

TABLE 1-E
Effective April 1, 2011

<p>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.</p> <p>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.</p> <p>Language contained in the NFPA 70, NEC, not listed in this table <u>has not</u> been amended by Oregon.</p>	
<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:</u> amended language.</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) Pennisular Countertop Spaces. At least one receptacle outlet shall be installed at each peninsular 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 peninsular 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 peninsular 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>(I) Foyers. Foyers that are not part of a hallway in accordance with 210.52(H) and that have an area that is greater 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>OESC 210.63 (Exceptions)</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> <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> <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>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>OESC 230.43 (Exception)</p>	<p>230.43 Wiring Methods for 600 Volts, Nominal, or Less. <i>Exception: Items (13) and (15) are limited to traffic control devices and highway lighting poles.</i></p>
<p>OESC 230.70(A)(1) (Exception)</p>	<p>230.70(A)(1) Readily Accessible Location. <i>Exception: <u>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></i></p>
<p>OESC 230.95(C)</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. <u>This test shall be performed by persons having proper training and experience required to perform and evaluate the results of such performance testing.</u> A written record of this test shall be made available to the authority having jurisdiction. <u>This report shall be signed by the person(s) performing this test.</u></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), or permitted to be unsupported in accordance with 342.30(C).</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), or permitted to be unsupported in accordance with 344.30(C).</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), or permitted to be unsupported in accordance with 352.30(C).</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), or permitted to be unsupported in accordance with 355.30(C).</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), or permitted to be unsupported in accordance with 358.30(C).</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> <p>(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> <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> <p><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></p> <p><u>(2) All defects found during the inspection shall be repaired prior to the installation of insulation.</u></p> <p><u>(3) Repairs, alterations or extensions of or to the electrical systems shall be inspected by a certified electrical inspector.</u></p> <p><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>

	<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 for replacements of existing devices or 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>
OESC 406.12(B)	<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>
OESC 406.12(C)	<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>
OESC 406.12 (Exception)	<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 406.13	<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>
OESC 424.44 OESC 424.44(G)	<p>424.44 Installation of Cables in Concrete or Poured Masonry Floors.</p> <p>(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>
OESC 500.8(A)	<p>500.8 Equipment</p> <p>(A) Suitability. “Suitability of identified equipment” shall be determined by one of the following: as used in Article 500.8 (A) means that equipment meets the requirements of ORS 479.760.</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>
OESC 547.5(G)	<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:</p> <p>(4) Dirt confinement areas for livestock</p> <p><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>
OESC 547.10(A)(2) (Exception)	<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.</p> <p>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>
OESC 553.4	<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>
OESC 555.3	<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 devices(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><u>(C)(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.</u></p> <p><u>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.</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 implemented by <u>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.</p> <p><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).</p> <p><u>This requirement becomes effective April 1, 2014.</u></p>
<p>OESC 690.14(E)</p>	<p>690.14 Additional provisions.</p> <p><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</p> <p>(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.</p> <p><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 <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><u><i>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.</i></u></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><u><i>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.</i></u></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 <u>areas and critical operations</u> 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 <u>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</u> system. These <u>Critical operations power</u> systems <u>can</u> 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>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.</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>