

**DIVISION 305
ELECTRICAL CODES AND STANDARDS**

**The Oregon 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All electrical interpretations dated prior to April 1, 2011, issued by the Building Codes Division are withdrawn.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; BCD 3-2011, f. 3-11-11, cert. ef. 4-1-11

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**

Unless stated otherwise within this rule, this rule is applied retroactively from July 1, 2010. 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) relating to fire protection systems and Chapter 3 of the **Oregon Residential Specialty Code** relating to smoke alarm installations.

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

(3) The **Oregon Energy Efficiency Specialty Code** 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** 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**. 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 Installation Specialty Code.** 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; BCD 5-2010, f. 5-14-10, cert. ef. 7-1-10; BCD 4-2011, f. & cert. ef. 3-11-11; BCD 21-2011, f. 7-26-11, cert. ef. 10-1-11

918-305-0100

Adoption of Oregon Electrical Specialty Code

(1) Effective April 1, 2011, the **2011 Oregon Electrical Specialty Code** consists of the following:

(a) **2011 Edition of the NFPA 70, National Electrical Code (NEC)**, and further amended by the division in Table 1-E;

(b) **2007 Edition of the IEEE C2-2007, National Electrical Safety Code (NESC)**; and

(c) The electrical provisions of the **Oregon Elevator Specialty Code** adopted 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, applies.

(3) 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.

NOTE: Table 1-E is printed at the end of Division 305 and is available on the division's website at <http://www.bcd.oregon.gov/rules.html#oar>

[Publications: Publications referenced are available for review from the agency. See division website for information on purchasing publications.]

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; BCD 3-2011, f. 3-11-11, cert. ef. 4-1-11

918-305-0105

Amendments to the Oregon Electrical Specialty Code

The **Oregon Electrical Specialty Code** is adopted and amended pursuant to OAR chapter 918, Division 8. Amendments adopted for inclusion into the **Oregon Electrical Specialty Code** are placed in this rule, showing the section reference and a descriptive caption.

[Publications: Publications referenced are available for review 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; BCD 3-2011, f. 3-11-11, cert. ef. 4-1-11

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.

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(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.]

OAR Chapter 918, Division 305

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.

Enforcement

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

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
Effective April 1, 2011

Oregon Amendments to the 2011 edition of the National Fire Protection Association (NFPA) 70, National Electrical Code (NEC) for the 2011 Oregon Electrical Specialty Code.

For the purpose of identifying Oregon amendments to the NFPA 70, NEC – “OESC” followed by a code section denotes an Oregon amendment to that section of code. Amendments may either be additions of code language developed by Oregon, or the deletion of NFPA 70, NEC code language.

Language contained in the NFPA 70, NEC, not listed in this table has not been amended by Oregon.

<p>OESC 90.4</p>	<p>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.</p> <p>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.</p> <p><u>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.</u></p> <p>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.</p> <p><u>Where the 2011 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.</u></p>
<p>OESC 100</p>	<p>ARTICLE 100 Definitions.</p> <p><u>Fire Protection System. 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.</u></p>
<p>OESC 100.24 (Exception)</p>	<p>110.24 Available Fault Current.</p> <p>Exception: The field marking requirements in 110.24(A) and 110.24(B) shall not be required in industrial installations where conditions of maintenance and supervision ensure that only qualified persons service the equipment.</p>
<p>OESC 110.26(D)</p>	<p>110.26(D) Illumination. <u>Calculated or measured value of 10 foot candles average</u> illumination shall be provided for all working spaces about service equipment, switchboards, panelboards, or motor control centers installed indoors and shall not be controlled by automatic means only.</p>
	<p>210.8 Ground-Fault Circuit-Interrupter Protection for Personnel. Ground-fault circuit-interruption for personnel shall be provided as required in 210.8(A) through (C). The ground-fault circuit-interrupter shall be installed in a readily accessible location.</p> <p>Informational Note: See 215.9 for ground-fault circuit-interrupter protection for personnel on feeders.</p>

<p>OESC 210.8 (Exception)</p>	<p><u>Exception: A single receptacle labeled as “not GFCI protected” supplying only a permanently installed fire alarm or burglar alarm system shall not be required to have ground-fault circuit-interrupter protection.</u></p>
<p>OESC 210.8 (Note)</p>	<p><u>Informational Note: See 760.41(B) and 760.121(B) for power supply requirements for fire alarm systems.</u></p> <p>(A) Dwelling Units. All 125-volt, single-phase, 15-and 20- ampere receptacles installed in the locations specified in 210.8(A)(1) through (8) shall have ground-fault circuit-interrupter protection for personnel.</p> <p>(1) Bathrooms</p> <p>(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</p>
<p>OESC 210.8(2) (Exceptions)</p>	<p><u>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.”</u></p> <p><u>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.</u></p> <p><u>Receptacles installed under the exceptions to 210.8(A)(2) shall not be considered as meeting the requirements of 210.52(G).</u></p> <p>(4) Crawl spaces – at or below grade level</p>
<p>OESC 210.8(4) (Exception)</p>	<p><u>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.</u></p> <p>(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</p>
<p>OESC 210.8(5) (Exceptions)</p>	<p><u>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.”</u></p> <p><u>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.</u></p> <p>Receptacles installed under the exceptions to 210.8(A)(5) shall not be considered as meeting the requirements of 210.52(G).</p> <p>(7) Sinks – located in areas other than kitchens where the receptacles are installed within 1.8 m (6 ft) of the outside edge of the sink</p>
<p>OESC 210.8(7) (Exception)</p>	<p><u>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.”</u></p>
<p>OESC 210.12(A) <u>Effective April 1, 2011 through June 30, 2012: amended language.</u></p>	<p>Arc-Fault Circuit-Interrupter Protection.</p> <p>(A) Dwelling Units. All 120-volt, single phase, 15- and 20-ampere branch circuits supplying outlets installed in dwelling unit family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, or similar rooms or areas shall be protected by a listed arc-fault circuit interrupter, combination-type, installed to provide protection of the branch circuit.</p>

<p>OESC 210.12(A) Effective July 1, 2012: Model code as written in NFPA 70, 2011 NEC.</p>	<p><i>Note: The above change to AFCI protection requirements is effective April 1, 2011 through June 30, 2012.</i></p> <p><u>Effective July 1, 2012</u>, AFCI protection requirements are as follows for subsection (A) Dwelling Units:</p> <p>(A) Dwelling Units. All 120-volt, single phase, 15- and 20-ampere branch circuits supplying outlets installed in dwelling unit <u>family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, or similar rooms or areas</u> shall be protected by a listed arc-fault circuit interrupter, combination-type, installed to provide protection of the branch circuit.</p> <p><u>Exception: AFCI protection shall not be required on GFCI protected receptacles installed in dining rooms.</u></p>
<p>OESC 210.12(B)</p>	<p>(B) Branch Circuit Extensions or Modifications – Dwelling Units. In any of the areas specified in 210.12(A), where branch-circuit wiring is modified, replaced, or extended, the branch circuit shall be protected by one of the following: <u>comply with the following:</u></p> <p>(1) A listed combination type AFCI located at the origin of the branch circuit (2) A listed outlet branch circuit type AFCI located at the first receptacle outlet of the existing branch circuit</p> <p>(1) <u>Extensions or modifications of existing circuits shall not require the installation of AFCI protection.</u></p> <p>(2) <u>Replacement or upgrading of a service or panelboard shall not require that existing circuits be protected by AFCI devices.</u></p>
<p>OESC 210.50(D)</p>	<p>(D) Receptacle Height. Where receptacles are installed in structures that comply with the <u>Americans with Disabilities Act (ADA)</u>, the bottom of the receptacles shall not be less than <u>15 inches above the finished floor.</u></p>
<p>OESC 210.52(C)(1) (Exception)</p> <p>OESC 210.52(C)(2)</p> <p>OESC 210.52(C)(3)</p> <p>OESC 210.52(C)(4)</p>	<p>210.52 Dwelling Unit Receptacle Outlets.</p> <p>(C)(1) Wall Countertop Spaces.</p> <p><i>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). <u>Notwithstanding Figure 210.52(C)(1), no receptacle shall be required behind a range, counter-mounted cooking unit, or sink mounted in corner.</u></i></p> <p>(C)(2) Island Countertop Spaces. At least one receptacle outlet shall be installed at each island countertop space with a long dimension of 600 mm (24 in.) or greater and a short dimension of 300 mm (12 in.) or greater.</p> <p>(C)(3) Penninsular Countertop Spaces. At least one receptacle outlet shall be installed at each penninsular countertop space with a long dimension of 600 mm (24 in.) <u>1.05 m (42 in.)</u> or greater and a short dimension of 300 mm (12 in.) or greater. A penninsular countertop is measured from the connecting edge.</p> <p>(C)(4) Separate Spaces. Countertop spaces separated by rangetops, refrigerators, or sinks shall be considered as separate countertop spaces in applying the requirements of 210.52(C)(1). If a range, counter-mounted cooking unit, or sink is installed in an island or a penninsular countertop and the depth of the countertop behind the range counter-mounted cooking unit, or sink is less than 300 mm (12 in.), the range, counter-mounted cooking unit, or sink shall be considered to divide the countertop into two separate spaces. Each separate countertop space shall comply with the applicable requirements in 210.52(C).</p>

<p>OESC 210.52(E)(3) (Exception)</p>	<p>(E)(3) Balconies, Decks, and Porches. <u>Exception to (3): Balconies, decks, or porches located at grade level with a usable area of less than 20 sq. ft. are not required to have an additional receptacle installed.</u></p>
<p>OESC 210.52(I)</p> <p>OESC 210.63 (Exceptions)</p>	<p>(I) Foyers. Foyers that are not part of a hallway in accordance with 210.52(H) and that have an area that is grater than 5.6 m² (60 ft²) shall have a receptacle(s) located in each wall space 900 mm (3 ft) or more in width and unbroken by doorways, floor-to-ceiling windows, and similar openings. 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.</p> <p>210.63 Heating, Air Conditioning, and Refrigeration Equipment Outlet. <i>Exception No. 1: A receptacle outlet shall not be required at one- and two-family dwellings for the service of evaporative coolers.</i></p> <p><u>Exception No. 2: An additional receptacle outlet shall not be required to be installed when replacing existing HVAC equipment if a receptacle outlet is located on the same level and within 75 feet.</u></p>
<p>OESC 225.36 (Exceptions)</p>	<p>225.36 Suitable for Service Equipment. <i>Exception No. 1: 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.</i></p> <p><u>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.</u></p>
<p>OESC 230.40 (Exception)</p> <p>OESC 230.43 (Exception)</p> <p>OESC 230.70(A)(1) (Exception)</p> <p>OESC 230.95(C)</p>	<p>230.40 Number of Service-Entrance Conductor Sets. <i>Exception No. 3: A single-family dwelling unit and its accessory structures shall be permitted to have one set of service-entrance conductors run to each from a single service drop, set of overhead service conductors, set of under-ground service conductors, or service lateral. <u>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.</u></i></p> <p>230.43 Wiring Methods for 600 Volts, Nominal, or Less. <u>Exception: Items (13) and (15) are limited to traffic control devices and highway lighting poles.</u></p> <p>230.70(A)(1) Readily Accessible Location. <u>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.</u></p> <p>230.95 (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 that shall be 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.</p>

<p>OESC250.24(A)(1) (Exception)</p>	<p>250.24 Grounding Service-Supplied Alternating-Current Systems. (A)(1) General. Informational Note: See definitions of <i>Service Drop</i> and <i>Service Lateral</i> in Article 100. <u><i>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.</i></u></p>
<p>OESC250.24(B) (Exception)</p>	<p>(B) Main Bonding Jumper. <u><i>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.</i></u></p>
<p>OESC 250.32 (A)</p>	<p>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 Part III of Article 250 250.50. The grounding electrode conductor(s) shall be 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.</p>
<p>OESC 250.32(B)(1) (Exception)</p>	<p>(B)(1) Supplied by a feeder or Branch Circuit. <i>Exception: For existing and new installations made in compliance with previous editions the 2005 edition of this Code that permitted such connection, the grounded conductor run with the supply to the building or structure shall be permitted to serve as the ground-fault return path if all of the following requirements continue to be met:</i></p>
<p>OESC 250.52(A)(3)(2)</p>	<p>250.52(A)(3) Concrete-Encased Electrode (2) Bare copper conductor not smaller than 4 AWG Metallic components shall be encased by at least 50 mm (2 in.) of concrete and shall be located horizontally within that portion of a concrete foundation or footing that is in direct contact with the earth or within vertical foundations or structural components or members that are in direct contact with the earth. If multiple concrete-encased electrodes are present at a building or structure, it shall be permissible to bond only one into the grounding electrode system. <u>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. When an addition is remote from the service and the integrity of the grounding electrode system has been verified, connection of the remote concrete encased electrode is not required.</u></p>
<p>OESC 250.52(B)(3)</p>	<p>(B)(3) Not Permitted for Use as Grounding Electrodes. <u>(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</u></p>

<p>OESC 250.94</p> <p>OESC 250.118(14)</p>	<p><u>required by 250.104(A).</u></p> <p>250.94 Bonding for Other Systems. An intersystem bonding termination <u>or exposed and supported length of #6 bare copper conductor</u> for connecting intersystem bonding conductors required for other systems shall be provided external to enclosures at the service equipment or metering equipment enclosure and at the disconnecting means for any additional buildings or structures. The intersystem bonding termination shall comply with the following:</p> <p>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:</p> <p>(14) Surface metal raceways listed for grounding.</p> <p><u>Where metallic conduit is installed on roof tops, an equipment grounding conductor shall be provided within the raceway and sized per Section 250.122.</u></p>
<p>OESC 334.12(A)(2) (Exception)</p>	<p>334.12 Uses Not Permitted.</p> <p>(A) Types NM, NMC, and NMS. Types NM, NMC, and NMS cables shall not be permitted as follows:</p> <p>(2) Exposed in dropped or suspended ceilings in other than one- and two-family and multifamily dwellings</p> <p><u>Exception: Where installed in accordance with 334.15.</u></p>
<p>OESC 334.15(B)</p> <p>OESC 334.15(C)</p>	<p>334.15 Exposed Work</p> <p>(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, type RTRC marked with the suffix –XW, 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, type RTRC marked with the suffix –XW, or other approved means extending at least 150 mm (6 in.) above the floor.</p> <p>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(F) and covered with plaster, adobe, or similar finish.</p> <p><u>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.</u></p> <p>(C) In Unfinished Basements and Crawl Spaces. Where cable is run at angles with joists in unfinished basements and crawl spaces, 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. Nonmetallic-sheathed 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 sheath of the nonmetallic-sheathed 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 300 mm (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 complying with the provisions of 250.86 and 250.148.</p>
<p>OESC 342.30 IMC</p>	<p>Securing and Supporting. IMC shall be installed as a complete system in accordance with 300.18 and shall be securely fastened in place and supported in accordance with 342.30(A) and</p>

	<p>(B), <u>or permitted to be unsupported in accordance with 342.30(C).</u></p> <p><u>(C) Unsupported Raceways. Where oversized, concentric or eccentric knockouts are not encountered, Type IMC shall be permitted to be unsupported where the raceway is not more than 450 mm (18 in.) and remains in unbroken lengths (without coupling). Such raceways shall terminate in an outlet box, junction box, device box, cabinet, or other termination at each end of the raceway.</u></p>
OESC 344.30 RMC	<p>Securing and Supporting. RMC shall be installed as a complete system in accordance with 300.18 and shall be securely fastened in place and supported in accordance with 344.30(A) and (B), <u>or permitted to be unsupported in accordance with 344.30(C).</u></p> <p><u>(C) Unsupported Raceways. Where oversized, concentric or eccentric knockouts are not encountered, Type RMC shall be permitted to be unsupported where the raceway is not more than 450 mm (18 in.) and remains in unbroken lengths (without coupling). Such raceways shall terminate in an outlet box, junction box, device box, cabinet, or other termination at each end of the raceway.</u></p>
OESC 352.30 PVC	<p>Securing and Supporting. PVC shall be installed as a complete system in accordance with 300.18 and shall be securely fastened in place and supported in accordance with 352.30(A) and (B), <u>or permitted to be unsupported in accordance with 352.30(C).</u></p> <p><u>(C) Unsupported Raceways. Where oversized, concentric or eccentric knockouts are not encountered, PVC conduit shall be permitted to be unsupported where the raceway is not more than 450 mm (18 in.) and remains in unbroken lengths (without coupling). Such raceways shall terminate in an outlet box, junction box, device box, cabinet, or other termination at each end of the raceway.</u></p>
OESC 355.30 RTRC	<p>Securing and Supporting. RTRC shall be installed as a complete system in accordance with 300.18 and shall be securely fastened in place and supported in accordance with 355.30(A) and (B), <u>or permitted to be unsupported in accordance with 355.30(C).</u></p> <p><u>(C) Unsupported Raceways. Where oversized, concentric or eccentric knockouts are not encountered, Type RTRC shall be permitted to be unsupported where the raceway is not more than 450 mm (18 in.) and remains in unbroken lengths (without coupling). Such raceways shall terminate in an outlet box, junction box, device box, cabinet, or other termination at each end of the raceway.</u></p>
OESC 358.30 EMT	<p>Securing and Supporting. EMT shall be installed as a complete system in accordance with 300.18 and shall be securely fastened in place and supported in accordance with 358.30(A) and (B), <u>or permitted to be unsupported in accordance with 358.30(C).</u></p> <p><u>(C) Unsupported Raceways. Where oversized, concentric or eccentric knockouts are not encountered, Type EMT shall be permitted to be unsupported where the raceway is not more than 450 mm (18 in.) and remains in unbroken lengths (without coupling). Such raceways shall terminate in an outlet box, junction box, device box, cabinet, or other termination at each end of the raceway.</u></p>
OESC 394.12 (Exceptions)	<p>394.12 Uses Not Permitted. Concealed knob-and-tube wiring shall not be used in the following:</p> <ul style="list-style-type: none"> (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 <p><u>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:</u></p> <ul style="list-style-type: none"> <u>(1) The visible wiring shall be inspected by a certified electrical inspector or a general supervising electrician employed by a licensed electrical contractor.</u> <u>(2) All defects found during the inspection shall be repaired prior to the installation of insulation.</u> <u>(3) Repairs, alterations or extensions of or to the electrical systems shall be inspected by a certified electrical inspector.</u> <u>(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</u>

	<p><u>shall not be used with knob-and-tube wiring.</u></p> <p><u>(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.</u></p> <p><u>(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.</u></p>
OESC 400.7(A)(11)	<p>400.7(A) Uses. Flexible cords and cables shall be used only for the following:</p> <p><u>(11) Listed assemblies of fixtures and controllers, approved by the Federal Aviation Administration.</u></p>
OESC 404.2(C) (Exception)	<p>404.2(C) Switches Controlling Lighting Loads.</p> <p><i>Exception: The grounded circuit conductor shall be permitted to be omitted from the switch enclosure <u>for replacements of existing devices or</u> where either of the following conditions in (1) or (2) apply:</i></p>
OESC 406.4(D)(4)	<p>406.4(D)(4) Arc-Fault Circuit-Interrupter Protection.</p> <p>This requirement becomes effective January April 1, 2014.</p>
OESC 406.9(B)(1)	<p>406.9(B) Wet Locations.</p> <p>(1) ... For other than one- and two-family dwellings, an outlet box hood installed for this purpose shall be listed, and where installed on an enclosure supported from grade as described in 314.23(B) or as described in 314.23(F), <u>(permanently mounted on a post or pole)</u>, shall be identified as “extra duty”.</p>
OESC 406.9(B)(1) (Exception)	<p><u>Exception: Temporary installations shall not require an “extra-duty” outlet box hood.</u></p>
OESC 406.12(A)	<p>406.12 Tamper Resistant Receptacles. in Dwelling Units.</p> <p><u>(A) Dwelling Units.</u> In all areas specified in 210.52, all nonlocking-type 125-volt, 15- and 20-ampere receptacles shall be listed tamper-resistant receptacles.</p> <p><u>(B) Guest Rooms and Guest Suites.</u> All nonlocking-type 125-volt, 15- and 20-ampere receptacles located in guest rooms and guest suites shall be listed tamper-resistant receptacles.</p> <p><u>(C) Child Care Facilities.</u> In all child care facilities, all nonlocking-type 125-volt, 15- and 20-ampere receptacles shall be listed tamper-resistant receptacles.</p> <p><i>Exception to (A), (B) and (C): Receptacles in the following locations shall not be required to be tamper-resistant:</i></p> <p>(1) Receptacles located more than 1.7 m (5½ ft) above the floor.</p> <p>(2) Receptacles that are part of a luminaire or appliance.</p> <p>(3) A single receptacle or a duplex receptacle for two appliances located within dedicated space for each appliance that, in normal use, is not easily moved from one place to another and that is cord-and-plug connected in accordance with 400.7(A)(6), (A)(7), or (A)(8).</p> <p>(4) Nongrounding receptacles used for replacements as permitted in 406.4(D)(2)(a).</p> <p><u>(5) A multi-outlet assembly mounted on the underside of a cabinet above a countertop.</u></p>
OESC 406.12(B)	
OESC 406.12(C)	
OESC 406.12 (Exception)	
OESC 406.13	<p>406.13 Tamper Resistant Receptacles in Guest Rooms and Guest Suites. All nonlocking-type, 125-volt, 15- and 20-ampere receptacles located in guest rooms and guest suites shall be listed tamper-resistant receptacles.</p>
OESC 406.14	<p>406.14 Tamper Resistant Receptacles in Child Care Facilities. In all child care facilities, all nonlocking-type, 125-volt, 15- and 20-ampere receptacle shall be listed tamper-resistant receptacles.</p>
OESC 422.34	<p>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</p>

	<p>disconnecting means required by this article where other means for disconnection are provided in occupancies specified in 422.34 (A) through (D). <u>Unit switches on ranges, ovens and dishwashers shall not be considered the disconnect required by this section.</u></p>
<p>OESC 424.44 OESC 424.44(G)</p>	<p>424.44 Installation of Cables in Concrete or Poured Masonry Floors. (G) Ground-Fault Circuit-Interrupter Protection. Ground-fault circuit-interrupter protection for personnel shall be provided for cables installed in <u>all</u> electrically heated floors of bathrooms, kitchens, and in hydromassage bathtub locations.</p>
<p>OESC 500.8(A)</p>	<p>500.8 Equipment (A) Suitability. “Suitability of identified equipment” shall be determined by one of the following: <u>as used in Article 500.8 (A) means that equipment meets the requirements of ORS 479.760.</u></p> <p>(1) Equipment listing or labeling (2) Evidence of equipment evaluation from a qualified testing laboratory or inspection agency concerned with product evaluation (3) Evidence acceptable to the authority having jurisdiction such as a manufacturer’s self-evaluation or an owner’s engineering judgment.</p> <p>Informational Note: Additional documentation for equipment may include certificates demonstrating compliance with applicable equipment standards, indicating special conditions of use, and other pertinent information. Guidelines for certificates may be found in ANSI/ISA 12.00.02, Certificate Standard for AEx Equipment for Hazardous (Classified) Locations.</p>
<p>OESC 547.5(G) OESC 547.10(A)(2) (Exception)</p>	<p>547.5 (G) Receptacles. All 125-volt, single phase, 15- and 20-ampere general-purpose receptacles installed in the locations listed in (1) through (4) shall have ground-fault circuit-interrupter protection: (4) Dirt confinement areas for livestock <u>GFCI protection shall not be required for a single receptacle supplying a dedicated load and marked “not GFCI protected”. A GFCI protected receptacle shall be located within 900 mm (3 ft) of the non-GFCI protected receptacle.</u></p> <p>547.10(A)(2) Outdoors. Equipotential planes shall be installed in concrete slabs where metallic equipment is located that may become energized and is accessible to livestock. The equipotential plane shall encompass the area where the livestock stands while accessing metallic equipment that may become energized.</p> <p><u>Exception: Where the electrical system is designed by a professional engineer, as defined in ORS 672.002(2), and the electrical equipment is isolated and not accessible to livestock, and non-electrical metallic equipment is not likely to become energized.</u></p>
<p>OESC 553.4</p>	<p>553.4 Location of Service Equipment. The service equipment for a floating building shall be located adjacent to, but not in or on, the building or any floating structure. The main overcurrent protective device that feeds the floating structure shall have ground fault protection not exceeding 100 mA. Ground fault protection of each individual branch or feeder circuit shall be permitted as a suitable alternative.</p>
<p>OESC 555.3</p>	<p>555.3 Ground Fault Protection. The main overcurrent protective device that feeds the marina shall have ground fault protection not exceeding 100 mA. Ground fault protection of each individual branch or feeder circuit shall be permitted as a suitable alternative.</p>

<p>OESC 590.4(D)(2)</p> <p>OESC 590.6(A)(1)</p>	<p>590.4(D) Receptacles. (2) Receptacles in Wet Locations. All 15- and 20-ampere, 125- and 250-volt receptacles installed in a wet location shall comply with 406.9(B)(1).</p> <p>590.6(A) (1) Receptacle Outlets Not Part of Permanent Wiring. All 125-volt, single-phase, 15-, 20-, and 30-ampere receptacle outlets that are not a part of the permanent wiring of the building or structure and that are in use by personnel shall have ground-fault circuit-interrupter protection for personnel. Listed cord sets or devices incorporating listed ground-fault circuit-interrupter protection for personnel identified for portable use shall be permitted to meet the requirements of this section.</p>
<p>OESC 600.7(B)(1)</p>	<p>600.7(B)(1) Bonding of Metal Parts Exception: Remote metal parts of a section sign or outline lighting system only supplied by a remote Class 2 power supply shall not be required to be bonded to an equipment grounding conductor.</p>
<p>OESC 620.1</p> <p>OESC 620.2</p> <p>OESC 620.5</p> <p>OESC 620.11(A)</p> <p>OESC 620.37(A)</p>	<p>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.</p> <p>Informational Note No. 1: For further information, see ASME A17.1-2007/CSA B44-07, Safety code for Elevators and Escalators. <u>the Oregon Elevator Specialty Code as adopted in OAR chapter 918, division 400.</u></p> <p>Informational Note No. 2: For further information, see CSA B44.1-04/ASME-A17.5-2004, <i>Elevator and Escalator Electrical Equipment Certification Standard</i>.</p> <p>Informational Note No. 3: The term wheelchair lift has been changed to platform lift. For further information, see ASME A18.1-2008, <i>Safety Standard for Platform Lifts and Stairway Lifts</i>.</p> <p>620.2 Definitions. <u>Separate Branch Circuit. A circuit dedicated solely for the purpose intended without other devices, systems or equipment connected to the circuit.</u></p> <p>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). <u>Where machine room doors swing inward, the arc of the door shall not encroach on those clearances required by section 110.26(A).</u></p> <p>620.11 (A) Hoistway Door Interlock Wiring. The conductors to 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 <u>except where not required by the Elevator Safety Code (ASME A17.1).</u></p> <p>620.37(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. <u>Conduits and raceways necessary for the connection of such devices shall only enter</u></p>

<p>OESC 620.51(B)</p> <p>OESC 620.51(C)</p> <p>OESC 620.51(C)(4)</p> <p>OESC 620.51(C)(5)</p> <p>OESC 620.86</p>	<p><u>hoistways and machine rooms to the extent necessary to connect the device(s) attached thereto.</u></p> <p>620.51(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 provision shall be made to automatically close this disconnecting means. Power shall only be restored by manual means.</p> <p><u>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.</u></p> <p>(C) Location. The disconnecting means shall be located where it is readily accessible to qualified persons.</p> <p><u>Where machine rooms are provided, the disconnecting means required by 620.51 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.</u></p> <p>(C)(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 <u>or lift and within 1.83 m (six feet) of the motor controller. The disconnecting means shall not be located in the runway enclosure.</u></p> <p>(C)(5) Residential installations. <u>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.</u></p> <p>620.86 Flexible Metal Conduit. <u>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.</u></p>
<p>OESC 625.30(C)</p>	<p><u>625.30(C) Grounding Electrodes. When supplied from equipment with a grounding electrode system, an additional grounding electrode shall not be required at the electrical vehicle supply equipment.</u></p>
<p>OESC 645.2</p> <p>OESC 645.10</p>	<p>645.2 Definitions</p> <p>Critical Operations Data System. An information technology equipment system that <u>has been designated by the building owner as requires requiring</u> continuous operation. For reasons of public safety, emergency management, national security, or business continuity.</p> <p>645.10 Disconnecting Means. An approved means shall be provided to disconnect power to all electronic equipment in the information technology equipment room or in designated zones within the room. There shall also be a similar approved means to disconnect the power to all dedicated HVAC systems serving the room or designated zones and shall cause all required fire/smoke dampers to close. The disconnecting means shall be <u>implemented by grouped and identified and shall be readily accessible at the principal exit doors or shall comply with</u> either (A) or (B).</p>

<p>OESC 680.42 (Exception)</p>	<p>680.42 Outdoor Installations. A spa or hot tub installed outdoors shall comply with the provisions of Parts I and II of this article, except as permitted in 680.42(A) and (B), that would otherwise apply to pools installed outdoors.</p> <p><u>Exception: The equipotential bonding requirements for perimeter surfaces in 680.26(B)(2) shall not apply to a listed self-contained spa or hot tub.</u></p>
<p>OESC 690.3 (Note)</p>	<p>690.3 Other Articles. <i>Exception: Solar photovoltaic systems, equipment, or wiring installed in a hazardous (classified) location shall also comply with the applicable portions of Articles 500 through 516.</i></p> <p><u>Informational Note: Raceways and conduit systems installed for use with solar photovoltaic systems may be subject to elevated temperatures and may require the use of expansion fittings and ambient temperature adjustment. See 300.7(B), and table 310.15(B)(3)(c) for adjustment factors.</u></p>
<p>OESC 690.4(F)</p>	<p>690.4(F) Circuit Routing. Photovoltaic source and PV output conductors, in and out of conduit, and inside of a building or structure, shall be routed along building structural members such as beams, rafters, trusses, and columns where the location of those structural members can be determined by observation. <u>Circuit conductors shall not be embedded in built up, laminate, or membrane roofing materials in roof areas not covered by PV modules and associated equipment.</u></p>
<p>OESC 690.8(E)</p>	<p>690.8(E) DC Current-Carrying Conductors in Raceways. <u>Conductors used for PV sources and output circuits shall be required to be counted as current-carrying conductors and shall comply with the provisions of 310.15(B)(3)(a).</u></p>
<p>OESC 690.11</p>	<p>690.11 Arc-Fault Circuit Protection (Direct Current). <u>This requirement becomes effective April 1, 2014.</u></p>
<p>OESC 690.14(E)</p>	<p>690.14 Additional provisions. <u>(E) Combiner Boxes. One or more disconnecting means shall be provided at each combiner box where conductors are spliced or overcurrent protection is provided. This disconnecting means shall comply with the following requirements:</u></p> <ul style="list-style-type: none"> <u>(1) Shall not be required to meet the provisions of 690.14 (A) through (D)</u> <u>(2) Located where accessible</u> <u>(3) Lockable and externally operable. Other effective disconnecting means such as electrical interlocking shall be permitted by special permission</u> <u>(4) Shall be adjacent to or integral with the combiner box</u> <u>(5) A permanent plaque or directory denoting the location of all disconnecting means required by 690.13 and 690.14 shall be provided at the service disconnecting means</u>
<p>OESC 690.31(E)(1)</p>	<p>690.31 Methods Permitted (E)(1) Beneath Roofs. Wiring methods shall not be installed within 25 45 cm (10 18 in.) of the roof decking or sheathing except where directly below the roof surface covered by PV modules and associated equipment. Circuits shall be run perpendicular to the roof penetration point to supports a minimum of 25 45 cm (10 18 in.) below the roof decking.</p> <p>Informational Note: The 25 45 cm (10 18 in.) requirement is to prevent accidental damage from saws used by fire fighters for roof ventilation during a structure fire.</p>
<p>OESC 690.47</p>	<p>690.47 Grounding Electrode System. <u>Where a grounding electrode conductor is required by 690.47(A), (B) and (C), it shall not be smaller than 6AWG copper or 4 AWG aluminum.</u></p>

<p>OESC 692.6</p>	<p>692.6 Listing Requirement. The fuel cell system shall be evaluated and listed certified for its intended application prior to installation final approval.</p>
<p>OESC 700</p> <p>OESC 700.27</p> <p>OESC 700.27 (Exceptions)</p>	<p>ARTICLE 700 Emergency Systems</p> <p><u>Building Officials and inspectors administering and enforcing the state building code under ORS 455.148 and 455.150, shall assure compliance with Sections 700.27, 701.27, or 708.54 by verifying receipt of a certificate signed by the Engineer of Record or the Signing Supervisor stating that the proposed installation complies with the selective coordination requirements of this code.</u></p> <p>700.27 Coordination. Emergency system(s) overcurrent devices shall be selectively coordinated with all supply side overcurrent protective devices. <u>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 selectively coordinated using the higher of the normal power supply fault current levels or emergency system fault current levels. Overcurrent devices shall be selectively coordinated for .01 seconds and greater.</u></p> <p><i>Exception No. 1: Selective coordination shall not be required between two overcurrent devices located in series if no loads are connected in parallel with the downstream device.</i></p> <p><i><u>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.</u></i></p>
<p>OESC 701.27</p> <p>OESC 701.27 (Exceptions)</p>	<p>701.27 Coordination. Legally required standby system(s) overcurrent devices shall be selectively coordinated with all supply side overcurrent protective devices. <u>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 selectively coordinated using the higher of the normal power supply fault current levels or emergency system fault current levels. Overcurrent devices shall be selectively coordinated for .01 seconds and greater.</u></p> <p><i>Exception No. 1: Selective coordination shall not be required between two overcurrent devices located in series if no loads are connected in parallel with the downstream device.</i></p> <p><i><u>Exception No. 2: The requirements for selective coordination described in 701.27 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 701.27. 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.</u></i></p>
<p>OESC 708.1</p>	<p>708.1 Scope. The provisions of this article apply to the installation, operation, monitoring, control, and maintenance of the portions of the premises wiring system intended to supply, distribute, and control electricity to designated critical operations areas (DCOA) in the event of disruption to elements of the normal system.</p> <p>Critical operations areas and critical operations power systems are those systems so classed by municipal, state, federal, or other codes by any governmental agency having jurisdiction or by facility engineering documentation establishing the necessity for such a designated by the owner of the facility. A building official has no authority to designate or require designation of an area as requiring a critical operations power system. These Critical operations power systems can include but are not limited to power systems, HVAC, fire alarm, security, communications, and signaling for designated critical operations areas.</p>

<p>OESC 708.54</p> <p>OESC 708.54 (Exception)</p>	<p>708.54 Coordination. Critical operations power system(s) overcurrent devices shall be selectively coordinated with all supply side overcurrent protective devices. <u>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 selectively coordinated using the higher of the normal power supply fault current levels or emergency system fault current levels. Overcurrent devices shall be selectively coordinated for .01 seconds and greater.</u></p> <p><i><u>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.</u></i></p>
<p>OESC 725.24</p>	<p>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 comply with 300.4(D) and 300.11.</p>
<p>OESC 760.24</p>	<p>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 comply with 300.4(D) and 300.11.</p>
<p>OESC 760.41(B)</p> <p>OESC 760.121(B)</p>	<p>760.41 NPFLA Circuit Power Source Requirements</p> <p>(B) Branch Circuit. The branch circuit supplying the fire alarm equipment(s) shall supply no other loads. The location of the branch-circuit overcurrent protective device shall be permanently identified at the fire alarm control unit. The circuit disconnecting means shall have red identification, shall be accessible only to qualified personnel, and shall be identified as “FIRE ALARM CIRCUIT.” The red identification shall not damage the overcurrent protective devices or obscure the manufacturer’s markings. This branch circuit shall not be supplied through ground-fault circuit interrupters or arc-fault circuit-interrupters.</p> <p>760.121 Power Sources for PLFA Circuits</p> <p>(B) Branch Circuit. The branch circuit supplying the fire alarm equipment(s) shall supply no other loads. The location of the branch-circuit overcurrent protective device shall be permanently identified at the fire alarm control unit. The circuit disconnecting means shall have red identification, shall be accessible only to qualified personnel, and shall be identified as “FIRE ALARM CIRCUIT.” The red identification shall not damage the overcurrent protective devices or obscure the manufacturer’s markings. This branch circuit shall not be supplied through ground-fault circuit interrupters or arc-fault circuit-interrupters.</p>
<p>OESC 770.24</p>	<p>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 comply with 300.4(D) and 300.11.</p>

<p>OESC 800.24</p>	<p>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 comply with 300.4(D) and 300.11.</p>
<p>OESC 820.24</p>	<p>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 comply with 300.4(D) and 300.11.</p>
<p>OESC 830.24</p>	<p>830.24 Mechanical Execution of Work. Network-powered broadband 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 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 comply with 300.4(D) and 300.11.</p>