

TABLE 1-E
Amended September 7, 2016
Amended April 15, 2015
Adopted October 1, 2014

Oregon Amendments to the 2014 edition of the National Fire Protection Association (NFPA) 70, National Electrical Code (NEC) for the 2014 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.

(Some NFPA 70-14 Errata have been referenced or included for user convenience).

<p>OESC 90.4</p>	<p>90.4 Enforcement. (First paragraph, no change to model code).</p> <p>By special permission, the authority having jurisdiction may waive specific requirements in this <i>Code</i> 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 by requesting an alternate method 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 <i>Code</i> may require new products, constructions, or materials that may not yet be available at the time the <i>Code</i> 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 <i>Code</i> adopted by the jurisdiction.</p> <p><u>Where the 2014 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. (after Festoon Lighting)</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 110.10</p> <p style="text-align: center;">Amendment Effective Sep 7, 2016</p> <p>(Exception)</p>	<p>110.10 Circuit Impedance, Short-Circuit Current Ratings, and other Characteristics. The overcurrent protection devices, the total impedance, the equipment short-circuit current ratings, and other characteristics of the circuit to be protected shall be selected and coordinated to permit the circuit protective devices used to clear a fault to do so without extensive damage to the electrical equipment of the circuit. This fault shall be assumed to be either between two or more of the circuit conductors or between any circuit conductor and the equipment grounding conductor(s) permitted in 250.118. Listed equipment applied in accordance with their listing shall be considered to meet the requirements of this section.</p> <p><u>Exception: A temporary service may be energized without demonstrating compliance with this section. This exception is applied at the discretion of the general supervising electrician.</u></p>
<p>OESC 110.24(A)</p> <p style="text-align: center;">Amendment Effective Sep 7, 2016</p> <p>(Exception)</p>	<p>110.24(A) Field Marking. Service equipment in other than dwelling units shall be legibly marked in the field with the maximum available fault current. The field marking(s) shall include the date the fault-current calculation was performed and be of sufficient durability to withstand the environment involved.</p> <p><u>Exception: A temporary service may be energized without demonstrating compliance with this section. This exception is applied at the discretion of the general supervising electrician.</u></p>

<p>OESC 110.24(B) (Exception)</p>	<p>(delete the <i>Exception</i>). <i>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.</i></p>
<p>OESC 110.26(C)(3) Amendment Effective April 1, 2015</p> <p>OESC 110.26(D)</p>	<p>110.26(C)(3) Personnel Doors. Where equipment rated 800 A or more that contains overcurrent devices, switching devices or control devices is installed <u>in structures other than one and two family dwellings and individual multifamily units</u> and there is a personnel door(s) intended for entrance to and egress from the working space less than 7.6 m (25 ft) from the nearest edge of the working space, the door(s) shall open in the direction of egress and be equipped with listed panic hardware.</p> <p>Note: Additional construction requirements are located in the Oregon Structural Specialty Code (OSSC) Section 1008.1.10.</p> <p>OSSC Section 1008.1.10.1 governs panic hardware listing and installation requirements. Section 1008.1.10.1 is not part of this code but is provided here for the reader’s convenience.</p> <p>OSSC 1008.1.10.1 Installation. Where panic or fire exit hardware is installed, it shall comply with the following:</p> <ol style="list-style-type: none"> 1. Panic hardware shall be listed in accordance with UL 305; 2. Fire exit hardware shall be listed in accordance with UL 10C and UL 305; 3. The actuating portion of the releasing device shall extend at least one-half of the door leaf width; and 4. The maximum unlatching force shall not exceed 15 pounds (67 N). <p>OSSC 1008.1.10.2 Balanced doors. If balanced doors are used and panic hardware is required, the panic hardware shall be the push-pad type and the pad shall not extend more than one-half the width of the door measured from the latch side.</p> <p>110.26(D) Illumination. A calculated or measured value of 10 foot candles average illumination shall be provided for all working spaces about service equipment, switchgear switchboards, switchgear, panelboards, or motor control centers installed indoors and shall not be controlled by automatic means only.</p>
<p>OESC 210.8 Errata</p> <p>OESC 210.8 (Notes) (Exception)</p>	<p>210.8 Ground-Fault Circuit-Interrupter Protection for Personnel. Ground-fault circuit-interrupter protection for personnel shall be provided as required in 210.8(A) through (C) (D). The ground-fault circuit-interrupter shall be installed in a readily accessible location.</p> <p>Informational Note No. 1: See 215.9 for ground-fault circuit-interrupter protection for personnel on feeders.</p> <p><u>Informational Note No. 2: See 760.41(B) and 760.121(B) for power supply requirements for fire alarm systems.</u></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>210.8(A) Dwelling Units. All 125-volt, single-phase, 15- and 20- ampere receptacles installed in the locations specified in 210.8(A)(1) through (10) shall have ground-fault circuit-interrupter protection for personnel.</p> <p>(1) Bathrooms</p>

<p>OESC 210.8(A)(2) (Exceptions)</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><u><i>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.”</i></u></p> <p><u><i>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.</i></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>(3) Outdoors</p>
<p>OESC 210.8(A)(4) (Exception)</p>	<p>(4) Crawl spaces – at or below grade level</p> <p><u><i>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.</i></u></p>
<p>OESC 210.8(A)(5) (Exceptions)</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><u><i>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.”</i></u></p> <p><u><i>Exception No. 2 to (5): Receptacle ground fault protection shall not be required for an individual branch circuit serving a single receptacle for sewage or sump pumps.</i></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>OESC 210.8(A)(7) (Exception)</p>	<p>(6) Kitchens – where the receptacles are installed to serve the countertop surfaces</p> <p>(7) Sinks – where receptacles are installed within 1.8 m (6 ft) of the outside edge of the sink</p> <p><u><i>Exception to (7): A single receptacle for each appliance or a duplex receptacle serving two appliances 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.”</i></u></p> <p>(8) Boathouses</p> <p>(9) Bathtubs or shower stalls – where receptacles are installed within 1.8 m (6ft) of the outside edge of the bathtub or shower stall</p>
<p>OESC 210.8(A)(10) (Exception)</p>	<p>(10) Laundry areas</p> <p><u><i>Exception to (10): 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.”</i></u></p>
<p>OESC 210.8(B)</p>	<p>210.8(B) Other than Dwelling Units. All 125-volt, single-phase, 15-and 20- ampere receptacles installed in the locations specified in 210.8(B)(1) through (8) shall have ground-fault circuit-interrupter protection for personnel. . .</p> <p>(3) Rooftops</p> <p>(4) Outdoors</p> <p>(8) Garages, service bays, and similar areas other than vehicle exhibition halls and showrooms</p> <p><u><i>Exception No. 1 to (3), (4) and (8): Receptacle ground fault protection shall not be required for an individual branch circuit serving receptacle for sewage or sump pumps.</i></u></p>

<p>OESC 210.12(A) (Exceptions)</p> <p>Amendment Effective April 1, 2015</p> <p>OESC 210.12(B)</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 or devices installed in dwelling unit kitchens, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, <u>alcoves</u>, laundry areas, or similar rooms or areas shall be protected by any of the means described in 210.12(A)(1) through (6):</p> <p><i>Exception No. 1: Where an individual branch circuit to a fire alarm system installed in accordance.</i></p> <p><u><i>Exception No. 2: AFCI protection shall not be required on GFCI protected receptacles installed in dining rooms.</i></u></p> <p><u><i>Exception No 3: AFCI protection shall not be required for optional, dedicated outlets that supply equipment known to cause unwanted tripping of AFCI devices.</i></u></p> <p><u><i>Exception No 4: AFCI protection shall not be required on branch circuits supplying receptacles or appliances fastened in place located in hallways, kitchens and laundry areas.</i></u></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 <u>comply with</u> the following:</p> <p>(1) <u>A listed combination type AFCI located at the origin of the branch circuit Extensions or modifications of existing circuits shall not require the installation of AFCI protection.</u></p> <p>(2) <u>A listed outlet branch circuit type AFCI located at the first receptacle outlet of the existing branch circuit Replacement or upgrading of a service or panelboard shall not require that existing circuits be protected by AFCI devices.</u></p> <p><u>(3) Where an existing branch circuit is replaced, the installation of AFCI protection shall be required.</u></p> <p><i>Exception: AFCI protection shall not be required where the extension of the existing conductors is not more than 1.8 m (6 ft) and does not include any additional outlets or devices.</i></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>OESC 210.52(E)(3) (Exception)</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>Despite 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) Peninsular Countertop Spaces. At least one receptacle outlet shall be installed at each peninsular countertop space with a long dimension of 600 mm (24 in.) 1.05 m (42 in.) 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 . . .</p> <p>(E)(3) Balconies, Decks, and Porches.</p> <p><u><i>Exception to (3): Decks or porches located at grade level with an area of less than 20 sq. ft. are not required to have an additional receptacle installed.</i></u></p>

<p>OESC 210.52(G)(1) (Exception)</p> <p>OESC 210.52(I)</p>	<p>210.52(G) For a one-family dwelling, at least one receptacle outlet shall be installed in the areas specified in 210.52(G)(1) through (3). These receptacles shall be in addition to receptacles required for specific equipment.</p> <p>(1) Garages. In each attached garage and in each detached garage with electric power. The branch circuit supplying this receptacle(s) shall not supply outlets outside of the garage. At least one receptacle outlet shall be installed for each car space.</p> <p><u>Exception: A 20 ampere branch circuit shall be permitted to supply the outlet(s) specified in 210.52 (E).</u></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. Doorways, door side windows that extend to the floor, and similar openings shall not be considered wall space. Alcoves. In dwelling units, alcoves shall have at least one receptacle installed. These outlets shall be in addition to the required hallway outlets.</p> <p><u>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. and a length of not less than 3 ft.</u></p>
<p>OESC 210.63 (Exceptions)</p>	<p>210.63 Heating, Air Conditioning, and Refrigeration Equipment Outlet.</p> <p><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 (Exception)</p>	<p>225.36 Type. The disconnecting means specified in 225.31 shall be comprised of a circuit breaker, molded case switch, general use switch, snap switch, or other approved means. Where applied in accordance with 250.32(B), Exception No. 1, the disconnecting means shall be suitable for use as service equipment.</p> <p><u>Exception: 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.</p> <p><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 1000 Volts, Nominal, or Less.</p> <p><u>Exception: Items (13) and (15) are limited to traffic control devices and highway lighting poles.</u></p>
<p>OESC 230.70(A)(1) (Exception)</p>	<p>230.70(A)(1) Readily Accessible Location.</p> <p><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>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 and shall be available to the authority having jurisdiction. <u>This report shall be signed by the person(s) performing this test.</u></p>

<p>OESC 250.24(A)(1) (Exception)</p> <p>OESC250.24(B) (Exception)</p>	<p>250.24 Grounding Service-Supplied Alternating-Current Systems.</p> <p>(A)(1) General. Informational Note: See definitions of <i>Service Conductors, Overhead</i>; <i>Service Conductors, Underground</i>; <i>Service Drop</i>; and <i>Service Lateral</i> in Article 100. <u>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.</u></p> <p>(B) Main Bonding Jumper. <u>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.</u></p>
<p>OESC 250.32 (A)</p>	<p>250.32 Buildings or Structures supplied by a Feeder(s) or Branch Circuits(s).</p> <p>(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. <u>Exception No.1: 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:</u></p>
<p>OESC 250.52(A)(3)(2)</p> <p>OESC 250.52(B)(3)</p>	<p>250.52(A)(3) Concrete-Encased Electrode</p> <p>(2) Bare copper conductor not smaller than 4 AWG</p> <p>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 ½-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>(B) Not Permitted for Use as Grounding Electrodes.</p> <p><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 required by 250.104(A).</u></p>

<p>OESC 250.94</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>OESC 250.118(14)</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>See Statewide Alternate Method ruling 08-03</p>	<p>300.9 Raceways in Wet Locations Abovegrade. This article prohibits the installation of NMB cables in pipe or flex. The SAM ruling 08-03 recognizes a short section of pipe or flex as a sleeve instead of a raceway.</p>
<p>OESC 334.15(B)</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 panel board shall be protected from physical damage by conduit, raceway, 1/2-inch plywood or 1/2-inch drywall.</u></p>
<p>OESC 334.15(C)</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.</p>
<p>OESC 394.12 (Exception)</p>	<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</u></p>

	<p><u>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 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)(12)	<p>400.7(A) Uses. Flexible cords and cables shall be used only for the following:</p> <p><u>(12) Listed assemblies of fixtures and controllers, approved by the Federal Aviation Administration.</u></p>
OESC 404.2(C)	<p>404.2(C) Switches Controlling Lighting Loads. The grounded circuit conductor for the controlled lighting circuit shall be provided at the location where switches control lighting loads that are supplied by a grounded general-purpose branch circuit for other than the following:</p> <p><u>(8) Where replacing an existing device with one of similar characteristics.</u></p>
OESC 406.4(D)(4)	<p>406.4(D) Replacements.</p> <p>(4) Arc-Fault Circuit Interrupter Protection. Delete entire section (4)(1), (2), and (3)</p>
OESC 406.12 (Exception)	<p>406.12 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><u>(5) A multi-outlet assembly mounted on the underside of a cabinet above a countertop.</u></p>
OESC 422.21	<p>422.21 Covering of Combustible Material at Outlet Boxes. Any combustible ceiling finish exposed between the edge of a ceiling suspended (paddle) fan canopy or pan and an outlet box <u>having a surface area of 1160 mm² (180 in.²)</u> shall be covered with noncombustible material.</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 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>
Errata	<p>490.48 Substations. Errata 70-14-1 line 7 alters this article significantly</p>

<p>OESC 500.8(A)</p>	<p>500.8 Equipment (A) Suitability. <u>“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.</u> (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. 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, <i>Certificate Standard for AEx Equipment for Hazardous (Classified) Locations</i>.</p>
<p>OESC 547.5(G)</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: <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>OESC 547.10(A) Bonding of Equipotential Planes (Exception)</p>	<p>547.10(A) Where Required. 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. <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) (Exception)</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). <u>Exception No. 1: A construction temporary service installed prior to April 1, 2016 that had been previously installed and energized prior to October 1, 2014, shall not be required to comply with the requirements for “extra duty” box hood rating and weather resistant receptacles in 406.9(B)(1).</u></p>
<p>OESC 620.1 (Note)</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. Informational Note No. 1: For further information, see ASME A17.1 2010/CSA B44-10, <i>Safety code for Elevators and Escalators</i>. <u>the Oregon Elevator Specialty Code as adopted in OAR chapter 918, division 400.</u></p>

<p>OESC 620.2</p> <p>OESC 620.5</p> <p>OESC 620.11(A)</p> <p>OESC 620.37(A)</p>	<p>620.2 Definitions. (Before Signal Equipment.) <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 in accordance with 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 not be required where any of the conditions in 620.5(A) through (D) are met. <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 hoistways and machine rooms to the extent necessary to connect the device(s) attached thereto.</u></p>
<p>OESC 620.51(B)</p> <p>OESC 620.51(C)</p> <p>OESC 620.51(C)(4)</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. <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. <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>OESC 680.42(B)(4)</p>	<p>680.42 Outdoor Installations. (B) Bonding. [equipotential bonding not required where (1) through (4) are met:] (4) (second sentence) The height of nonconductive external steps or deck for exit and entry . . .</p>
<p>OESC 690.3 (add Note)</p> <p>OESC 690.11</p> <p>OESC 690.12</p> <p>OESC 690.15</p> <p>OESC 690.31(G)(1)</p>	<p>690.3 Other Articles. <i>Exception: Solar PV systems, equipment, or wiring installed in a hazardous (classified) location shall also comply with the applicable portions of Articles 500 through 516.</i> <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>690.11 Arc-Fault Circuit Protection (Direct Current). <u>This requirement becomes effective April 1, 2016.</u></p> <p>690.12 Rapid Shutdown of PV Systems on Buildings. <u>This requirement becomes effective October 1, 2017.</u></p> <p>690.15(C) Direct-Current Combiner Disconnect. <u>If the requirements of 690.12 have not been met, this disconnecting means shall comply with the following additional requirements:</u> <u>(1) Located where accessible.</u> <u>(2) Lockable and externally operable. Other effective disconnecting means such as electrical interlocking shall be permitted by special permission.</u> <u>(3) 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> <p>690.31 Methods Permitted (G)(1) Embedded in Building Surfaces. Where circuits are <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. the location of circuits shall be clearly marked using a marking protocol that is approved as being suitable for continuous exposure to sunlight and weather.</u></p>
<p>OESC 690.31(G)(5)</p> <p>OESC 690.47</p>	<p><u>(G)(5) Beneath Roofs. Wiring methods shall not be installed within 45 cm (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 45 cm (18 in.) below the roof decking.</u> <u>Informational Note: The 45 cm (18 in.) requirement is to prevent accidental damage from saws used by fire fighters for roof ventilation during a structure fire.</u></p> <p>690.47 Grounding Electrode System. <u>Where a grounding electrode conductor is required by 690.47(A), (B)(C) and (D), 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 <u>certified</u> for its intended application prior to installation <u>final approval</u>.</p>
<p>OESC 700</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 700.28, 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>OESC 708.54</p> <p>(Exceptions)</p>	<p>708.54 Coordination. Critical operations power system(s) overcurrent devices shall be selectively coordinated with all supply side overcurrent protective devices.</p> <p><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 <u>No. 1:</u> 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 shall meet the coordination requirements in effect at the time of the original installation when the installation is being maintained, altered or repaired. 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.</p> <p>(A) General. 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) through (G) and 300.11.</p>

<p>Errata 2, line 42</p>	<p>Significant changes were made in 770.179(F). See Errata for details.</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 conform to <u>300.4 and</u> 300.11.</p>