (ADAAG) and Public Law 100-430, the Fair Housing Act and the regulations adopted thereunder.

(7) Chapter 11 of the **Oregon Structural Specialty Code** which relates to the Americans with Disabilities Act for mounting height requirements for electrical and communication receptacles located in affected buildings and structures.

(8) The interconnection of all net-metering facilities and solar photovoltaic systems operated as interconnected power production sources shall comply with the **Oregon**

**Electrical Specialty Code** as adopted in OAR 918-305-0100. In addition, the interconnection of all net-metering facilities utilizing solid-state inverters shall comply with OAR 860-039 Net Metering.

(9) **Oregon Manufactured Dwelling and Park Specialty Code** as adopted in OAR chapter 918, division-500. The electrical installations shall be in accordance with the requirements of the **Oregon Electrical Specialty Code**.

(10) The electrical portions of the installation or product standards identified in OAR 918-306-0005. These standards are informational only and are to be used to clarify code intent. They may be used as installation guides when not specifically referenced or covered in the **Oregon Electrical Specialty Code**. Examples include, but are not limited to, the electrical sections of NFPA 20, NFPA 54, NFPA 99, NFPA 101, NFPA 110, NFPA 780 and NFPA 820.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730 & 757.262

Hist.: DC 13-1987, f. & ef. 5-1-87; Renumbered from 814-022-0610; BCA 17-1990, f. 6-27-90, cert. ef. 7-1-90; BCA 12-1993, f. 6-23-93, cert. ef. 7-1-93; BCD 19-1996, f. 9-17-96, cert. ef. 10-1-96; Renumbered from 918-290-0020; BCD 1-2000, f. 1-6-00, cert. ef. 4-1-00; BCD 12-2000, f. 6-3-00, cert. ef. 7-1-00; BCD 23-2000, f. 9-29-00, cert. ef. 10-1-00; BCD 19-2002, f. 8-1-02, cert. ef. 10-1-02; BCD 23-2004, f. 12-15-04, cert. ef. 4-1-05; BCD 29-2005, f. 12-30-05, cert. ef. 1-1-06; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

### 918-305-0100

#### Code Adoption of Electrical Specialty Code

(1) The **Electrical Specialty Code** shall consist of the following, adopted by this reference:

(a) **NFPA 70-2008, National Electrical Code (NEC), 2008 Edition**, effective April 1, 2008, subject to the amendments adopted in OAR 918-305-0105 to 918-305-0320. See Table 1-E;

(b) **IEEE C2-2002, National Electrical Safety Code (NESC), 2002 Edition**; and

(c) **Oregon Elevator Specialty Code** adopted by the Electrical and Elevator Board in OAR 918-400-0455.

(2) In the event of a conflict between the NEC and NESC requirements, the NEC requirement, as amended in subsection (1)(a) of this rule, shall apply.

(3) The electrical code requirements for residential dwellings are adopted under the **Oregon Residential Specialty Code** in OAR chapter 918, division 480.

(4) As used in this rule:

(a) "ANSI" is the American National Standards Institute;

(b) "ASME" is the American Society of Mechanical Engineers;

(c) "IEEE" is the Institute of Electrical and Electronics Engineers; and

(d) "NFPA" is the National Fire Protection Association.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: DC 13-1987, f. & ef. 5-1-87; Renumbered from 814-022-0600; BCA 17-1990, f. 6-27-90, cert. ef. 7-1-90; BCA 12-1993, f. 6-23-93, cert. ef. 7-1-93; BCD 19-1996, f. 9-17-96, cert. ef. 10-1-96; Renumbered from 918-290-0010; BCD 1-2000, f. 1-6-00, cert. ef. 4-1-00; BCD 19-2002, f. 8-1-02, cert. ef. 10-1-02; BCD 23-2004, f. 12-15-04, cert. ef. 4-1-05; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

### Amendments to the NEC

#### 918-305-0105

##### Amend Article 90 Introduction

(1) Section 90.4 Enforcement. Amended as follows:

(a) Amend 90.4 by inserting the following after the second paragraph: "Requests for special permission shall be made in writing to the authority having jurisdiction. Special permission must be granted in writing by the authority having jurisdiction and shall be obtained prior to the start of the electrical installation."

(A) Insert the following after Section 90.4: "Section 90.4(A) Where the **2008 NEC** requires electrical products to be "listed" or "labeled", the words "listed or "labeled" shall have the same meaning as "certified electrical product" under ORS 479.530.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: BCD 23-2004, f. 12-15-04, cert. ef. 4-1-05; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

#### 918-305-0110

##### Amend Article 100 Definitions

Amend Article 100 by adding the following definition: "Fire protection system means approved devices, equipment and systems or combinations of systems used to detect a fire, activate an alarm, extinguish a fire, control or manage smoke and products of a fire or any combination thereof."

Stat. Auth.: ORS 479.730  
 Stats. Implemented: ORS 479.730  
 Hist.: BCD 19-1996, f. 9-17-96, cert. ef. 10-1-96; BCD 1-2000, f. 1-6-00, cert. ef. 4-1-00; BCD 19-2002, f. 8-1-02, cert. ef. 10-1-02; BCD 23-2004, f. 12-15-04, cert. ef. 4-1-05; BCD 29-2005, f. 12-30-05, cert. ef. 1-1-06; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

### 918-305-0120

#### Amend Article 110.8 Requirements for Electrical Installations

(1) Insert the following after Section 110.8 Wiring Methods:

(a) For the purpose of this article, "schools" are buildings used for education purposes, excluding administrative offices, dormitories or detached utility buildings not used for education or training.

(b) Except where a specific wiring method is required by code, raceway systems, type MI, MC and AC cable or manufactured metallic wiring assemblies shall be the wiring method in the following:

(A) Schools, universities, colleges, child care centers and correctional facilities as defined by the **Oregon Structural Specialty Code**;

(B) Hospitals as defined in NEC Article 517 ; and

(C) Group I-2 Occupancies and Group E Occupancies as defined in Chapter 3 of the adopted **Oregon Structural Specialty Code**; and

(D) SR Occupancies classified as SR 2 as defined in Appendix SR of the adopted **Oregon Structural Specialty Code**.

(2) The requirements of subsection (1)(b) of this rule do not apply to:

(a) Spaces in a retail center used for adult training or educational purposes;

(b) SR Occupancies classified as SR 1, SR 3 or SR 4 as defined in Appendix SR or R occupancies classified in Chapter 3 of the adopted **Oregon Structural Specialty Code**;

(c) Foster homes providing family-type care only;

(d) Class 2 and 3 systems installed in conformity with Articles 725, 727, 760, 770, 780 and Chapter 8 of the **2008 NEC**; and

(e) Power limited fire protection alarm systems.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 479.730  
 Stats. Implemented: ORS 479.730  
 Hist.: DC 13-1987, f. & ef. 5-1-87; Renumbered from 814-022-0620; BCA 17-1990, f. & cert. ef. 6-27-90; BCA 12-1993, f. 6-23-93, cert. ef. 7-1-93; BCD 19-1996, f. 9-17-96, cert. ef. 10-1-96; Renumbered from

918-290-0030; BCD 1-2000, f. 1-6-00, cert. ef. 4-1-00; BCD 19-2002, f. 8-1-02, cert. ef. 10-1-02; BCD 23-2004, f. 12-15-04, cert. ef. 4-1-05; BCD 29-2005, f. 12-30-05, cert. ef. 1-1-06; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

### 918-305-0130

#### Amend Article 210 Branch Circuits

The following provisions of Articles 210 through 225 are amended:

(1) Section 210.8 Ground-Fault Circuit-Interrupter Protection for Personnel. Amended as follows:

(a) Amend 210.8(A) by inserting the following exception: "Exception: A receptacle supplying only a permanently installed fire alarm or burglar alarm system shall not be required to have ground-fault circuit-interrupter protection."

(A) Amend Section 210.8(A) by inserting the following: "FPN: See 760.41(B) and 760.121(B) for power supply requirements for fire alarm systems."

(b) Amend 210.8(A)(2) by inserting the following:

(A) "Exception No. 1 to (2): A single receptacle for each appliance within a dedicated space that, in normal use, is not easily moved from one place to another, that is cord-and-plug connected, and the receptacle is labeled as 'not GFCI protected.'"

(B) "Exception No. 2 to (2): Receptacle ground fault protection shall not be required for a dedicated branch circuit serving a single receptacle for sewage or sump pumps."

(C) "Receptacles installed under the exceptions to 210.8(A)(2) shall not be considered as meeting the requirements of 210.52(G)."

(c) Amend 210.8(A)(4) by inserting the following: "Exception to (4): Receptacle ground fault protection shall not be required for a dedicated branch circuit serving a single receptacle for sewage or sump pumps."

(d) Delete the Fine Print Note and exception to 210.8(A)(5) and replace exception with the following:

(A) "Exception No. 1 to (5): A single receptacle for each appliance within a dedicated space that, in normal use, is not easily moved from one place to another, that is cord-and-plug connected, and the receptacle is labeled as 'not GFCI protected.'"

(B) "Exception No 2 to (5): Receptacle ground fault protection shall not be required for a dedicated branch circuit serving a single receptacle for sewage or sump pumps."

(e) Amend Section 210.8(A)(7) by inserting:

(A) "or other sinks" after the clause "laundry utility and wet bar sinks" in the first sentence of 210.8(A)(7).

(B) "Exception to (7): A single receptacle for each appliance within a dedicated space that, in normal use, is not easily moved from one place to another, that is cord-and-plug connected, and the receptacle is labeled as 'not GFCI protected.'"

(2) Section 210.12 Arc-Fault Circuit-Interrupter Protection. Amended as follows:

(a) Amend Section 210.12(B) to read: "(B) Dwelling Units. All 120-volt, single phase, 15- and 20-ampere branch circuits supplying outlets installed in dwelling unit bedrooms shall be protected by a listed arc-fault circuit interrupter, combination-type, installed to provide protection of the branch circuit."

(b) Amend Section 210.12(B) by adding the following: "Exception No. 3: Electrical outlets dedicated for the use of single station smoke alarms (interconnected or not), nurse call, or medical equipment shall not be required to have AFCI protection."

(3) Section 210.52 Dwelling Unit Receptacle Outlets. Amended as follows:

(a) Amend Section 210.52 by adding: "(I) Alcoves. In dwelling units, alcoves shall have at least one receptacle installed. These outlets shall be in addition to the required hall outlets. As used in this subsection an Alcove is an area extending from, and returning to, the common wall of hallways, foyers, entries, and landings with a depth of not less than 2 ft. or more and a length of not less than 3 ft."

(b) Amend Figure 210.52(C)(1) Determination of Area Behind a Range, or Counter-Mounted Cooking Unit or Sink. Amend figure to read: "Space exempt from the wall line if  $X < 900\text{mm}$  (36 in.)."

(4) Section 225.36 Suitable for Service Equipment. Amend 225.36 by adding the following: "Exception No. 2: In single light pole installations that have the connections to the light pole circuit made in a location accessible only to qualified persons, certified in-line fuse holders shall be allowed, subject to special permission."

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: BCD 19-1996, f. 9-17-96, cert. ef. 10-1-96; BCD 15-2001(Temp), f. & cert. ef. 11-26-01 thru 5-24-02; BCD 19-2002, f. 8-1-02, cert. ef. 10-1-02; BCD 23-2004, f. 12-15-04, cert. ef. 4-1-05; BCD 29-2005, f. 12-30-05, cert. ef. 1-1-06; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

### **918-305-0150**

#### **Amend Article 230 Services**

(1) Section 230.40 Number of Service-Entrance Conductor Sets. Amend 230.40 Exception No. 3 by adding: "When there are continuous metallic paths bonded to the grounding system in the buildings involved, a disconnect, a separate grounded conductor and equipment grounding conductor shall be installed to meet the provisions of Article 225."

(2) Section 230.43 Wiring Methods for 600 Volts, Nominal, or Less. Amend 230.43 by adding the following to the end of the first paragraph: "Exception:

Items (13) and (15) are limited to traffic control devices and highway lighting poles."

(3) Section 230.70 General. Amend 230.70(A)(1) by adding the following: "Exception: In existing installations where only the service panel or meter base is changed and the existing service conductors meet the ampacity requirements, or the existing conduit is of sufficient size to install new conductors, the panel may remain at the present location providing all requirements of Sections 110.26 and 240.24 are met. This exception does not require a main disconnect located nearest the point of entry."

(4) Section 230.95 Ground-Fault Protection of Equipment. Amend 230.95(C) to read: "The ground-fault protection system shall be performance tested when first installed on the site. The test shall be conducted in accordance with instructions provided with the equipment. This test shall be performed by persons having proper training and experience required to perform and evaluate the results of such performance testing. A written record of this test shall be made available to the authority having jurisdiction. This report shall be signed by the person(s) performing this test."

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: DC 13-1987, f. & ef. 5-1-87; BCA 13-1989, f. & cert. ef. 5-24-89; Renumbered from 814-022-0630; BCA 17-1990, f. & cert. ef. 6-27-90; BCA 12-1993, f. 6-23-93, cert. ef. 7-1-93; BCD 19-1996, f. 9-17-96, cert. ef. 10-1-96; Renumbered from 918-290-0040; BCD 1-2000, f. 1-6-00, cert. ef. 4-1-00; BCD 19-2002, f. 8-1-02, cert. ef. 10-1-02; BCD 23-2004, f. 12-15-04, cert. ef. 4-1-05; BCD 29-2005, f. 12-30-05, cert. ef. 1-1-06; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

### **918-305-0160**

#### **Amend Article 250 Grounding**

(1) Section 250.24 Grounding Service-Supplied Alternating-Current Systems. Amended as follows:

(a) Amend 250.24(A)(1) by inserting the following: "Exception: When the electric utility has installed a ground fault protection system ahead of the customer's service equipment, no bonding or electrical connection from the grounding electrode system shall be made to the grounded service conductor on the load side of the utility ground fault sensing device. The neutral or grounded service conductor, however, shall be grounded on the line side of the first ground fault sensor in a manner otherwise required at the customer's service equipment. The grounding electrode conductor shall be run to an equipment grounding bus or terminal at the service equipment as long as the equipment grounding conductor and the grounded neutral conductor are not connected to each other at this point. The on-site ground fault test required by Section 230.95 shall not be performed

prior to the above installation requirements. Warning signs shall be installed."

(b) Amend Section 250.24(B) by inserting the following after Exception No. 2: "Exception No. 3. When the electric utility has installed a ground fault protection system ahead of the customer's service equipment and if the operation of the ground fault system relies on the absence of the main bonding jumper at the service equipment but includes an otherwise satisfactory main bonding jumper as a part of its sensing device, the main bonding jumper shall not be installed at the service equipment which would otherwise bond the grounded service conductor to the equipment ground. The on-site ground fault test required by Section 230.95 shall not be performed prior to the above installation requirements. Warning signs shall be installed."

(2) Section 250.32 Buildings or Structures Supplied by a Feeder(s) or Branch Circuits(s). Amended as follows:

(a) Amend the first sentence of 250.32(A) to read: "Building(s) or structure(s) supplied by feeder(s) or branch circuits(s) shall have a grounding electrode or grounding electrode system installed in accordance with 250.50."

(b) Amend 250.32(B) to read: "Grounded Systems. For a grounded system at the separate building or structure, the connection to the grounding electrode and grounding or bonding equipment, structures, or frames required to be grounded or bonded shall comply with either 250.32(B)(1) or (B)(2) of the **2005 OESC**."

(c) Amend 250.32(D) to read as follows: "Where one or more disconnecting means supply one or more additional buildings or structures under single management, and where these disconnecting means are located remote from those buildings or structures in accordance with the provisions of 225.32, Exceptions Nos. 1 and 2, all of the conditions of the **2005 OESC** Section 250.32(D) shall be met."

(3) Section 250.52 Grounding Electrodes. Amended as follows:

(a) Amend 250.52(A)(3) by inserting the following: "In new construction with steel reinforced concrete footings, a concrete-encased grounding electrode connected to the grounding electrode system is required. The installation shall meet the requirements of Section 250.50. When a concrete encased electrode system is used, a minimum size of 1/2-inch reinforcing bar or rod shall be stubbed up at least 12 inches above the floor plate line or floor level, whichever is the highest, near the service entrance panel location."

(b) Amend 250.52(B)(2) by inserting the following: "(3) In existing electrical installations, when a service change or upgrade occurs, an existing metal underground water pipe shall not be used unless the metal underground water pipe has been verified as

suitable for continued use as a grounding electrode. An existing metal underground water pipe shall be bonded to the new grounding electrode system as required by 250.104(A)."

(4) Section 250.56 Resistance of Rod, Pipe, and Plate Electrodes. Amend by inserting the following at the end of the first sentence of 250.56: "For permanent installations where the only grounding electrode is a single ground rod, pipe or plate, documented verification of 25 ohms or less shall be provided. Documented verification shall be done by a recognized method, provided by the installer, and made available for the electrical inspector."

(5) Section 250.94 Bonding for Other Systems. Amend the first sentence of 250.94 to read: "An intersystem bonding termination or exposed and supported length of # 6 bare copper conductor for connecting intersystem bonding and grounding conductors required for other systems shall be provided external to enclosures at the service equipment and at the disconnecting means for any additional buildings or structures."

(6) Section 250.118 Types of Equipment Grounding Conductors. Amend by inserting the following after 250.118(14): "Where metallic conduit is installed on roof tops, an equipment grounding conductor shall be provided within the raceway and sized per Section 250.122."

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: DC 13-1987, f. & ef. 5-1-87; Renumbered from 814-022-0660; BCA 17-1990, f. & cert. ef. 6-27-90; BCA 12-1993, f. 6-23-93, cert. ef. 7-1-93; BCD 19-1996, f. 9-17-96, cert. ef. 10-1-96; Renumbered from 918-290-0070; BCD 1-2000, f. 1-6-00, cert. ef. 4-1-00; BCD 19-2002, f. 8-1-02, cert. ef. 10-1-02; BCD 23-2004, f. 12-15-04, cert. ef. 4-1-05; BCD 29-2005, f. 12-30-05, cert. ef. 1-1-06; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

### **918-305-0165**

#### **Amend Article 334 Nonmetallic-Sheathed Cable: Types NM, NMC, and NMS**

(1) Section 334.12 Uses Not Permitted. Amend 334.12(A)(2) by inserting the following exception: "Exception: Types NM, NMC, and NMS cables shall be permitted where installed in accordance with 334.15."

(2) Section 334.15 Exposed Work. Amended as follows:

(a) Amend 334.15(B) by adding the following to the end of the Section: "Exposed nonmetallic sheathed cable shall be protected where it is installed horizontally less than 8 feet above the floor. Exposed nonmetallic sheathed cable less than 8 feet above the floor that enters the top or bottom of a panelboard shall be protected from physical damage by conduit, raceway, 1/2-inch plywood or 1/2-inch drywall."

(b) Amend 334.15(C) by deleting "and crawlspaces" from the subsection heading.

(c) Amend the first sentence of 334.15(C) to read: "Where cable is run at angles with joists in unfinished basements, it shall be permissible to secure cables not

smaller than two 6 AWG or three 8 AWG conductors directly to the lower edge of the joists.”

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: BCD 19-2002, f. 8-1-02, cert. ef. 10-1-02; BCD 23-2004, f. 12-15-04, cert. ef. 4-1-05; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

### 918-305-0180

#### Amend Article 394 Concealed Knob-and-Tube Wiring

Section 394.12 Uses Not Permitted. Add the following to the end of Section 394.12: Exception: The provisions of Section 394.12 shall not be construed to prohibit the installation of loose or rolled thermal insulating materials in spaces containing existing knob-and-tube wiring, provided all the following conditions are met:

(1) The visible wiring shall be inspected by a certified electrical inspector or a general supervising electrician employed by a licensed electrical contractor.

(2) All defects found during the inspection shall be repaired prior to the installation of insulation.

(3) Repairs, alterations or extensions of or to the electrical systems shall be inspected by a certified electrical inspector.

(4) The insulation shall have a flame spread rating not to exceed 25 and a smoke density not to exceed 450 when tested in accordance with ASTM E84-91A 2005 Edition. Foamed in place insulation shall not be used with knob-and-tube wiring.

(5) Exposed splices or connections shall be protected from insulation by installing flame resistant, non-conducting, open top enclosures which provide three inches, but not more than four inches side clearances, and a vertical clearance of at least four inches above the final level of the insulation.

(6) All knob-and-tube circuits shall have overcurrent protection in compliance with the 60 degree C column of Table 310-16 of NFPA 70-2008. Overcurrent protection shall be either circuit breakers or type S fuses. The type S fuse adapters shall not accept a fuse of an ampacity greater than permitted in Section 240.53.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: BCA 12-1993, f. 6-23-93, cert. ef. 7-1-93; BCD 19-1996, f. 9-17-96, cert. ef. 10-1-96; Renumbered from 918-290-0085; BCD 1-2000, f. 1-6-00, cert. ef. 4-1-00; BCD 19-2002, f. 8-1-02, cert. ef. 10-1-02; BCD 23-2004, f. 12-15-04, cert. ef. 4-1-05; BCD 29-2005, f.

12-30-05, cert. ef. 1-1-06; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

### 918-305-0190

#### Amend Articles 400 Flexible Cords and Cables through 406 Receptacles, Cord Connectors, and Attachment Plugs (Caps)

(1) Section 400.7 Uses Permitted. Amend Section 400.7 by adding the following: “(11) Listed assemblies of fixtures and controllers, approved by the Federal Aviation Administration.”

(2) Section 406.11 Tamper-Resistant Receptacles in Dwelling Units. Amend 406.11 by adding the following: “Non-tamper resistant receptacles shall be permitted until October 1, 2008.”

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: DC 13-1987, f. & ef. 5-1-87; Renumbered from 814-022-0680; BCA 17-1990, f. & cert. ef. 6-27-90; BCA 12-1993, f. 6-23-93, cert. ef. 7-1-93; BCD 19-1996, f. 9-17-96, cert. ef. 10-1-96; Renumbered from 918-290-0090; BCD 1-2000, f. 1-6-00, cert. ef. 4-1-00; BCD 19-2002, f. 8-1-02, cert. ef. 10-1-02; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

### 918-305-0205

#### Amend Article 422 Appliances through 424 Fixed Electric Space-Heating Equipment

(1) Section 422.34 Unit Switch(es) as Disconnection Means. Amend 422.34 by adding the following to the end of the section: “Unit switches on ranges, ovens and dishwashers shall not be considered the disconnect required by this section.”

(2) Section 424.3 Branch Circuits. Amend 424.3(A) by adding the following to the end of the subsection: “New equipment may be connected to an existing circuit that does not serve fixed electric space-heating equipment. The new equipment may be reconnected to that circuit, provided the equipment being installed has an ampere rating of not more than 50 percent of the branch circuit rating.”

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: f. 8-1-02, cert. ef. 10-1-02; BCD 19-2002, f. 8-1-02, cert. ef. 10-1-02; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

### 918-305-0210

#### Amend Article 500.8 Equipment

Article 500.8(A) is amended to read: “Suitability of identified equipment” as used in Article 500.8 (A) means that equipment meets the requirements of ORS 479.760.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: BCD 19-1996, f. 9-17-96, cert. ef. 10-1-96; BCD 1-2000, f. 1-6-00, cert. ef. 4-1-00; BCD 19-2002, f. 8-1-02, cert. ef. 10-1-02; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

### 918-305-0250

#### **Amend Article 620 Elevators, Dumbwaiters, Escalators, Moving Walks, Wheelchair Lifts and Stairway Chair Lifts**

(1) Section 620.1 Scope. Amend 620.1 by deleting FPN No. 1 and replacing it with the following: "FPN No.1: For further information, see the **Oregon Elevator Specialty Code** as adopted in OAR chapter 918, division 400."

(2) Section 620.2 Definitions. Amend 620.2 by adding: "Separate Branch Circuit. A circuit dedicated solely for the purpose intended without other devices, systems or equipment connected to the circuit."

(3) Section 620.5 Working Clearances. Amend 620.5 by adding: "Where machine room doors swing inward, the arc of the door shall not encroach on those clearances required by Section 110.26(A)."

(4) Section 620.11 Insulation of Conductors. Amend 620.11(A) to read: "The conductors of the hoistway door interlocks from the hoistway riser shall be flame-retardant and suitable for a temperature of not less than 200° C (392°F). Conductors shall be Type SF or equivalent except where not required by the Elevator Safety Code (ASME A17.1)."

(5) Section 620.37 Uses Permitted. Amend 620.37(A) by adding: "Conduits and raceways necessary for the connection of such devices shall only enter hoistways and machine rooms to the extent necessary to connect the device(s) attached thereto."

(6) Section 620.51 Disconnecting Means. Amended as follows:

(a) Amend 620.51(B): "When provided, this disconnecting means shall be located in the elevator control room or control space. The installation shall comply with the requirements of NFPA 72 as adopted in OAR 918-306-0005."

(b) Amend 620.51(C) by adding: "Where machine rooms are provided, the disconnecting means required by Section 520.51 shall be located within 610 mm (24 inches) of the open side of the machine room access door. Where more than one disconnect is required for a multi-car group, the disconnects shall be adjacent to each other with the first disconnect located within 610 mm (24 inches) of the open side of the machine room access door. Measurement shall be taken from the edge of the disconnect nearest the machine room door."

(A) Amend 620.51(C)(4) to read: "On platform lifts and stairway chairlifts, the disconnecting means shall be located within sight of the motor controller or lift and within 1.83 m (six feet) of the

motor controller. The disconnecting means shall not be located in the runway enclosure."

(B) Amend Section 620.51(C) by adding: "(5) Residential installations. A disconnecting means shall be required to be placed within sight of the controller or lift. Where such devices are supplied with flexible cord and plug type connectors, the supply receptacle shall be switched by the disconnecting means. The disconnecting means does not require overcurrent protection, provided such protection is supplied by the branch circuit overcurrent device. In all other respects the disconnecting means shall comply with the requirements of this section."

(7) Add new section: "Section 620.86 Flexible Metal Conduit. Where flexible metal conduit is utilized between the disconnecting means specified in Section 620.51 and the elevator controller, an equipment grounding conductor shall be provided within the raceway and sized per Section 250.122 and Table 250.122."

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: BCD 19-1996, f. 9-17-96, cert. ef. 10-1-96; BCD 1-2000, f. 1-6-00, cert. ef. 4-1-00; BCD 19-2002, f. 8-1-02, cert. ef. 10-1-02; BCD 23-2004, f. 12-15-04, cert. ef. 4-1-05; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

### 918-305-0270

#### **Amend Article 692 Fuel Cell Systems**

Section 692.6 Listing Requirement. Amend 692.6 to read: "The fuel cell system shall be certified for its intended application prior to final approval."

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: BCD 19-2002, f. 8-1-02, cert. ef. 10-1-02; BCD 23-2004, f. 12-15-04, cert. ef. 4-1-05; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

### 918-305-0280

#### **Amend Chapter 7 Special Conditions**

(1) Chapter 7 Special Conditions. Amend Chapter 7 by adding the following preface to the Chapter: "Building Officials and inspectors administering and enforcing the state building code under ORS 455.148 and 455.150, shall not inspect for compliance with Sections 700.27, 701.18, or 708.54, refuse to perform or finalize inspections, refuse to issue a certificate of occupancy, or use other methods to ensure compliance with Sections 700.27, 701.18, or 708.54. If requested by the Building Codes Division, the Supervising Electrician must demonstrate that the requirements of Sections 700.27, 701.18, or 708.54, as appropriate, have been met. In determining whether a system meets the requirements of Sections 700.27, 701.18, or 708.54, the division may request the local jurisdiction to perform an

inspection or collect the relevant information, so that the division may review and make a determination.”

(2)(a) Section 700.27 Coordination. Amend 700.27 by adding the following to the end of the first paragraph: “For the purposes of this section, supply side overcurrent protection means those protective devices on the emergency system supply side and not on the normal power supply side. The protection shall be coordinated using the higher of the normal power supply fault current levels or emergency system fault current levels.

(b) Amend 700.27 by inserting the following: “Exception No. 2: The requirements for selective coordination described in 700.27 are not required where the emergency system was installed prior to April 1, 2005. For new emergency systems that are supplied from an existing emergency system installed prior to April 1, 2005, the new portion of the emergency system must comply with NEC 700.27. The ground fault sensing function of overcurrent protective devices will only be required to selectively coordinate with the ground fault sensing functions of other protective devices.”

(3)(a) Section 701.18 Coordination. Amend by adding the following after 701.18: “For the purposes of this section, supply side overcurrent protection means those protective devices on the emergency system supply side and not on the normal power supply side. The protection shall be coordinated using the higher of the normal power supply fault current levels or emergency system fault current levels.”

(b) Amend Section 701.18 by inserting the following: “Exception No. 2: The requirements for selective coordination described in 701.18 are not required where the required standby system was installed prior to April 1, 2005. For new emergency systems that are supplied from an existing required standby system installed prior to April 1, 2005, the new portion of the required standby system must comply with NEC 701.18. The ground fault sensing function of overcurrent protective devices will only be required to selectively coordinate with the ground fault sensing functions of other protective devices.”

(4)(a) Coordination. Amend 708.54 by adding the following to the end of Section 708.54: “For the purposes of this section, supply side overcurrent protection means those protective devices on the emergency system supply side and not on the normal power supply side. The protection shall be coordinated using the higher of the normal power supply fault current levels or emergency system fault current levels.”

(b) Amend Section 708.54 by inserting the following: “Exception: The requirements for selective coordination described in 708.54 are not required where the critical operations power system(s) was installed prior to April 1, 2005. For new critical

operations power system(s) that are supplied from an existing emergency system installed prior to April 1, 2005, the new portion of the critical operations power system(s) must comply with NEC 708.54. The ground fault sensing function of overcurrent protective devices will only be required to selectively coordinate with the ground fault sensing functions of other protective devices.”

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: BCD 23-2004, f. 12-15-04, cert. ef. 4-1-05; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

### **918-305-0290**

#### **Amend Article 725 Class 1, Class 2 and Class 3 Remote-Control, Signaling, and Power-Limited Circuits through 760 Fire Alarm Systems**

(1) Section 725.24 Mechanical Execution of Work. Amend 725.24 by replacing the last sentence with: "This installation shall also conform with 300.4 and 300.11."

(2) Section 760.24 Mechanical Execution of Work. Amend 760.24 by replacing the last sentence with "The installation shall also conform with 300.4 and 300.11."

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: BCD 23-2004, f. 12-15-04, cert. ef. 4-1-05; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

### **918-305-0300**

#### **Amend Article 770 Optical Fiber Cables and Raceways**

Section 770.24 Mechanical Execution of Work. Amend 770.24 by replacing the last sentence with "The installation shall also conform with 300.4 and 300.11."

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: BCD 23-2004, f. 12-15-04, cert. ef. 4-1-05; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

### **918-305-0310**

#### **Amend Article 800 Communications Circuits**

Section 800.24 Mechanical Execution of Work. Amend 800.24 by replacing the last sentence with "The installation shall also conform with 300.4 and 300.11."

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: BCD 23-2004, f. 12-15-04, cert. ef. 4-1-05; BCD 6-2008, f. 3-7-08, cert. ef. 4-1-08

### **918-305-0320**

#### **Amend Article 820 Community Antenna Television and Radio Distribution Systems**

Section 820.24 Mechanical Execution of Work. Amend 820.24 by replacing the last sentence with "The installation shall also conform with 300.4 and 300.11."

Stat. Auth.: ORS 479.730  
 Stats. Implemented: ORS 479.730  
 Hist.: BCD 23-2004, f. 12-15-04, cert. ef. 4-1-05; BCD  
 6-2008, f. 3-7-08, cert. ef. 4-1-08

### **Electrified Fixed Guideway Passenger Railway Systems**

#### **General**

#### **918-305-0400**

##### **Scope**

(1) The rules contained in 918-305-0400 to 918-305-0700 shall apply to all electrified fixed guideway passenger railway systems and electrical products associated with such systems installed in the State of Oregon. Any related structure or system that is not an electrified fixed guideway passenger railway system shall be governed by the state building code as defined in ORS 455.010.

(2) Except as otherwise provided in these rules, the **National Electrical Code** as adopted by Oregon shall apply to all installations or repairs of all electrified fixed guideway rail systems. Installation shall be made by licensed electricians under ORS 479.630.

(3) Nothing in these rules shall be construed to:

(a) Alter or change the laws or rules applicable to persons licensed to perform installation of electrical systems or products;

(b) Exempt any electrical wiring used for general lighting or general power purposes, such as heating, cooling, ventilating, elevators or pumping equipment; or

(c) Exempt any feeder, service, switchboard, branch circuit panel board or standby power generator used in whole or in part for general building operation purposes.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 479.950  
 Stats. Implemented: ORS 479.950  
 Hist.: BCD 7-2000, f. 3-15-00, cert. ef. 4-1-00

#### **918-305-0410**

##### **Definitions**

(1) For the purposes of OAR 918-305-0400 to 918-305-0470, unless otherwise specified, the following shall apply:

(a) “Electrified Fixed Guideway Passenger Railway” means any train, trolley, car, streetcar or other vehicle that is designed to operate on fixed rails for public transportation of passengers and is powered

by service voltage equaling or exceeding 600 volts AC and less than 100,000 volts AC;

(b) “Substation” means the building or facility that houses the system or systems; and

(c) “System” or “Systems” means the electrical equipment, components and products used for traction electrification, signals, communications and fare collection equipment, or any combination thereof, used for the operation of an electrified fixed guideway passenger railway and installed, or to be installed, on the load side of the electrical utility service point, including any medium voltage AC service and distribution equipment.

(2) Unless terms are specifically defined by these rules, terms shall have a meaning as defined by the **National Electrical Code (NEC)**, or if no **NEC** definition, their ordinary meaning.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 479.950  
 Stats. Implemented: ORS 479.950  
 Hist.: BCD 7-2000, f. 3-15-00, cert. ef. 4-1-00

#### **Administration**

#### **918-305-0420**

##### **Electrified Fixed Guideway Passenger Railway System Permits**

(1) The signature of a general supervising electrician or limited supervising electrician shall be required on each permit to aid inspections by the division and indicate responsibility under ORS 479.950.

(2) A permit is required prior to start of any electrical work. Expansion of work under a permit may be added to an existing permit prior to final inspection.

(3) A permit must be posted in a conspicuous place near the main electrical panel location. If there is no main panel installed, the permit shall be posted in a conspicuous place on the job site.

(4) An electrical permit issued to one person or firm is not transferable and shall not permit any other person or firm to perform any electrical work thereunder.

(5) Any permittee holding an unexpired permit may apply for an extension of the time within which work may be completed.

(6) Permit fees shall be charged at \$69 per hour including travel and office time with a minimum charge of one hour for any and all inspections performed on that permit.

Stat. Auth.: ORS 479.950  
 Stats. Implemented: ORS 479.950  
 Hist.: BCD 7-2000, f. 3-15-00, cert. ef. 4-1-00

**918-305-0430****Requests for Inspection and Notice of Results**

(1) All persons who take out an electrical permit shall request an inspection within 24 hours of:

(a) The completion of any electrical installation intended to be covered or concealed or that is intended to be placed into service before the final electrical inspection; and

(b) The completion of all electrical installations for the job site covered by a particular permit.

(2) Except as provided in Section (3) of this rule, an inspecting jurisdiction, shall inspect within 48 hours of a written request for inspection unless the time for inspection is extended to a set date by mutual agreement. The 48 hours excludes Saturdays, Sundays and holidays.

(3) The inspecting jurisdiction shall inspect an installation at a remote location within a reasonable time of the request.

(a) For the purpose of this section, a “remote location” is:

(A) An inspection location that is more than 60 miles one way using the most direct route, measured from the closest of the inspector’s station, inspection office or the inspecting jurisdiction’s primary offices; or

(B) An inspection location that requires more than one hour of normal driving, one way, using the most direct route from the closest point mentioned in paragraph (A) of this subsection.

(b) For the purposes of this section, “within a reasonable time” means a response time that takes into account the time, distance and number of inspection requests, but shall not exceed seven consecutive calendar days including the date the request was received, unless the time for inspection is extended to a set date by mutual agreement. If the seventh calendar day falls on a weekend or holiday, this is extended to include the next business day.

(4) Reasonable procedures designed to provide actual notice of inspection results shall be used by all inspecting jurisdictions to notify the person requesting inspections, of the results of electrical inspection. “Reasonable procedures designed to provide actual notice” shall include posting at the job site and:

(a) Nothing more, when the installation is by an owner;

(b) Nothing more, when the installation is approved;

(c) Notification of any deficiencies on a specific permit by:

(A) FAX transmittal to the electrical contractor;

(B) Personal delivery to the electrical contractor or signing supervisor;

(C) Mailing; or

(D) Telephone followed by written notification.

(d) By written confirmation of inspection approval if a permit holder requests confirmation.

(5) If the inspection mentioned in Sections (1) and (2) of this rule involves a cover inspection, the work cannot be covered unless:

(a) Inspection clearance is given; or

(b) The request for inspection is in writing communicated to the inspecting jurisdiction, with notice that a cover inspection is involved, no extensions are agreed to and the maximum time for making the required inspection under Sections (1) and (2) of this rule are exceeded. For the purposes of this subsection:

(A) Written request includes a letter, telegram or FAX transmittal; and

(B) The burden of proof is on the person requesting the electrical inspection to prove that a written request was communicated.

Stat. Auth.: ORS 479.950

Stats. Implemented: ORS 479.950

Hist.: BCD 7-2000, f. 3-15-00, cert. ef. 4-1-00

**918-305-0440****Correction of Defects**

(1) Defects in electrical installations noted by the electrical inspector shall be corrected and an inspection request made within 20 calendar days of the date of actual notice of deficiency. For the purpose of this rule, actual notice is given when the inspecting jurisdiction does everything required in OAR 918-271-0020.

(2) If corrections cannot reasonably be made within the specified time in section (1) of this rule, or an interpretation or written appeal has been requested, the permit holder shall contact the inspecting jurisdiction and request an extension of time to a specified date or until deficiency is resolved.

(3) Requests for inspection and requests for extension may be communicated in any way. However, if challenged, the burden of proof is on the requester to document the request was in fact communicated. Responses may also be communicated in any way, but if challenged, the burden of proof is on the inspecting jurisdiction.

Stat. Auth.: ORS 479.730

Stats. Implemented: ORS 479.730

Hist.: BCD 7-2000, f. 3-15-00, cert. ef. 4-1-00

**918-305-0450****Electrical Products**

(1) The service equipment of a system substation powered by AC shall be certified by an electrical testing laboratory or field evaluation firm approved by the State of Oregon.

(2) The DC transformation, rectification and distribution equipment within a system substation, including the traction power transformer, shall meet **ANSI** standards where applicable. Compliance shall be demonstrated by the operating entity by:

(a) Furnishing the required **ANSI** test reports upon request;

(b) Demonstrating the equipment is certified by an electrical testing agency approved by this state; or

(c) Having the equipment otherwise approved by the division as meeting applicable standards. Where there are no applicable **ANSI** standards for such electrical products, an exception may be granted by the division. All DC distribution equipment outside a substation is exempt from product certification.

(3) All electrical products and components installed for signaling systems are exempt from electrical product certification, the **Electrical Specialty Code** and the **National Electrical Code**. The main power supplies shall be certified by an electrical testing agency approved by this state as meeting applicable **ANSI** standards or otherwise be approved by the division. Where there are no applicable **ANSI** standards for such electrical products, an exception may be granted by the division.

(4) All electrical products installed for communications systems or components to such systems are exempt from regulation under this rule, the **Electrical Specialty Code** and the **National Electrical Code**. The main power supply shall be certified by an electrical testing agency approved by this state, or otherwise be approved by the division as meeting applicable **ANSI** standards. Where there are no applicable **ANSI** standards for such electrical products, an exception may be granted by the division.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 479.950

Stats. Implemented: ORS 479.950

Hist.: BCD 7-2000, f. 3-15-00, cert. ef. 4-1-00

### 918-305-0460

#### Grounding

(1) System substations shall be installed with a grounding grid to limit touch and step potentials to safe levels as recommended by **IEEE 80**, "**Guide for Safety in Substation Grounding**." AC and low-voltage equipment shall be bonded or grounded to this grid, except as otherwise provided for the utility neutral or ground. Calculations and ground resistance test reports for every substation shall be furnished to the division prior to final inspection and maintained by the operating entity.

(2) The service neutral conductor is not required to be bonded to the substation grounding grid, provided that:

(a) A warning sign is posted on the service equipment to provide notice of potential hazards to technical persons who may have access to the service

equipment. The notice shall clearly indicate that the neutral is isolated and not grounded;

(b) An isolation barrier is installed over the neutral termination within the service equipment; and

(c) The ground grid is installed in a manner that will demonstrate a ground resistance of 5 ohms or less when tested in accordance with **IEEE 81**, "**Guide for Testing Grounding Systems**."

(3) Free-standing signal system cabinets, bungalows or buildings shall be separately grounded by means of a driven ground electrode or electrodes to obtain ground resistance of 25 ohms or less when tested in accordance with **IEEE 81**.

(4) 60 Hz, 120-volt AC systems for accessory power or lighting located within station platforms or substations shall meet the requirements of the **Electrical Specialty Code**.

(5) All service equipment receiving service voltage from the utility shall be posted with warning signs to provide notice of potential hazards to technical persons who may have access to the panel. The notice shall clearly indicate that the neutral is isolated and not grounded.

(6) All fencing located within 10 feet of a metallic railway substation, building, ground grid, bungalow or other structure shall be constructed of nonmetallic material.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 479.950

Stats. Implemented: ORS 479.950

Hist.: BCD 7-2000, f. 3-15-00, cert. ef. 4-1-00

### 918-305-0470

#### Appeals

(1) Appeals of decisions recommended by a deputy inspector in relation to the application of the **Oregon Electrical Specialty Code** shall be to the chief electrical inspector in accordance with OAR 918, division 251, provided that no notice needs to be given to any local jurisdiction.

(2) The chief electrical inspector's determination may be appealed to the director who may consult with the Electrical and Elevator Board or other consultants on any technical issues deemed necessary by the director.

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 479.950

Stats. Implemented: ORS 479.950

Hist.: BCD 7-2000, f. 3-15-00, cert. ef. 4-1-00

### Plan Review

### 918-305-0500

#### Standards for Electrical Plan Submissions

A plan review shall be performed prior to the issuance of a permit. Fees shall be based on an hourly rate of \$69 per

hour. The plan review under these rules shall be limited to the review of the electrified fixed guideway railway system(s) being installed. Other permits and plan reviews may be required by the jurisdiction administering the state building code as defined in ORS 455.010.

Stat. Auth.: ORS 479.950  
 Stats. Implemented: ORS 479.950  
 Hist.: BCD 7-2000, f. 3-15-00, cert. ef. 4-1-00

**918-305-0510**  
**Standards for Electrified Fixed Guideway Railway Plan Review**

A person performing electrical plan review shall be certified under OAR 918-311-0030 and do the following as a minimum when performing plan reviews:

- (1) Load Calculations. Check load calculations for appropriateness, completeness and accuracy.
- (2) Equipment. Check and determine if the equipment is:
  - (a) Suitable for the environment; and
  - (b) Properly sized and rated to meet the minimum code requirements.
- (3) Service and Feeder. Check service and feeder installations for code compliance related to:
  - (a) Wiring method;
  - (b) Conduit and box fill;
  - (c) Conductor size and ampacity rating;
  - (d) Clearances;
  - (e) Locations;
  - (f) Accessibility; and
  - (g) Service grounding conductor size.

Stat. Auth.: ORS 479.950  
 Stats. Implemented: ORS 479.950  
 Hist.: BCD 7-2000, f. 3-15-00, cert. ef. 4-1-00

**918-305-0520**  
**Time Limit for Plan Review**

(1) Plan reviews shall be approved or denied within ten working days from receipt of the complete electrified fixed guideway railway system plans by the jurisdiction requiring plan review. A reviewed set of plans shall be returned to the plan applicant:

- (a) If a plan is rejected, the deficiencies must be set out in writing. Upon resubmission of the necessary items, the ten-day requirement starts again;
- (b) If, because of the complexity or size of the installation, additional time beyond the ten working days is required to complete the review, the jurisdiction shall notify the person taking out the electrical permit of the reasons for the delay and the date the review will be completed.

(2) Nothing in this rule shall prohibit a jurisdiction from issuing a complete or partial permit

before the entire plans and specifications are submitted or approved, provided adequate information is provided showing compliance with pertinent portions of the code. The permittee proceeds at risk, without assurance that the permit for the entire installation will be granted, or that corrections will not be required including those portions permitted.

Stat. Auth.: ORS 479.950  
 Stats. Implemented: ORS 479.950  
 Hist.: BCD 7-2000, f. 3-15-00, cert. ef. 4-1-00

**Inspectors**

**918-305-0600**  
**Role of an Electrical Inspector When Inspecting Electrified Fixed Guideway Railway Systems**

An electrical inspector certified under OAR 918-281-0020 shall inspect all electrified fixed guideway rail installations as provided in these rules and provide public information on the meaning or application of an electrical code provision, but shall not lay out work or act as a consultant for electrical contractors, property owners or users.

Stat. Auth.: ORS 479.950  
 Stats. Implemented: ORS 479.950  
 Hist.: BCD 7-2000, f. 3-15-00, cert. ef. 4-1-00

**Enforcement**

**918-305-0700**  
**Electrified Fixed Guideway Railway Systems — Penalty Guidelines**

(1) Scope and authority. This rule sets guidelines for civil penalties for violations of any provision of the rules relating to electrified fixed guideway railway systems.

(2) “Continuing Offense” means violation of a code, rule or law on one or more additional days after having been notified that the act in question, or failure to act, is a violation.

(a) An additional day is any day, other than the first day, an offense takes place; however, defects noted by an inspector in an element of assembly or construction shall not be considered an offense if the defect is corrected and an inspection request made in no more than 20 calendar days.

(b) Notification is not dependent upon a penalty having been assessed.

(c) “Continuing Violation” has the same meaning as “continuing offense.”

(3) Amount of penalty that may be assessed by the administrator:

- (a) Not more than \$1,000 for each violation; or
- (b) Not more than \$1,000 for each day of a continuing violation.

(4) In determining the penalty amount, any appropriate factors may be taken into account, including but not limited to, prior history of violations, extent to which corrective

action was taken and the element of risk or danger to any person caused by the violation.

(5) Civil penalties may be reached by stipulation or consent and may be stayed in whole or in part according to the terms of a stipulation or consent order.

(6) Civil penalties may be assessed in addition to, or in lieu of, the suspension or revocation of a license, certificate of competency or similar authority issued by the division.

(7) Procedures:

(a) Civil penalties shall be brought by staff and assessed by the administrator.

(b) If a dispute concerning the application of the rules relating to electrified fixed guideway railway systems is appealed to the director under ORS Chapter 455 or 479, or:

(A) No civil penalty shall be sought or assessed for violation of the code provision that was appealed, until after the appeal or interpretation is resolved and if corrections are necessary, they are made in not more than 30 calendar days.

(B) Notwithstanding an administrative appeal, civil penalties can be brought or assessed for failure to obtain a permit if the issues on appeal do not involve the question of whether a permit was necessary.

(C) The obligation is on the person charged, or about to be charged, with a violation to advise of an appeal under this subsection.

(c) The division shall adopt operating procedures to promote equity and uniformity in proposing the amount and terms of civil penalties and conditions under which the penalties may be modified based on the circumstances in individual cases.

Stat. Auth.: ORS 455.895 & 479.950

Stats. Implemented: ORS 455.895 & 479.950

Hist.: BCD 7-2000, f. 3-15-00, cert. ef. 4-1-00; BCD 33-2000, f. 12-27-00, cert. ef. 1-1-01

**Table 1-E**  
**Amended Language, 2008 NEC**

**918-305-0105**

**90.4 Enforcement.** This Code is intended to be suitable for mandatory application by governmental bodies that exercise legal jurisdiction over electrical installations, including signaling and communications systems, and for use by insurance inspectors. The authority having jurisdiction for enforcement of the Code has the responsibility for making interpretations of the rules, for deciding on the approval of equipment and materials, and for granting the special permission contemplated in a number of the rules.

By special permission, the authority having jurisdiction may waive specific requirements in this Code or permit alternative methods where it is assured that equivalent objectives can be achieved by establishing and maintaining effective safety.

**Requests for special permission shall be made in writing to the authority having jurisdiction. Special permission must be granted in writing by the authority having jurisdiction and shall be obtained prior to the start of the electrical installation.**

This Code may require new products, constructions, or materials that may not yet be available at the time the Code is adopted. In such event, the authority having jurisdiction may permit the use of the products, constructions, or materials that comply with the most recent previous edition of this Code adopted by the jurisdiction.

**(A) Where the 2008 NEC requires electrical products to be “listed” or “labeled”, the words “listed” or “labeled” shall have the same meaning as “certified electrical product” under ORS 479.530.**

## Amended Language, 2008 NEC

- 918-305-0110      **Article 100 Definitions. “Fire Protection System means approved devices, equipment and systems or combinations of systems used to detect a fire, activate an alarm, extinguish a fire, control or manage smoke and products of a fire or any combination thereof.”**
- 918-305-0120      **110.8 Wiring Methods.** Only wiring methods recognized as suitable are included in this Code. The recognized methods of wiring shall be permitted to be installed in any type of building or occupancy, except as otherwise provided in this Code.
- (1) (a) For the purpose of this article, “schools” are buildings used for education purposes, excluding administrative offices, dormitories or detached utility buildings not used for education or training.**
- (b) Except where a specific wiring method is required by code, raceway systems, type MI, MC and AC cable or manufactured metallic wiring assemblies shall be the wiring method in the following:**
- (A) Schools, universities, colleges, child care centers and correctional facilities as defined by the Oregon Structural Specialty Code;**
- (B) Hospitals as defined in NEC Article 517; and**
- (C) Group I-2 Occupancies and Group E Occupancies as defined in Chapter 3 of the adopted Oregon Structural Specialty Code; and**
- (D) SR Occupancies classified as SR 2 as defined in Appendix SR of the adopted Oregon Structural Specialty Code.**
- (2) The requirements of subsection (1)(b) of this rule do not apply to:**
- (a) Spaces in a retail center used for adult training or educational purposes;**
- (b) SR Occupancies classified as SR 1, SR 3 or SR 4 as defined in Appendix SR or R occupancies classified in Chapter 3 of the adopted Oregon Structural Specialty Code;**
- (c) Foster homes providing family-type care only;**
- (d) Class 2 and 3 systems installed in conformity with Articles 725, 727, 760, 770, 780 and Chapter 8 of the 2008 NEC; and**
- (e) Power limited fire protection alarm systems.**

## Amended Language, 2008 NEC

**918-305-0130(1)(a) 210.8 Ground-Fault Circuit-Interrupter Protection for Personnel.**

FPN: See 215.9 for ground-fault circuit-interrupter protection for personnel on feeders.

**(A) Dwelling Units.** All 125-volt, single-phase, 15- and 20- ampere receptacles installed in the locations specified in (1) through (8) shall have ground-fault circuit-interrupter protection for personnel.

**Exception: A receptacle supplying only a permanently installed fire alarm or burglar alarm system shall not be required to have ground-fault circuit-interrupter protection.**

**FPN: See 760.41(B) and 760.121(B) for power supply requirements for fire alarm systems.**

(1) Bathrooms

(2) Garages, and also accessory buildings that have a floor located at or below grade level not intended as habitable rooms and limited to storage areas, work areas, and areas of similar use

**918-305-0130(1)(b) Exception No. 1 to (2): A single receptacle for each appliance within a dedicated space that, in normal use, is not easily moved from one place to another, that is cord-and-plug connected, and the receptacle is labeled as “not GFCI protected.”**

**Exception No. 2 to (2): Receptacle ground fault protection shall not be required for a dedicated branch circuit serving a single receptacle for sewage or sump pumps.**

**Receptacles installed under the exceptions to 210.8(A)(2) shall not be considered as meeting the requirements of 210.52(G).**

(3) Outdoors

*Exception to (3): Receptacles that are not readily accessible and are supplied by a dedicated branch circuit for electric snow-melting or deicing equipment shall be permitted to be installed in accordance with 426.28.*

(4) Crawl spaces – at or below grade level

**918-305-0130(1)(c) Exception to (4): Receptacle ground fault protection shall not be required for a dedicated branch circuit serving a single receptacle for sewage or sump pumps.**

(5) Unfinished basements – for purposes of this section, unfinished basements are defined as portions or areas of the basement not intended as habitable rooms and limited to storage areas, work areas, and the like

**918-305-0130(1)(d) Exception No. 1 to (5): A single receptacle for each appliance within a dedicated space that, in normal use, is not easily moved from one place to another, that is cord-and-plug connected, and the receptacle is labeled as “not GFCI protected.”**

**Exception No. 2 to (5): Receptacle ground fault protection shall not be required for a dedicated branch circuit serving a single receptacle for sewage or sump pumps.**

Receptacles installed under the exception to 210.8(A)(5) shall not be considered as meeting the requirements of 210.52(G).

(6) Kitchens – where the receptacles are installed to serve the countertop surfaces

## Amended Language, 2008 NEC

918-305-0130(1)(e) (7) Laundry, utility, and wet bar sinks **or other sinks** – where the receptacles are installed within 1.8 m (6 ft) of the outside edge of the sink

**Exception to (7): A single receptacle for each appliance within a dedicated space that, in normal use, is not easily moved from one place to another, that is cord-and-plug connected, and the receptacle is labeled as “not GFCI protected.”**

(8) Boathouses

...

918-305-0130(2) 210.12 Arc-Fault Circuit-Interrupter Protection.

...

**(B) Dwelling Units. All 120-volt, single phase, 15- and 20-ampere branch circuits supplying outlets installed in dwelling unit bedrooms shall be protected by a listed arc-fault circuit interrupter, combination-type, installed to provide protection of the branch circuit.**

FPN No. 1: For information on types of arc-fault circuit interrupters, see UL 1699-1999, *Standard for Arc-Fault Circuit Interrupters*.

FPN No. 2: See 11.6.3(5) of NFPA 72<sup>®</sup>-2007, *National Fire Alarm Code<sup>®</sup>*, for information related to secondary power supply requirements for smoke alarms installed in dwelling units.

FPN No. 3: See 760.41(B) and 760.121(B) for power-supply requirements for fire alarm systems.

*Exception No 1: Where RMC, IMC, EMT or steel armored cable, Type AC, meeting the requirements of 250.118 using metal outlet and junction boxes is installed for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, it shall be permitted to install a combination AFCI at the first outlet to provide protection for the remaining portion of the branch circuit.*

*Exception No 2: Where a branch circuit to a fire alarm system installed in accordance with 760.41(B) and 760.121(B) is installed in RMC, IMC, EMT, or steel armored cable, type AC, meeting the requirements of 250.118, with metal outlet and junction boxes, AFCI protection shall be permitted to be omitted.*

**Exception No 3: Electrical outlets dedicated for the use of single station smoke alarms (interconnected or not), nurse call, or medical equipment shall not be required to have AFCI protection.**

918-305-0130(3) 210.52 Dwelling Unit Receptacle Outlets.

...

**(C) Countertops.** In kitchens, pantries, breakfast rooms, dining rooms, and similar areas of dwelling units, receptacle outlets for countertop spaces shall be installed in accordance with 210.52(C)(1) through (C)(5).

Where a range, counter-mounted cooking unit, or sink is installed in an island or peninsular countertop and the width of the countertop behind the range, counter-mounted cooking unit, or sink is less than 300mm (12 in.), the range, counter-mounted cooking unit, or sink is considered to divide the countertop space into two separate countertop spaces as defined in 210.52(C)(4). Each separate countertop space shall comply with the applicable requirements in 210.52(C).

Amended Language, 2008 NEC

**(1) Wall Countertop Spaces.** A receptacle outlet shall be installed at each wall countertop space that is 300 mm (12in.) or wider. Receptacle outlets shall be installed so that no point along the wall line is more than 600 mm (24 in.) measured horizontally from a receptacle outlet in that space.

*Exception: Receptacle outlets shall not be required on a wall directly behind a range, counter-mounted cooking unit, or sink in the installation described in Figure 210.52(C)(1).*

**918-305-0130(3)(a)** **(I) Alcoves. In dwelling units, alcoves shall have at least one receptacle installed. These outlets shall be in addition to the required hall outlets. As used in this subsection an Alcove is an area extending from, and returning to, the common wall of hallways, foyers, entries, and landings with a depth of not less than 2 ft. or more and a length of not less than 3 ft.**

**918-305-0130(3)(b)** **Figure 210.52(C)(1) Determination of Area Behind a Range, or Counter-Mounted Cooking Unit or Sink. Space exempt from wall line if X < 900mm (36 in.).**

...

**918-305-0130(4)** **225.36 Suitable for Service Equipment.** The disconnecting means specified in 225.31 shall be suitable for use as service equipment.

*Exception: For garages and outbuildings on residential property, a snap switch or a set of 3-way or 4-way snap switches shall be permitted as the disconnecting means.*

**Exception No. 2: In single light pole installations that have the connections to the light pole circuit made in a location accessible only to qualified persons, certified in-line fuse holders shall be allowed, subject to special permission.**

## Amended Language, 2008 NEC

918-305-0150(1)

**230.40 Number of Service-Entrance Conductor Sets.** Each service drop or lateral shall supply only one set of service-entrance conductors.

*Exception No. 1: A building with more than one occupancy shall be permitted to have one set of service-entrance conductors for each service, as defined in 230.2, run to each occupancy or group of occupancies.*

*Exception No. 2: Where two to six service disconnecting means in separate enclosures are grouped at one location and supply separate loads from one service drop or lateral, one set of service-entrance conductors shall be permitted to supply each or several such service equipment enclosures.*

*Exception No. 3: A single-family dwelling unit and a separate structure shall be permitted to have one set of service-entrance conductors run to each from a single service drop or lateral. **When there are continuous metallic paths bonded to the grounding system in the buildings involved, a disconnect, a separate grounded conductor and equipment grounding conductor shall be installed to meet the provisions of Article 225.***

*Exception No. 4: A two-family dwelling or a multifamily dwelling shall be permitted to have one set of service-entrance conductors installed to supply the circuits covered in 210.25.*

*Exception No. 5: One set of service-entrance conductors connected to the supply side of the normal service disconnecting means shall be permitted to supply each or several systems covered by 230.82(5) or 230.82(6).*

918-305-0150(2)

**230.43 Wiring Methods for 600 Volts, Nominal, or Less.** Service-entrance conductors shall be installed in accordance with the applicable requirements of this Code covering the type of wiring method used and shall be limited to the following methods:

- (1) Open wiring on insulators
- (2) Type IGS cable
- (3) Rigid metal conduit
- (4) Intermediate metal conduit
- (5) Electrical metallic tubing
- (6) Electrical nonmetallic tubing (ENT)
- (7) Service-entrance cables
- (8) Wireways
- (9) Busways
- (10) Auxiliary gutters
- (11) Rigid nonmetallic conduit
- (12) Cablebus
- (13) Type MC cable
- (14) Mineral-insulated, metal-sheathed cable
- (15) Flexible metal conduit not over 1.8 m (6ft) long or liquidtight flexible metal conduit not over 1.8 m (6ft) long between raceways, or between raceway and service equipment, with equipment bonding jumper routed with the flexible metal conduit or the liquidtight flexible metal conduit according to the provisions of 250.102(A), (B), (C), and (E)
- (16) Liquidtight flexible nonmetallic conduit

**Exception: Items (13) and (15) are limited to traffic control devices and highway lighting poles.**

## Amended Language, 2008 NEC

918-305-0150(3)

**230.70 General.** Means shall be provided to disconnect all conductors in a building or other structure from the service-entrance conductors.

**(A) Location.** The service disconnecting means shall be installed in accordance with 230.70(A)(1), (A)(2), and (A)(3).

**(1) Readily Accessible Location.** The service disconnecting means shall be installed at a readily accessible location either outside of a building or structure or inside nearest the point of entrance of the service conductors.

**Exception: In existing installations where only the service panel or meter base is changed and the existing service conductors meet the ampacity requirements, or the existing conduit is of sufficient size to install new conductors, the panel may remain at the present location providing all requirements of Section 110.26 and 240.24 are met. This exception does not require a main disconnect located nearest the point of entry.**

...

918-305-0150(4)

**230.95 Ground-Fault Protection of Equipment.** Ground-fault protection of equipment shall be provided for solidly grounded wye electrical services of more than 150 volts to ground but not exceeding 600 volts phase-to-phase for each service disconnect rated 1000 amperes or more. The grounded conductor for the solidly grounded wye system shall be connected directly to ground through a grounding electrode system, as specified in 250.50, without inserting any resistor or impedance device.

The rating of the service disconnect shall be considered to be the rating of the largest fuse that can be installed or the highest continuous current trip setting for which the actual overcurrent device installed in a circuit breaker is rated or can be adjusted.

*Exception: The ground-fault protection provisions of this section shall not apply to a service disconnect for a continuous industrial process where a nonorderly shutdown will introduce additional or increased hazards.*

**(A) Setting.** The ground-fault protection system shall operate to cause the service disconnect to open all ungrounded conductors of the faulted circuit. The maximum setting of the ground-fault protection shall be 1200 amperes, and the maximum time delay shall be one second for ground-fault currents equal to or greater than 3000 amperes.

**(B) Fuses.** If a switch and fuse combination is used, the fuses employed shall be capable of interrupting any current higher than the interrupting capacity of the switch during a time that the ground-fault protective system will not cause the switch to open.

**(C) Performance Testing.** The ground-fault protection system shall be performance tested when first installed on the site. The test shall be conducted in accordance with instructions **provided with the equipment. This test shall be performed by persons having proper training and experience required to perform and evaluate the results of such performance testing.** A written record of this test shall be made available to the authority having jurisdiction. **This report shall be signed by the person(s) performing this test.**

...

Amended Language, 2008 NEC

918-305-0160(1)(a) 250.24 Grounding Service-Supplied Alternating-Current Systems.

(A) System Grounding Connections. A premises wiring system supplied by a grounded ac service shall have a grounding electrode conductor connected to the grounded service conductor, at each service, in accordance with 250.24(A)(1) through (A)(5).

(1) General. The grounding electrode conductor connection shall be made at any accessible point from the load end of the service drop or service lateral to and including the terminal or bus to which the grounded service conductor is connected at the service disconnecting means.

FPN: See definitions of Service Drop and Service Lateral in Article 100.

Exception: When the electric utility has installed a ground fault protection system ahead of the customer's service equipment, no bonding or electrical connection from the grounding electrode system shall be made to the grounded service conductor on the load side of the utility ground fault sensing device. The neutral or grounded service conductor, however, shall be grounded on the line side of the first ground fault sensor in a manner otherwise required at the customer's service equipment. The grounding electrode conductor shall be run to an equipment grounding bus or terminal at the service equipment as long as the equipment grounding conductor and the grounded neutral conductor are not connected to each other at this point. The on-site ground fault test required by Section 230.95 shall not be performed prior to the above installation requirements. Warning signs shall be installed.

...

918-305-0160(1)(b)

...

(B) Main Bonding Jumper. For a grounded system, an unspliced main bonding jumper shall be used to connect the equipment grounding conductor(s) and the service-disconnect enclosure to the grounded conductor within the enclosure for each service disconnect in accordance with 250.28.

*Exception No. 1: Where more than one service disconnecting means is located in an assembly listed for use as service equipment, an unspliced main bonding jumper shall bond the grounded conductor(s) to the assembly enclosure.*

*Exception No. 2: Impedance grounded neutral systems shall be permitted to be connected as provided in 250.36 and 250.186.*

Exception No. 3: When the electric utility has installed a ground fault protection system ahead of the customer's service equipment and if the operation of the ground fault system relies on the absence of the main bonding jumper at the service equipment but includes an otherwise satisfactory main bonding jumper as a part of its sensing device, the main bonding jumper shall not be installed at the service equipment which would otherwise bond the grounded service conductor to the equipment ground. The on-site ground fault test required by Section 230.95 shall not be performed prior to the above installation requirements. Warning signs shall be installed.

...

918-305-0160(2)(a) 250.32 Buildings or Structures supplied by a Feeder(s) or Branch Circuits(s).

(A) Grounding Electrode. Building(s) or structure(s) supplied by feeder(s) or branch circuits(s) shall have a grounding electrode or grounding electrode system installed in accordance with 250.50. The grounding electrode conductor(s) shall be

## Amended Language, 2008 NEC

connected in accordance with 250.32(B) or (C). Where there is no existing grounding electrode, the grounding electrode(s) required in 250.50 shall be installed.

*Exception: A grounding electrode shall not be required where only a single branch circuit, including multiwire branch circuit, supplies the building or structure and the branch circuit includes an equipment grounding conductor for grounding the normally non-current-carrying metal parts of equipment.*

918-305-0160(2)(b)

**(B) Grounded Systems. For a grounded system at the separate building or structure, the connection to the grounding electrode and grounding or bonding equipment, structures, or frames required to be grounded or bonded shall comply with either 250.32(B)(1) or (B)(2) of the 2005 OESC.**

*2005 OESC Language- Provided for reference purposes.*

*(1) Equipment Grounding Conductor. An equipment grounding conductor as described in 250.118 shall be run with the supply conductors and connected to the building or structure disconnecting means and to the grounding electrode(s). The equipment grounding conductor shall be used for grounding or bonding of equipment, structures, or frames required to be grounded or bonded. The equipment grounding conductor shall be sized in accordance with 250.122. Any installed grounded conductor shall not be connected to the equipment grounding conductor or to the grounding electrode(s).*

*(2) Grounded Conductor. Where (1) an equipment grounding conductor is not run with the supply to the building or structure, (2) there are no continuous metallic paths bonded to the grounding system in each building or structure involved, and (3) ground-fault protection of equipment has not been installed on the supply side of the feeder(s), the grounded conductor run with the supply to the building or structure shall be connected to the building or structure disconnecting means and to the grounding electrode(s) and shall be used for grounding or bonding of equipment, structures, or frames required to be grounded or bonded. The size of the grounded conductor shall not be smaller than the larger of either of the following:*

*(1) That required by 220.61*

*(2) That required by 250.122*

**(C) Ungrounded Systems.** The grounding electrode(s) shall be connected to the building or structure disconnecting means.

918-305-0160(2)(c)

**(D) Disconnecting Means Located in Separate Building or Structure on the Same Premises. Where one or more disconnecting means supply one or more additional buildings or structures under single management, and where these disconnecting means are located remote from those buildings or structures in accordance with the provisions of 225.32, Exceptions Nos. 1 and 2, all of the conditions of the 2005 OESC Section 250.32(D) shall be met:**

*2005 OESC Language- Provided for reference purposes.*

*(1) The connection of the grounded conductor to the grounding electrode at a separate building or structure shall not be made.*

*(2) An equipment grounding conductor for grounding any non-current-carrying equipment, interior metal piping systems, and building or structural metal frames is run with the circuit conductors to a separate building or structure and bonded to existing grounding electrode(s) required in Part III of this article, or, where there are no existing electrodes, the grounding electrode(s) required in Part III of this article shall be installed where a separate building or structure is supplied by more than one branch circuit.*

*(3) Bonding the equipment grounding conductor to the grounding electrode at a separate building or structure shall be made in a junction box, panelboard, or similar enclosure located immediately inside or outside the separate building or structure.*

## Amended Language, 2008 NEC

918-305-0160(3)(a)

**250.52 Grounding Electrodes.****(A) Electrodes Permitted for Grounding.**

...

**(3) Concrete-Encased Electrode.** An electrode encased by at least 50mm (2 in.) of concrete, located horizontally near the bottom or vertically, and within that portion of a concrete foundation or footing that is in direct contact with the earth, consisting of at least 6.0 m (20 ft) of one or more bare or zinc galvanized or other electrically conductive coated steel reinforcing bars or rods of not less than 13 mm (1/2 in.) in diameter, or consisting of at least 6.0 m (20 ft) of bare copper conductor not smaller than 4 AWG. Reinforcing bars shall be permitted to be bonded together by the usual steel tie wires or other effective means. Where multiple concrete-encased electrodes are present at a building or structure, it shall be permissible to bond only one into the grounding electrode system.

**In new construction with steel reinforced concrete footings, a concrete-encased grounding electrode connected to the grounding electrode system is required. The installation shall meet the requirements of Section 250.50. When a concrete encased electrode system is used, a minimum size of 1/2-inch reinforcing bar or rod shall be stubbed up at least 12 inches above the floor plate line or floor level, whichever is the highest, near the service entrance panel location.**

918-305-0160(3)(b)

...

**(B) Not Permitted for Use as Grounding Electrodes.** The following systems and materials shall not be used as grounding electrodes:

- (1) Metal underground gas piping systems
- (2) Aluminum

**(3) In existing electrical installations, when a service change or upgrade occurs, an existing metal underground water pipe shall not be used unless the metal underground water pipe has been verified as suitable for continued use as a grounding electrode. An existing metal underground water pipe shall be bonded to the new grounding electrode system as required by 250.104(A).**

FPN: See 250.104(B) for bonding requirements of gas piping.

918-305-0160(4)

**250.56 Resistance of Rod, Pipe, and Plate Electrodes.** A single electrode consisting of a rod, pipe, or plate that does not have a resistance to ground of 25 ohms or less shall be augmented by one additional electrode of any of the types specified by 250.52(A)(4) through (A)(8). **For permanent installations where the only grounding electrode is a single ground rod, pipe or plate, documented verification of 25 ohms or less shall be provided. Documented verification shall be done by a recognized method, provided by the installer, and made available for the electrical inspector.** Where multiple rod, pipe, or plate electrodes are installed to meet the requirements of this section, they shall not be less than 1.8 m (6ft) apart.

FPN: The paralleling efficiency of rods longer than 2.5 m (8ft) is improved by spacing greater than 1.8m (6ft).

918-305-0160(5)

**250.94 Bonding of Other Systems.** An intersystem bonding termination **or exposed and supported length of #6 bare copper conductor** for connecting intersystem bonding and grounding conductors required for other systems shall be provided external to enclosures at the service equipment and at the disconnecting means for any additional buildings or structures. The intersystem bonding termination shall be accessible for connection and inspection. The intersystem bonding termination shall have the capacity for connection of not less than three intersystem bonding conductors. The intersystem bonding termination device shall not interfere with opening a service or metering

**Amended Language, 2008 NEC**

equipment enclosure. The intersystem bonding termination shall be one of the following:

...

**918-305-0160(6)**

**250.118 Types of Equipment Grounding Conductors.** The equipment grounding conductor run with or enclosing the circuit conductors shall be one or more or a combination of the following:

...

(14) Surface metal raceways listed for grounding.

**Where metallic conduit is installed on roof tops, an equipment grounding conductor shall be provided within the raceway and sized per Section 250.122.**

## Amended Language, 2008 NEC

918-305-0165(1)

**334.12 Uses Not Permitted.**

(A) **Types NM, NMC, and NMS.** Types NM, NMC, and NMS cables shall not be permitted as follows:

...

(2) Exposed in dropped or suspended ceilings in other than one- and two-family and multifamily dwellings

**Exception: Types NM, NMC, and NMS cables shall be permitted where installed in accordance with 334.15.**

918-305-0165(2)(a)

**334.15 Exposed Work**

...

(B) **Protection from Physical Damage.** Cable shall be protected from physical damage where necessary by rigid metal conduit, intermediate metal conduit, electrical metallic tubing, Schedule 80 PVC conduit, or other approved means. Where passing through a floor, the cable shall be enclosed in rigid metal conduit, intermediate metal conduit, electrical metallic tubing, Schedule 80 PVC conduit or other approved means extending at least 150 mm (6 in.) above the floor.

Type NMC cable installed in the shallow chases or grooves in masonry, concrete, or adobe, shall be protected in accordance with the requirements in 300.4(E) and covered with plaster, adobe, or similar finish.

**Exposed nonmetallic sheathed cable shall be protected where it is installed horizontally less than 8 feet above the floor. Exposed nonmetallic sheathed cable less than 8 feet above the floor that enters the top or bottom of a panelboard shall be protected from physical damage by conduit, raceway, 1/2-inch plywood or 1/2-inch drywall.**

918-305-0165(2)(b)

(C) **In Unfinished Basements. Where cable is run at angles with joists in unfinished basements, it shall be permissible to secure cables not smaller than two 6 AWG or three 8 AWG conductors directly to the lower edge of the joists.** Smaller cables shall be run either through bored holes in joists or on running boards. NM cable installed on the wall of an unfinished basement shall be permitted to be installed in a listed conduit or tubing or shall be protected in accordance with 300.4. Conduit or tubing shall be provided with a suitable insulating bushing or adapter at the point the cable enters the raceway. The NM cable sheath shall extend through the conduit or tubing and into the outlet or device box not less than 6mm (1/4 in.). The cable shall be secured within 300mm (12 in.) of the point where the cable enters the conduit or tubing. Metal conduit, tubing, and metal outlet boxes shall be connected to an equipment grounding conductor.

## Amended Language, 2008 NEC

918-305-0180

**394.12 Uses Not Permitted.** Concealed knob-and-tube wiring shall not be used in the following:

- (1) Commercial garages
- (2) Theaters and similar locations
- (3) Motion picture studios
- (4) Hazardous (classified) locations
- (5) Hollow spaces of walls, ceilings, and attics where such spaces are insulated by loose, rolled, or foamed-in-place insulating material that envelops the conductors

**Exception: The provisions of Section 394.12 shall not be construed to prohibit the installation of loose or rolled thermal insulating materials in spaces containing existing knob-and-tube wiring, provided all the following conditions are met:**

**(1) The visible wiring shall be inspected by a certified electrical inspector or a general supervising electrician employed by a licensed electrical contractor.**

**(2) All defects found during the inspection shall be repaired prior to the installation of insulation.**

**(3) Repairs, alterations or extensions of or to the electrical systems shall be inspected by a certified electrical inspector.**

**(4) The insulation shall have a flame spread rating not to exceed 25 and a smoke density not to exceed 450 when tested in accordance with ASTM E84-91A 2005 Edition. Foamed in place insulation shall not be used with knob-and-tube wiring.**

**(5) Exposed splices or connections shall be protected from insulation by installing flame resistant, non-conducting, open top enclosures which provide three inches, but not more than four inches side clearances, and a vertical clearance of at least four inches above the final level of the insulation.**

**(6) All knob-and-tube circuits shall have overcurrent protection in compliance with the 60 degree C column of Table 310-16 of NFPA 70-2008. Overcurrent protection shall be either circuit breakers or type S fuses. The type S fuse adapters shall not accept a fuse of an ampacity greater than permitted in Section 240.53.**

**Amended Language, 2008 NEC**

**918-305-0190(1)**

**400.7 Uses Permitted.**

**(A) Uses.** Flexible cords and cables shall be used only for the following:

...

**(11) Listed assemblies of fixtures and controllers, approved by the Federal Aviation Administration.**

**918-305-0190(2)**

**406.11 Tamper-Resistant Receptacles in Dwelling Units.** In all areas specified in 210.52, all 125-volt, 15- and 20-ampere receptacles shall be listed tamper-resistant receptacles.

**Non-tamper resistant receptacles shall be permitted until October 1, 2008.**

Amended Language, 2008 NEC

918-305-0205

**422.34 Unit Switch(es) as Disconnecting Means.** A unit switch(es) with a marked-off position that is a part of an appliance and disconnects all ungrounded conductors shall be permitted as the disconnecting means required by this article where other means for disconnection are provided in occupancies specified in 422.34 (A) through (D). **Unit switches on ranges, ovens and dishwashers shall not be considered the disconnect required by this section.**

...

## Amended Language, 2008 NEC

918-305-0205

**424.3 Branch Circuits.**

**(A) Branch-Circuit Requirements.** Individual branch circuits shall be permitted to supply any size fixed electric space-heating equipment.

Branch circuits supplying two or more outlets for fixed electric space-heating equipment shall be rated 15, 20, 25, or 30 amperes. In nondwelling occupancies, fixed infrared heating equipment shall be permitted to be supplied from branch circuits rated not over 50 amperes.

**New equipment may be connected to an existing circuit that does not serve fixed electric space-heating equipment. The new equipment may be reconnected to that circuit, provided the equipment being installed has an ampere rating of not more than 50 percent of the branch circuit rating.**

**(B) Branch-Circuit Sizing.** Fixed electric space-heating equipment shall be considered continuous load.

Amended Language, 2008 NEC

918-305-0210

**500.8 Equipment**

**(A) Suitability. “Suitability of identified equipment” as used in Article 500.8 (A) means that equipment meets the requirements of ORS 479.760.**

## Amended Language, 2008 NEC

- 918-305-0250(1)**      **620.1 Scope.** This article covers the installation of electrical equipment and wiring used in connection with elevators, dumbwaiters, escalators, moving walks, platform lifts, and stairway chairlifts.
- FPN No. 1: For further information, see the Oregon Elevator Specialty Code as adopted in OAR chapter 918, division 400.**  
 FPN No. 2: For further information, see CSA B44.1-04/ASME-A17.5-2004, *Elevator and Escalator Electrical Equipment Certification Standard*.  
 FPN No. 3: The term wheelchair lift has been changed to platform lift. For further information, see ASME A18.1-2003, *Safety Standard for Platform Lifts and Stairway Lifts*.
- 918-305-0250(2)**      **620.2 Definitions.**  
 ...  
**Separate Branch Circuit. A circuit dedicated solely for the purpose intended without other devices, systems or equipment connected to the circuit.**
- 918-305-0250(3)**      **620.5 Working Clearances.** Working space shall be provided about controllers, disconnecting means, and other electrical equipment. The minimum working space shall be not less than that specified in 110.26(A).  
 Where conditions of maintenance and supervision ensure that only qualified persons examine, adjust, service, and maintain the equipment, the clearance requirements of 110.26(A) shall be waived as permitted in 620.5(A) through (D).  
**Where machine room doors swing inward, the arc of the door shall not encroach on those clearances required by section 110.26(A).**  
 ...
- 918-305-0250(4)**      **620.11 Insulation of Conductors.**  
 ...  
**(A) Hoistway Door Interlock Wiring.** The conductors of the hoistway door interlocks from the hoistway riser shall be flame-retardant and suitable for a temperature of not less than 200° C (392°F). Conductors shall be Type SF or equivalent **except where not required by the Elevator Safety Code (ASME A17.1).**  
 ...
- 918-305-0250(5)**      **620.37 Wiring in Hoistways, Machine Rooms, Control Rooms, Machinery Spaces, and Control Spaces.**  
**(A) Uses Permitted.** Only such electrical wiring, raceways, and cables used directly in connection with the elevator or dumbwaiter, including wiring for signals, for communication with the car, for lighting, heating, air conditioning, and ventilating the elevator car, for fire detecting systems, for pit sump pumps, and for heating, lighting, and ventilating the hoistway, shall be permitted inside the hoistway, machine rooms, control rooms, machinery spaces, and control spaces.  
**Conduits and raceways necessary for the connection of such devices shall only enter hoistways and machine rooms to the extent necessary to connect the devices(s) attached thereto.**
- 918-305-0250(6)(a)**      **620.51 Disconnecting Means.**  
 ...  
**(B) Operation.** No provision shall be made to open or close this disconnecting means from any other part of the premises. If sprinklers are installed in hoistways, machine rooms, control rooms, machinery spaces, or control spaces, the disconnecting means shall be permitted to automatically open the power supply to the affected elevator(s) prior to the application of water. No provisions shall be made to automatically close this disconnecting means. Power shall only be restored by manual means.

Amended Language, 2008 NEC

**When provided, this disconnecting means shall be located in the elevator control room or control space. The installation shall comply with the requirements of NFPA 72 as adopted in OAR 918-306-0005.**

918-305-0250(6)(b)

(C) **Location.** The disconnecting means shall be located where it is readily accessible to qualified persons.

**Where machine rooms are provided, the disconnecting means required by 520.51 shall be located within 610 mm (24 inches) of the open side of the machine room access door. Where more than one disconnect is required for a multi-car group, the disconnects shall be adjacent to each other with the first disconnect located within 610 mm (24 inches) of the open side of the machine room access door. Measurement shall be taken from the edge of the disconnect nearest the machine room door.**

...

(4) **On Platform Lifts and Stairway Chairlifts.** On platform lifts and stairway chairlifts, the disconnecting means shall be located within sight of the motor controller or lift and within 1.83 m (six feet) of the motor controller. **The disconnecting means shall not be located in the runway enclosure.**

(5) **Residential installations.** **A disconnecting means shall be required to be placed within sight of the controller or lift. Where such devices are supplied with flexible cord and plug type connectors, the supply receptacle shall be switched by the disconnecting means. The disconnecting means does not require overcurrent protection, provided such protection is supplied by the branch circuit overcurrent device. In all other respects the disconnecting means shall comply with the requirements of this section.**

918-305-0250(7)

**620.86 Flexible Metal Conduit.** **Where flexible metal conduit is utilized between the disconnecting means specified in Section 620.51 and the elevator controller, an equipment grounding conductor shall be provided within the raceway and sized per Section 250.122 and Table 250.122.**

**Amended Language, 2008 NEC**

**918-305-0270**

**692.6 Listing Requirement.** The fuel cell system shall be **certified** for its intended application prior to **final approval**.

## Amended Language, 2008 NEC

918-305-0280(1)

ARTICLE 700  
Emergency Systems

**Building Officials and inspectors administering and enforcing the state building code under ORS 455.148 and 455.150, shall not inspect for compliance with Sections 700.27, 701.18, or 708.54, refuse to perform or finalize inspections, refuse to issue a certificate of occupancy, or use other methods to ensure compliance with Sections 700.27, 701.18, or 708.54. If requested by the Building Codes Division, the Supervising Electrician must demonstrate that the requirements of Sections 700.27, 701.18, or 708.54, as appropriate, have been met. In determining whether a system meets the requirements of Sections 700.27, 701.18, or 708.54, the division may request the local jurisdiction to perform an inspection or collect the relevant information, so that the division may review and make a determination.**

918-305-0280(2)

**700.27 Coordination.**

Emergency system(s) overcurrent devices shall be selectively coordinated with all supply side overcurrent protective devices. **For the purposes of this section, supply side overcurrent protection means those protective devices on the emergency system supply side and not on the normal power supply side. The protection shall be coordinated using the higher of the normal power supply fault current levels or emergency system fault current levels.**

*Exception: Selective coordination shall not be required in (1) or (2):*

(1) *Between transformer primary and secondary overcurrent protective devices, where only one overcurrent protective device or set of overcurrent devices exists on the transformer secondary,*

(2) *Between overcurrent protective devices of the same size (ampere rating) in series.*

**Exception No. 2: The requirements for selective coordination described in 700.27 are not required where the emergency system was installed prior to April 1, 2005. For new emergency systems that are supplied from an existing emergency system installed prior to April 1, 2005, the new portion of the emergency system must comply with NEC 700.27. The ground fault sensing function of overcurrent protective devices will only be required to selectively coordinate with the ground fault sensing functions of other protective devices.**

918-305-0280(3)

**701.18 Coordination.**

Legally required standby system(s) overcurrent devices shall be selectively coordinated with all supply side overcurrent protective devices. **For the purposes of this section, supply side overcurrent protection means those protective devices on the emergency system supply side and not on the normal power supply side. The protection shall be coordinated using the higher of the normal power supply fault current levels or emergency system fault current levels.**

*Exception: Selective coordination shall not be required in (1) or (2):*

(1) *Between transformer primary and secondary overcurrent protective devices, where only one overcurrent protective device or set of overcurrent protective devices exists on the transformer secondary,*

(2) *Between overcurrent protective devices of the same size (ampere rating) in series.*

**Exception No. 2: The requirements for selective coordination described in 701.18 are not required where the required standby system was installed prior to April 1, 2005. For new emergency systems that are supplied from an existing required standby system installed prior to April 1, 2005, the new portion of the required standby system must comply with NEC 701.18. The ground fault sensing**

## Amended Language, 2008 NEC

**function of overcurrent protective devices will only be required to selectively coordinate with the ground fault sensing functions of other protective devices.**

918-305-0280(4)

**708.54 Coordination.**

Critical operations power system(s) overcurrent devices shall be selectively coordinated with all supply side overcurrent protective devices. **For the purposes of this section, supply side overcurrent protection means those protective devices on the emergency system supply side and not on the normal power supply side. The protection shall be coordinated using the higher of the normal power supply fault current levels or emergency system fault current levels.**

**Exception: The requirements for selective coordination described in 708.54 are not required where the critical operations power system(s) was installed prior to April 1, 2005. For new critical operations power system(s) that are supplied from an existing emergency system installed prior to April 1, 2005, the new portion of the critical operations power system(s) must comply with NEC 708.54. The ground fault sensing function of overcurrent protective devices will only be required to selectively coordinate with the ground fault sensing functions of other protective devices.**

**Amended Language, 2008 NEC**

- 918-305-0290(1)**      **725.24 Mechanical Execution of Work.** Class 1, Class 2, and Class 3 circuits shall be installed in a neat and workmanlike manner. Cables and conductors installed exposed on the surface of ceilings and sidewalls shall be supported by the building structure in such a manner that the cable will not be damaged by normal building use. Such cables shall be supported by straps, staples, hangers, cable ties, or similar fittings designed and installed so as not to damage the cable. **This installation shall also conform with 300.4 and 300.11.**
- 918-305-0290(2)**      **760.24 Mechanical Execution of Work.** Fire alarm circuits shall be installed in a neat workmanlike manner. Cables and conductors installed exposed on the surface of ceilings and sidewalls shall be supported by the building structure in such a manner that the cable will not be damaged by normal building use. Such cables shall be supported by straps, staples, cable ties, hangers, or similar fittings designed and installed so as not to damage the cable. **The installation shall also conform with 300.4 and 300.11.**

**Amended Language, 2008 NEC****918-305-0300**

**770.24 Mechanical Execution of Work.** Optical fiber cables shall be installed in a neat and workmanlike manner. Cables installed exposed on the surface of ceilings and sidewalls shall be supported by the building structure in such a manner that the cable will not be damaged by normal building use. Such cables shall be secured by hardware including straps, staples, cable ties, hangers, or similar fittings designed and installed so as not to damage the cable. **The installation shall also conform with 300.4 and 300.11.**

**Amended Language, 2008 NEC****918-305-0310**

**800.24 Mechanical Execution of Work.** Communications circuits and equipment shall be installed in a neat and workmanlike manner. Cables installed exposed on the surface of ceilings and sidewalls shall be supported by the building structure in such a manner that the cable will not be damaged by normal building use. Such cables shall be secured by hardware including straps, staples, cable ties, hangers, or similar fittings designed and installed so as not to damage the cable. **The installation shall also conform with 300.4 and 300.11.**

**Amended Language, 2008 NEC****918-305-0320**

**820.24 Mechanical Execution of Work.** Community television and radio distribution systems shall be installed in a neat and workmanlike manner. Coaxial cables installed exposed on the surface of ceilings and sidewalls shall be supported by the building structure in such a manner that the cables will not be damaged by normal building use. Such cables shall be secured by hardware including straps, staples, cable ties, hangers, or similar fittings designed and installed so as not to damage the cable. **The installation shall also conform with 300.4 and 300.11.**