

Article 700					
S= Seattle amendment; W= Washington amendment	Section Number	Description	2020 SEC Language	2023 Proposed SEC language	Comments/Reasoning
S	700.1	Scope (Emergency Systems)	<p>Δ 700.1 Scope. This article applies to the electrical safety of the installation, operation, and maintenance of emergency systems consisting of circuits and equipment intended to supply, distribute, and control electricity for illumination, power, or both, to required facilities when the normal electrical supply or system is interrupted.</p> <p>Informational Note No. 1: For further information regarding wiring and installation of emergency systems in health care facilities, see Article 517.</p> <p>Informational Note No. 2: For further information regarding performance and maintenance of emergency systems in health care facilities, see NFPA 99-2018, Health Care Facilities Code.</p> <p>Informational Note No. 3: For specification of locations where emergency lighting is considered essential to life safety, see NFPA 101-2018, Life Safety Code.</p> <p>Informational Note No. 4: For further information regarding performance of emergency and standby power systems, see NFPA 110-2019, Standard for Emergency and Standby Power Systems.</p> <p><u>Informational Note No. 5: See Seattle Building Code Chapter 27 and NFPA 110 and 111 for standards related to emergency power systems for additional installation requirements.</u></p> <p><u>Informational Note No. 6: See Chapter 10 of the Seattle Building Code for means of egress illumination and identification requirements.</u></p> <p><u>Informational Note No. 7: See DPD Client Assistance Memo (TIP 339), Emergency and Standby Power Systems, for additional information.</u></p>	<p>Δ 700.1 Scope. This article applies to the electrical safety of the installation, operation, and maintenance of emergency systems consisting of circuits and equipment intended to supply, distribute, and control electricity for illumination, power, or both, to required facilities when the normal electrical supply or system is interrupted.</p> <p>Informational Note No. 1: Emergency systems are generally installed in places of assembly where artificial illumination is required for safe exiting and for panic control in buildings subject to occupancy by large numbers of persons, such as hotels, theaters, sports arenas, health care facilities, and similar institutions. Emergency systems may also provide power for such functions as ventilation where essential to maintain life, fire detection and alarm systems, elevators, fire pumps, public safety communications systems, industrial processes where current interruption would produce serious life safety or health hazards, and similar functions.</p> <p>Informational Note No. 2: See Article 517, Health Care Facilities, for further information regarding wiring and installation of emergency systems in health care facilities.</p> <p>Informational Note No. 3: See NFPA 99-2018, Health Care Facilities Code, for further information regarding performance and maintenance of emergency systems in health care facilities.</p> <p>Informational Note No. 4: See NFPA 101-2018, Life Safety Code, for specification of locations where emergency lighting is considered essential to life safety.</p> <p>Informational Note No. 5: See NFPA 110-2019, Standard for Emergency and Standby Power Systems, and NFPA 111-2019, Standard on Stored Electrical Energy Emergency and Standby Power Systems, for further information regarding performance of emergency and standby power systems. Emergency systems are considered Level 1 systems when applying NFPA 110.</p> <p>Informational Note No. 6: See Seattle Building Code Chapter 27 and NFPA 110 and 111 for standards related to emergency power systems for additional installation requirements.</p> <p>Informational Note No. 7: See Chapter 10 of the Seattle Building Code for means of egress illumination and identification requirements.</p> <p>Informational Note No. 8: See SDCI TIP 339, Emergency and Standby Power Systems, for additional information</p>	<p>No WAC amendment.</p> <p>Seattle proposes:</p> <p>Adopting NEC changes, which necessitates some renumbering.</p> <p>Carry over 2020 SEC amendments and overlay onto 2023 NEC base code language.</p> <p>Change “DPD CAM” to “SDCI TIP”. DPD, Department of Planning and Development is an old name for SDCI. CAM stands for Client Assistance Memo.</p>

S	700.3	Tests and Maintenance.	<p>700.3 Tests and Maintenance.</p> <p>(A) Conduct or Witness Test. The authority having jurisdiction shall conduct or witness a test of the complete system upon installation and periodically afterward <u>under the control of the Seattle Fire Department.</u></p> <p>(B) Tested Periodically. Systems shall be tested periodically <u>by the building owner or manager</u> on a schedule approved by the authority having jurisdiction to ensure the systems are maintained in proper operating condition.</p> <p>(C) Maintenance. Emergency system equipment shall be maintained in accordance with manufacturer instructions and industry standards.</p> <p>(D) Written Record. A written record shall be kept of such tests and maintenance.</p> <p>(E) Testing Under Load. Means for testing all emergency lighting and power systems during maximum anticipated load conditions shall be provided.</p> <p style="text-align: center;">Informational Note: For information on testing and maintenance of emergency power supply systems (EPSSs), see NFPA 110-2019, Standard for Emergency and Standby Power Systems.</p> <p>Δ (F) Temporary Source of Power for Maintenance or Repair of the Alternate Source of Power. If the emergency system relies on a single alternate source of power, which will be disabled for maintenance or repair, the emergency system shall include permanent switching means to connect a portable or temporary alternate source of power, which shall be available for the duration of the maintenance or repair. The permanent switching means to connect a portable or temporary alternate source of power shall comply with the following:</p> <ol style="list-style-type: none"> (1) Connection to the portable or temporary alternate source of power shall not require modification of the permanent system wiring. (2) Transfer of power between the normal power source and the emergency power source shall be in accordance with 700.12. (3) The connection point for the portable or temporary alternate source shall be marked with the phase rotation and system bonding requirements. (4) Mechanical or electrical interlocking shall prevent inadvertent interconnection of power sources. 	<p>700.3 Tests and Maintenance.</p> <p>(A) Commissioning Witness Test. The authority having jurisdiction shall conduct or witness <u>the commissioning</u> of the complete system upon installation and periodically afterward. under the control of the Seattle Fire Department.</p> <p style="text-align: center;">Informational Note: See NECA 90, <i>Standard for Commissioning Building Electrical Systems</i></p> <p>(B) Tested Periodically. Systems shall be tested periodically <u>by the building owner or manager</u> on a schedule approved by the authority having jurisdiction to ensure the systems are maintained in proper operating condition.</p> <p>(C) Maintenance. Emergency system equipment shall be maintained in accordance with manufacturer instructions and industry standards.</p> <p>(D) Written Record. A written record shall be kept of such tests and maintenance.</p> <p>(E) Testing Under Load. Means for testing all emergency lighting and power systems during maximum anticipated load conditions shall be provided.</p> <p style="text-align: center;">Informational Note: See NFPA 110-2019, <i>Standard for Emergency and Standby Power Systems</i>, for information on testing and maintenance of emergency power supply systems (EPSSs).</p> <p>Δ (F) Temporary Source of Power for Maintenance or Repair of the Alternate Source of Power. If the emergency system relies on a single alternate source of power, which will be disabled for maintenance or repair, the emergency system shall include permanent switching means to connect a portable or temporary alternate source of power, which shall be available for the duration of the maintenance or repair. The permanent switching means to connect a portable or temporary alternate source of power shall comply with the following:</p> <ol style="list-style-type: none"> (1) Connection to the portable or temporary alternate source of power shall not require modification of the permanent system wiring. (2) Transfer of power between the normal power source and the emergency power source shall be in accordance with 700.12. 	<p>No WAC amendment.</p> <p>Seattle Proposes:</p> <p>The 2023 changes to the NEC in this section as well as removing “under control of the Seattle Fire Dept.” clarify that the electrical section will require a BLAST test (subject to name change) and inspectors will be a part of witnessing the commissioning test.</p> <p>Also, remove “by the building owner or manager”</p> <p>The rewrite and relocation of 700.3 (F)(6) to (F)(8) includes a new pointer to 225.31(B) that provides location information for the disconnecting means. The changes clarify that a disconnecting means for conductors is required from where conductors enter the building to the emergency system.</p> <p>Unstrike (B) Tested Periodically. We think it is helpful information for customers.</p>
---	-------	------------------------	---	---	--

		<p>(5) The switching means shall include a contact point that shall annunciate at a location remote from the generator or at another facility monitoring system to indicate that the permanent emergency source is disconnected from the emergency system.</p> <p><u>(6) Over-current protection shall be provided for conductors from where they enter the building to the emergency system. See Section 225.32 for location information.</u></p> <p>It shall be permissible to utilize manual switching to switch from the permanent source of power to the portable or temporary alternate source of power and to utilize the switching means for connection of a load bank.</p> <p style="text-align: center;">Informational Note: There are many possible methods to achieve the requirements of 700.3(F). See Informational Note Figure 700.3(F) for one example.</p> <p><i>Exception: The permanent switching means to connect a portable or temporary alternate source of power, for the duration of the maintenance or repair, shall not be required where any of the following conditions exists:</i></p> <p>(1) All processes that rely on the emergency system source are capable of being disabled during maintenance or repair of the emergency source of power.</p> <p>(2) The building or structure is unoccupied and fire protection systems are fully functional and do not require an alternate power source.</p> <p>(3) Other temporary means can be substituted for the emergency system.</p> <p>(4) A permanent alternate emergency source, such as, but not limited to, a second on-site standby generator or separate electric utility service connection, capable of supporting the emergency system, exists.</p>	<p>(3) The connection point for the portable or temporary alternate source shall be marked with the phase rotation and system bonding requirements.</p> <p>(4) The switching means, including the interlocks, shall be listed and provided with mechanical or mechanical and electrical interlocking to prevent inadvertent interconnection of power sources.</p> <p>(5) The switching means shall include a contact point that shall annunciate at a location remote from the generator or at another facility monitoring system to indicate that the permanent emergency source is disconnected from the emergency system.</p> <p>(6) The permanent connection point for the temporary generator shall be located outdoors and shall not have cables from the connection point to the temporary generator routed through exterior windows, doors, or similar openings.</p> <p>(7) A permanent label shall be field applied at the permanent connection point to identify the system voltage, maximum amperage, short-circuit current rating of the load side of equipment supplied, and ungrounded conductor identification in accordance with 210.5.</p> <p><u>(8) A disconnecting means shall be provided for conductors from where they enter the building to the emergency system. See Section 225.31(B) for location information.</u></p> <p>It shall be permissible to use manual switching to switch from the permanent source of power to the portable or temporary alternate source of power and to use the switching means for connection of a load bank.</p> <p style="text-align: center;">Informational Note: See Informational Note Figure 700.3(F) for one example of many possible methods to achieve the requirements of 700.3(F).</p> <p><i>Exception: The permanent switching means to connect a portable or temporary alternate source of power, for the duration of the maintenance or repair, shall not be required where any of the following conditions exists:</i></p> <p>(1) All processes that rely on the emergency system source are capable of being disabled during maintenance or repair of the emergency source of power.</p> <p>(2) The building or structure is unoccupied and fire protection systems are fully functional and do not require an alternate power source.</p> <p>(3) Other temporary means can be substituted for the emergency system.</p>	
--	--	--	--	--

				(4) A permanent alternate emergency source, such as, but not limited to, a second on-site standby generator or separate electric utility service connection, capable of supporting the emergency system, exists.	
W	700.7	Signs	<p>700.7 Signs.</p> <p>(A) Emergency Sources. A sign shall be placed at the service-entrance equipment, indicating type and location of each on-site emergency power source.</p> <p><u>Sign(s) must be placed at the service disconnecting means and the meter base if the services disconnecting means and meter base are not located within sight and within 5 ft of each other.</u></p> <p><i>Exception: A sign shall not be required for individual unit equipment as specified in 700.12(F).</i></p> <p><u>Informational Note: WAC 296-46B-700.007(2), requirements for sign placement, is incorporated herein.</u></p> <p>(B) Grounding. Where removal of a grounding or bonding connection in normal power source equipment interrupts the grounding electrode conductor connection to the alternate power source(s) grounded conductor, a warning sign shall be installed at the normal power source equipment stating:</p> <p style="text-align: center;">WARNING SHOCK HAZARD EXISTS IF GROUNDING ELECTRODE CONDUCTOR OR BONDING JUMPER CONNECTION IN THIS EQUIPMENT IS REMOVED WHILE ALTERNATE SOURCE(S) IS ENERGIZED.</p> <p>The warning sign(s) or label(s) shall comply with 110.21(B).</p>	<p>700.7 Signs.</p> <p>(A) Emergency Sources. A sign shall be placed at the service-entrance equipment, indicating type and location of each on-site emergency power source.</p> <p><u>Sign(s) must be placed at the service disconnecting means and the meter base if the services disconnecting means and meter base are not located within sight and within 5 ft of each other.</u></p> <p><i>Exception: A sign shall not be required for individual unit equipment as specified in 700.12(H).</i></p> <p><u>Informational Note: WAC 296-46B-700.007(2), requirements for sign placement, is incorporated herein.</u></p> <p>(B) Grounding. Where removal of a grounding or bonding connection in normal power source equipment interrupts the grounding electrode conductor connection to the alternate power source(s) grounded conductor, a warning sign shall be installed at the normal power source equipment stating:</p> <p style="text-align: center;">WARNING SHOCK HAZARD EXISTS IF GROUNDING ELECTRODE CONDUCTOR OR BONDING JUMPER CONNECTION IN THIS EQUIPMENT IS REMOVED WHILE ALTERNATE SOURCE(S) IS ENERGIZED.</p> <p>The warning sign(s) or label(s) shall comply with 110.21(B).</p>	<p>Minor change to WAC amendment.</p> <p>Seattle proposes:</p> <p>Don't adopt minor state change (5ft to five feet) in second paragraph. Carry over 2020 [S] amendments and overlay over 2023 NEC.</p>
W, S	700.10	Wiring, Emergency System.	<p>700.10 Wiring, Emergency System.</p> <p>(A) Identification. ((Emergency circuits shall be permanently marked so they will be readily identified as a component of an emergency circuit or system by the following methods:)) <u>All exit and emergency lights, whether or not required by this Code, must be installed in accordance with Article 700.</u></p> <p>(1) All boxes and enclosures (including transfer switches, generators, and power panels) for emergency circuits shall be permanently marked as a component of an emergency circuit or system <u>so they will be readily identified as a component of an emergency circuit or system.</u></p> <p><u>All boxes and enclosures, for Article 700 systems, larger than 6 in. by 6 in., including transfer switches, generators, and power panels for emergency systems and circuits, must be permanently identified with an identification plate that is substantially orange in color.</u></p> <p><i>Exception: In existing health care facilities, the existing nameplate identification color scheme can be retained for transfer switches, generators, and power panels</i></p>	<p>700.10 Wiring, Emergency System.</p> <p>(A) Identification. ((Emergency circuits shall be permanently marked so they will be readily identified as a component of an emergency circuit or system by the following methods:)) <u>All exit and emergency lights, whether or not required by this Code, must be installed in accordance with Article 700.</u></p> <p>(1) All boxes and enclosures (including transfer switches, generators, and power panels) for emergency circuits shall be permanently marked as a component of an emergency circuit or system so they will be readily identified as a component of an emergency circuit or system. <u>All boxes and enclosures, for Article 700 systems, larger than 6 in. by 6 in., including transfer switches, generators, and power panels for emergency systems and circuits, must be permanently identified with an identification plate that is substantially orange in color. All other device and junction boxes for emergency systems and circuits must be substantially orange in color, both inside and outside.</u></p>	<p>No changes to WAC amendment.</p> <p>Changes proposed by [S]:</p> <p>Added 700.10(B)(6)(c) and (d) which were missed in 2020 SEC (putting missing NEC language back in)</p> <p>(D)(2)(1) info note: Replaced "sprinkler heads" with "fire protection sprinklers". Per SFD, "sprinkler heads" are not the correct term.</p> <p>(D)(2)(1) info note: Replace "drop ceiling" with "suspended ceiling". Suspended ceiling is the</p>

		<p><i>for existing emergency systems that are not being replaced or modified. All other device and junction boxes for emergency systems and circuits must be substantially orange in color, both inside and outside.</i></p> <p><u>Informational Note: WAC 296-46B-700.009(3) and (4), requirements for emergency and exit lights, and identification plates, are incorporated herein.</u></p> <p>(2) Where boxes or enclosures are not encountered, exposed cable or raceway systems shall be permanently marked to be identified as a component of an emergency circuit or system, at intervals not to exceed 7.6 m (25 ft).</p> <p>Receptacles supplied from the emergency system shall have a distinctive color or marking on the receptacle cover plates or the receptacles.</p> <p>(B) Wiring. Wiring from an emergency source or emergency source distribution overcurrent protection to emergency loads shall be kept entirely independent of all other wiring and equipment unless otherwise permitted in 700.10(B)(1) through (B)(5):</p> <p>(1) Wiring from the normal power source located in transfer equipment enclosures</p> <p>(2) Wiring supplied from two sources in exit or emergency luminaires</p> <p>(3) Wiring from two sources in a listed load control relay supplying exit or emergency luminaires, or in a common junction box, attached to exit or emergency luminaires</p> <p>(4) Wiring within a common junction box attached to unit equipment, containing only the branch circuit supplying the unit equipment and the emergency circuit supplied by the unit equipment</p> <p>(5) Wiring from an emergency source to supply emergency and other (nonemergency) loads in accordance with 700.10(B)(5)a., (B)(5)b., (B)(5)c., and (B)(5)d. as follows:</p> <p>a. Separate vertical switchgear sections or separate vertical switchboard sections, with or without a common bus, or individual disconnects mounted in separate enclosures shall be used to separate emergency loads from all other loads.</p> <p>b. The common bus of separate sections of the switchgear, separate sections of the switchboard, or the individual enclosures shall be either of the following:</p> <p>(i) Supplied by single or multiple feeders without overcurrent protection at the source</p> <p>(ii) Supplied by single or multiple feeders with overcurrent protection, provided that the overcurrent protection that is common to an emergency system and any nonemergency system(s) is selectively coordinated with the next downstream overcurrent protective device in the nonemergency system(s)</p>	<p><i>Exception: In existing health care facilities, the existing nameplate identification color scheme can be retained for transfer switches, generators, and power panels for existing emergency systems that are not being replaced or modified.</i></p> <p><u>Informational Note: WAC 296-46B-700.009(3) and (4), requirements for emergency and exit lights, and identification plates, are incorporated herein.</u></p> <p>(2) Where boxes or enclosures are not encountered, exposed cable or raceway systems shall be permanently marked to be identified as a component of an emergency circuit or system, at intervals not to exceed 7.6 m (25 ft).</p> <p>Receptacles supplied from the emergency system shall have a distinctive color or marking on the receptacle cover plates or the receptacles.</p> <p>Δ (B) Wiring. Wiring from an emergency source or emergency source distribution overcurrent protection to emergency loads shall be kept entirely independent of all other wiring and equipment unless otherwise permitted in the following:</p> <p>(1) Wiring from the normal power source located in transfer equipment enclosures</p> <p>(2) Wiring supplied from two sources in exit or emergency luminaires</p> <p>(3) Wiring from two sources in a listed load control relay supplying exit or emergency luminaires, or in a common junction box, attached to exit or emergency luminaires</p> <p>(4) Wiring within a common junction box attached to unit equipment, containing only the branch circuit supplying the unit equipment and the emergency circuit supplied by the unit equipment</p> <p>(5) Wiring within a traveling cable to an elevator</p> <p>(6) Wiring from an emergency source to supply emergency and other (nonemergency) loads in accordance with the following:</p> <p>a. Separate vertical switchgear sections or separate vertical switchboard sections, with or without a common bus, or individual disconnects mounted in separate enclosures shall be used to separate emergency loads from all other loads.</p> <p>b. The common bus of separate sections of the switchgear, separate sections of the switchboard, or the individual enclosures shall be either of the following:</p> <p>(i) Supplied by single or multiple feeders without overcurrent protection at the source</p> <p>(ii) Supplied by single or multiple feeders with overcurrent protection, provided that the overcurrent protection that is common to an emergency system and any nonemergency system(s) is selectively coordinated with the next downstream overcurrent protective device in the nonemergency system(s)</p>	<p>more common term used throughout the code.</p> <p>Relocated last sentence of exception to (A)(1) out of the exception and into the main text of 700.10 (A)(1) requiring device and junction boxes for emergency systems and circuits to be orange inside and out.</p>
--	--	---	--	--

		<p>Informational Note: For further information, see Informational Note Figure 700.10(B)(a) and Informational Note Figure 700.10(B)(b).</p> <p>Wiring of two or more emergency circuits supplied from the same source shall be permitted in the same raceway, cable, box, or cabinet.</p> <p>(C) Wiring Design and Location. Emergency wiring circuits shall be designed and located so as to minimize the hazards that might cause failure due to flooding, fire, icing, vandalism, and other adverse conditions.</p> <p>Δ (D) Fire Protection.</p> <p>N (1) Occupancies. Emergency systems shall meet the additional requirements in 700.10(D)(2) through (D)(4) in the following occupancies:</p> <ol style="list-style-type: none"> (1) Assembly occupancies for not less than 1000 persons (2) Buildings above 23 m (75 ft) in height (3) Educational occupancies with more than 300 occupants <p>Δ (2) Feeder-Circuit Wiring. Feeder-circuit wiring shall meet one of the following conditions:</p> <ol style="list-style-type: none"> (1) The cable or raceway is installed in spaces or areas that are fully protected by an approved automatic fire protection system. <p><u>Informational Note: In buildings having Seattle Building Code Type I or II construction, wiring located above sprinkler heads, including wiring separated from sprinkler heads by a drop-ceiling system, is considered fully protected as required by this section.</u></p> <ol style="list-style-type: none"> (2) The cable or raceway is protected by a listed electrical circuit protective system with a minimum 2-hour fire rating. <p>Informational Note No. 1: Electrical circuit protective systems could include but not be limited to thermal barriers or a protective shaft and are tested to UL 1724, <i>Fire Tests for Electrical Circuit Protection Systems</i>.</p> <p>Informational Note No. 2: The listing organization provides information for electrical circuit protective systems on proper installation requirements to maintain the fire rating.</p> <ol style="list-style-type: none"> (3) The cable or raceway is a listed fire-resistive cable system with a minimum 2-hour fire rating. <p>Informational Note No. 1: Fire-resistive cables are tested to ANSI/UL 2196-2017, <i>Standard for Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables</i>.</p> <p>Informational Note No. 2: The listing organization provides information for fire-resistive cable systems on proper installation requirements to maintain the fire rating.</p> <ol style="list-style-type: none"> (4) The cable or raceway is protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours and contains only emergency circuits. 	<p>Informational Note: See Informational Note Figure 700.10(B)(1) and Informational Note Figure 700.10(B)(2) for further information.</p> <p>c. Emergency circuits shall not originate from the same vertical switchgear section, vertical switchboard section, panelboard enclosure, or individual disconnect enclosure as other circuits.</p> <p>d. It shall be permissible to use single or multiple feeders to supply distribution equipment between an emergency source and the point where the emergency loads are separated from all other loads.</p> <p>e. At the emergency power source, such as a generator, multiple integral overcurrent protective devices shall each be permitted to supply a designated emergency or a designated nonemergency load, provided that there is complete separation between emergency and nonemergency loads beginning immediately after the overcurrent protective device line-side connections.</p> <p>Wiring of two or more emergency circuits supplied from the same source shall be permitted in the same raceway, cable, box, or cabinet.</p> <p>(C) Wiring Design and Location. Emergency wiring circuits shall be designed and located so as to minimize the hazards that might cause failure due to flooding, fire, icing, vandalism, and other adverse conditions.</p> <p>(D) Fire Protection.</p> <p>(1) Occupancies. Emergency systems shall meet the additional requirements in 700.10(D)(2) through (D)(4) in the following occupancies:</p> <ol style="list-style-type: none"> (1) Assembly occupancies for not less than 1000 persons (2) Buildings above 23 m (75 ft) in height (3) Educational occupancies with more than 300 occupants <p>Δ (2) Feeder-Circuit Wiring. Feeder-circuit wiring shall meet one of the following conditions:</p> <ol style="list-style-type: none"> (1) The cable or raceway is installed in spaces or areas that are fully protected by an approved automatic fire protection system. <p><u>Informational Note: In buildings having Seattle Building Code Type I or II construction, wiring located above fire protection sprinklers heads, including wiring separated from fire protection sprinklers heads by a suspended ceiling system with removable panels, is considered fully protected as required by this section.</u></p> <ol style="list-style-type: none"> (2) The cable or raceway is protected by a listed electrical circuit protective system with a minimum 2-hour fire rating. <p>Informational Note No. 1: See UL 1724, <i>Fire Tests for Electrical Circuit Protection Systems</i>, for one method of defining an electrical circuit protective system. The UL Guide Information for Electrical Circuit Integrity</p>	
--	--	--	--	--

		<p>(5) The cable or raceway is encased in a minimum of 50 mm (2 in.) of concrete.</p> <p>(3) Feeder-Circuit Equipment. Equipment for feeder circuits (including transfer switches, transformers, and panelboards) shall be located either in spaces fully protected by an approved automatic fire protection system or in spaces with a 2-hour fire resistance rating.</p> <p>(4) Generator Control Wiring. Control conductors installed between the transfer equipment and the emergency generator shall be kept entirely independent of all other wiring and shall meet the conditions of 700.10(D)(2). The integrity of the generator remote start circuit shall be monitored for broken, disconnected, or shorted wires. Loss of integrity shall start the generator(s).</p>	<p>Systems (FHIT) contains information to identify the system and its installation limitations to maintain a minimum 2-hour fire-resistive rating and is available from the certification body.</p> <p>(3) The cable or raceway is a listed fire-resistive cable system with a minimum 2-hour fire rating.</p> <p>Informational Note No. 2: See UL 2196-2017, <i>Standard for Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables</i>, for one method of defining a fire-resistive cable system.</p> <p>(4) The cable or raceway is protected by a listed fire-rated assembly that has a minimum fire rating of 2 hours and contains only emergency circuits.</p> <p>(5) The cable or raceway is encased in a minimum of 50 mm (2 in.) of concrete.</p> <p>(3) Feeder-Circuit Equipment. Equipment for feeder circuits (including transfer switches, transformers, and panelboards) shall be located either in spaces fully protected by an approved automatic fire protection system or in spaces with a 2-hour fire resistance rating.</p> <p>(4) Source Control Wiring. Control conductors installed between the emergency power supply system/stored-energy power supply system (EPSS/SEPSS) and transfer equipment or control systems that initiate the operation of emergency sources or initiate the automatic connection to emergency loads shall be kept entirely independent of all other wiring and shall meet the conditions of 700.10(D)(2). The integrity of source control wiring shall be monitored for broken, disconnected, or shorted wires. Loss of integrity shall result in the following actions:</p> <p>(1) Generators. Shall start the generator(s).</p> <p>(2) All other sources. Shall be considered a system malfunction and initiate the designated signal(s) in 700.6(A).</p>	
S	700.11	None	<p>N 700.11 Wiring, Class-2-Powered Emergency Lighting Systems.</p> <p>N (A) General. Line voltage supply wiring and installation of Class 2 emergency lighting control devices shall comply with 700.10. Class 2 emergency circuits shall comply with 700.11(B) through (D).</p> <p>N (B) Identification. Emergency circuits shall be permanently marked so they will be readily identified as a component of an emergency circuit or system by the following methods:</p> <p>(1) All boxes and enclosures for Class 2 emergency circuits <u>larger than 6 in. by 6 in. shall be permanently((marked as a component of an emergency circuit or system.)) identified with an identification plate that is substantially orange in color. All other device and junction boxes for emergency systems and circuits must be substantially orange in color, both inside and outside.</u></p> <p>(2) Exposed cable, cable tray, or raceway systems shall be permanently marked to be identified as a component of an emergency circuit or system, within 900 mm (3 ft) of each connector and at intervals not to exceed 7.6 m (25 ft).</p>	<p>No WAC Amendments.</p> <p>[S] Seattle proposes: The state doesn't have language for 700.11 low voltage Class 2 lighting to have an orange ID plate or language requiring device and junction boxes for emergency systems that are substantially orange in color both inside and out. We propose adding it as a Seattle amendment here. The new language is patterned after 700.10.</p>

				<p>N (C) Separation of Circuits. Class 2 emergency circuits shall be wired in a listed, jacketed cable or with one of the wiring methods of Chapter 3. If installed alongside nonemergency Class 2 circuits that are bundled, Class 2 emergency circuits shall be bundled separately. If installed alongside nonemergency Class 2 circuits that are not bundled, Class 2 emergency circuits shall be separated by a nonconductive sleeve or nonconductive barrier from all other Class 2 circuits. Separation from other circuits shall comply with 725.136.</p> <p>N (D) Protection. Wiring shall comply with the requirements of 300.4 and be installed in a raceway, armored or metal-clad cable, or cable tray.</p> <p><i>Exception No. 1: Section 700.11(D) shall not apply to wiring that does not exceed 1.83 m (6 ft) in length and that terminates at an emergency luminaire or an emergency lighting control device.</i></p> <p><i>Exception No. 2: Section 700.11(D) shall not apply to locked rooms or locked enclosures that are accessible only to qualified persons.</i></p> <p><i>Informational Note: Locked rooms accessible only to qualified persons include locked telecommunications rooms, locked electrical equipment rooms, or other access-controlled areas.</i></p>	
S	700.12	General Requirements	<p>A 700.12 General Requirements. Current supply shall be such that, in the event of failure of the normal supply to, or within, the building or group of buildings concerned, emergency lighting, emergency power, or both shall be available within the time required for the application but not to exceed 10 seconds. The supply system for emergency purposes, in addition to the normal services to the building and meeting the general requirements of this section, shall be one or more of the types of systems described in 700.12(C) through (H). Unit equipment in accordance with 700.12(I) shall satisfy the applicable requirements of this article.</p> <p>N (A) Power Source Considerations. In selecting an emergency source of power, consideration shall be given to the occupancy and the type of service to be rendered, whether of minimum duration, as for evacuation of a theater, or longer duration, as for supplying emergency power and lighting due to an indefinite period of current failure from trouble either inside or outside the building.</p> <p>N (B) Equipment Design and Location. Equipment shall be designed and located so as to minimize the hazards that might cause complete failure due to flooding, fires, icing, and vandalism.</p> <p>Equipment for sources of power as described in 700.12(C) through (H) shall be installed either in spaces fully protected by approved automatic fire protection systems or in spaces with a 2-hour fire rating where located within the following:</p> <p>(1) Assembly occupancies for more than 1000 persons</p> <p>(2) Buildings above 23 m (75 ft) in height with any of the following occupancy classes — assembly, educational, residential, detention and correctional, business, and mercantile</p> <p>(3) Educational occupancies with more than 300 occupants</p>	<p>700.12 General Requirements. Current supply shall be such that, in the event of failure of the normal supply to, or within, the building or group of buildings concerned, emergency lighting, emergency power, or both shall be available within the time required for the application but not to exceed 10 seconds. The supply system for emergency purposes, in addition to the normal services to the building and meeting the general requirements of this section, shall be one or more of the types of systems described in 700.12(C) through (H). Unit equipment in accordance with 700.12(H) shall satisfy the applicable requirements of this article.</p> <p>(A) Power Source Considerations. In selecting an emergency source of power, consideration shall be given to the occupancy and the type of service to be rendered, whether of minimum duration, as for evacuation of a theater, or longer duration, as for supplying emergency power and lighting due to an indefinite period of current failure from trouble either inside or outside the building.</p> <p>A (B) Equipment Design and Location. Equipment shall be designed and located so as to minimize the hazards that might cause complete failure due to flooding, fires, icing, and vandalism.</p> <p>Equipment for sources of power as described in 700.12(C) through (H) shall be installed either in spaces fully protected by approved automatic fire protection systems or in spaces with a 2-hour fire rating where located within the following:</p> <p>(1) Assembly occupancies for more than 1000 persons</p> <p>(2) Buildings above 23 m (75 ft) in height</p> <p>(3) Educational occupancies with more than 300 occupants</p> <p><small>Informational Note No. 1: ((See NFPA 101-2021, Life Safety Code, Section 6.1, for information on occupancy classifications.)) For the definition of <i>Occupancy Classification</i>, see Chapter 3 of the <i>Seattle Building Code</i>.</small></p>	<p>No WAC amendment.</p> <p>Seattle proposes:</p> <p>Carrying over 2020 SEC amendments and overlaying on 2023 NEC.</p> <p>SDCI recommends a few adjustments for SEPSS’s because of 2023 NEC changes. In (E), SDCI proposes that Stored-Energy Power Supply Systems (SEPSS) have to comply with 700.12(E)(1) and (E)(2) <u>and shall be listed for emergency use.</u></p> <p>A pointer is added to UL 924 Emergency lighting and power equipment in (E)(1)(1) info note. They do make UPS’s that meet UL 924, so this is needed.</p>

		<p>Informational Note No. 1: For the definition of <i>Occupancy Classification</i>, see ((Section 6.1 of NFPA 101-2018, Life Safety)) <u>Chapter 3 of the Seattle Building Code.</u></p> <p>Informational Note No. 2: For information regarding power system reliability, see IEEE 3006.5-2014, <i>Recommended Practice for the Use of Probability Methods for Conducting a Reliability Analysis of Industrial and Commercial Power Systems.</i></p> <p>(C) Storage Battery. Storage batteries shall be of suitable rating and capacity to supply and maintain the total load for a minimum period of 1 1/2 hours, without the voltage applied to the load falling below 87 1/2 percent of normal. Automotive-type batteries shall not be used. An automatic battery charging means shall be provided.</p> <p>(D) Generator Set.</p> <p>▲ (1) Prime Mover-Driven. For a generator set driven by a prime mover approved by the authority having jurisdiction and sized in accordance with 700.4, means shall be provided for automatically starting the prime mover on failure of the normal service and for automatic transfer and operation of all required electrical circuits. A time-delay feature shall be provided to avoid retransfer in case of short-time reestablishment of the normal source.</p> <p>▲ (2) Internal Combustion Engines as Prime Movers.</p> <p>(a) <i>On-Site Fuel Supply.</i> Where internal combustion engines are used as the prime mover, an on-site fuel supply shall be provided with an on-premises fuel supply sufficient for not less than 2 hours' operation of the system.</p> <p>(b) <i>Fuel Transfer Pumps.</i> Where power is needed for the operation of the fuel transfer pumps to deliver fuel to a generator set day tank, this pump shall be connected to the emergency power system.</p> <p>(c) <i>Public Gas System, Municipal Water Supply.</i> Prime movers shall not be solely dependent on a public utility gas system for their fuel supply or municipal water supply for their cooling systems.</p> <p>((Exception: Where approved by the authority having jurisdiction, the use of other than on-site fuels shall be permitted where there is a low probability of a simultaneous failure of both the off-site fuel delivery system and power from the outside electrical utility company.))</p> <p>(d) <i>Automatic Fuel Transfer.</i> Where dual fuel supplies are used, means shall be provided for automatically transferring from one fuel supply to another.</p> <p>(3) Battery Power and Dampers. Where a storage battery is used for control or signal power or as the means of starting the prime mover, it shall be suitable for the purpose and shall be equipped with an automatic charging means independent of the generator set. Where the battery charger is required for the operation of the generator set, it shall be connected to the emergency system. Where power is required for the operation of dampers used to ventilate the generator set, the dampers shall be connected to the emergency system.</p>	<p>Informational Note No. 2: See IEEE 3006.5-2014, Recommended Practice for the Use of Probability Methods for Conducting a Reliability Analysis of Industrial and Commercial Power Systems, for information regarding power system reliability.</p> <p>▲ (C) Supply Duration. The emergency power source shall be of suitable rating and capacity to supply and maintain the total load for the duration determined by the system design. In no case shall the duration be less than 2 hours of system operation unless used for emergency illumination in 700.12(C)(4) or unit equipment in 700.12(H). Additionally, the power source shall comply with 700.12(C)(1) through (C)(5) as applicable.</p> <p>Informational Note: See NFPA 110-2022, Standard for Emergency and Standby Power Systems, for information on classification of emergency power supply systems (EPSS).</p> <p>N (1) On-Site Fuel Supply. An on-site fuel supply shall be provided, sufficient for not less than 2 hours operation of the system.</p> <p>N (2) Fuel Transfer Pumps. Where power is needed for the operation of the fuel transfer pumps to deliver fuel to the source, these pumps shall be connected to the emergency power system.</p> <p>N (3) Public Gas System, Municipal Water Supply. Sources shall not be solely dependent on a public utility gas system for their fuel supply or municipal water supply for their cooling systems.</p> <p>((Exception: Where approved by the authority having jurisdiction, the use of other than on-site fuels shall be permitted where there is a low probability of a simultaneous failure of both the off-site fuel delivery system and power from the outside electrical utility company. Where the public gas system is approved, the requirements of 700.12(C)(1) shall not apply.))</p> <p>N (4) Storage Batteries and UPS. Storage batteries and UPS used to supply emergency illumination shall be of suitable rating and capacity to supply and maintain the total load for a minimum period of 1 1/2 hours, without the voltage applied to the load falling below 87 1/2 percent of nominal voltage. Automotive-type batteries shall not be used. An automatic battery charging means shall be provided.</p> <p>N (5) Automatic Fuel Transfer. Where dual fuel sources are used, means shall be provided for automatically transferring from one fuel source to another.</p> <p>(D) Generator Set.</p> <p>(1) Prime Mover-Driven. For a generator set driven by a prime mover approved by the authority having jurisdiction and sized in accordance with 700.4, means shall be provided for automatically starting the prime mover on failure of the normal power source and for automatic transfer and operation of all required electrical</p>	
--	--	--	---	--

		<p>(4) Auxiliary Power Supply. Generator sets that require more than 10 seconds to develop power shall be permitted if an auxiliary power supply energizes the emergency system until the generator can pick up the load.</p> <p>(5) Outdoor Generator Sets. Where an outdoor-housed generator set is equipped with a readily accessible disconnecting means in accordance with 445.18, and the disconnecting means is located within sight of the building or structure supplied, an additional disconnecting means shall not be required where ungrounded conductors serve or pass through the building or structure. Where the generator supply conductors terminate at a disconnecting means in or on a building or structure, the disconnecting means shall meet the requirements of 225.36.</p> <p><i>Exception: For installations under single management, where conditions of maintenance and supervision ensure that only qualified persons will monitor and service the installation and where documented safe switching procedures are established and maintained for disconnection, the generator set disconnecting means shall not be required to be located within sight of the building or structure served.</i></p> <p>(E) Uninterruptible Power Supplies. Uninterruptible power supplies used to provide power for emergency systems shall comply with the applicable provisions of 700.12(B) and (C) <u>and shall be listed for emergency use.</u></p> <p><u>Informational Note: UL 924 Emergency Lighting and Power Equipment is the appropriate standard for emergency equipment.</u></p> <p>(F) Separate Service. Where approved by the authority having jurisdiction as suitable for use as an emergency source of power, an additional service shall be permitted. This service shall be in accordance with the applicable provisions of Article 230 and the following additional requirements:</p> <p>(1) Separate ((overhead service conductors,)) service drops, underground service conductors, or service laterals shall be installed.</p> <p>(2) The service conductors for the separate service shall be installed sufficiently remote electrically and physically from any other service conductors to minimize the possibility of simultaneous interruption of supply.</p> <p>(G) Fuel Cell System. Fuel cell systems used as a source of power for emergency systems shall be of suitable rating and capacity to supply and maintain the total load for not less than 2 hours of full-demand operation.</p> <p>Installation of a fuel cell system shall meet the requirements of Parts II through VIII of Article 692.</p> <p>Where a single fuel cell system serves as the normal supply for the building or group of buildings concerned, it shall not serve as the sole source of power for the emergency standby system.</p> <p>(H) DC Microgrid Systems. Sources connected to a dc microgrid system shall be permitted where the system is capable of being isolated from all non-emergency sources.</p>	<p>circuits. A time-delay feature shall be provided to avoid retransfer in case of short-time reestablishment of the normal source.</p> <p>(2) Battery Power and Dampers. Where a storage battery is used for control or signal power or as the means of starting the prime mover, it shall be suitable for the purpose and shall be equipped with an automatic charging means independent of the generator set. Where the battery charger is required for the operation of the generator set, it shall be connected to the emergency system. Where power is required for the operation of dampers used to ventilate the generator set, the dampers shall be connected to the emergency system.</p> <p>(3) Auxiliary Power Supply. Generator sets that require more than 10 seconds to develop power shall be permitted if an auxiliary power supply energizes the emergency system until the generator can pick up the load.</p> <p>(4) Outdoor Generator Sets. Where an outdoor-housed generator set is equipped with a readily accessible disconnecting means in accordance with 445.18, and the disconnecting means is located within sight of the building or structure supplied, an additional disconnecting means shall not be required where ungrounded conductors serve or pass through the building or structure. Where the generator supply conductors terminate at a disconnecting means in or on a building or structure, the disconnecting means shall meet the requirements of 225.36.</p> <p><i>Exception: For installations under single management, where conditions of maintenance and supervision ensure that only qualified persons will monitor and service the installation and where documented safe switching procedures are established and maintained for disconnection, the generator set disconnecting means shall not be required to be located within sight of the building or structure served.</i></p> <p>(E) Stored-Energy Power Supply Systems (SEPASS). Stored energy power supply systems shall comply with 700.12(E)(1) and (E)(2) <u>and shall be listed for emergency use.</u></p> <p>(1) Types. Systems shall consist of one or more of the following system types:</p> <p>(1) Uninterruptible power supply (UPS)</p> <p><i>Informational Note: See UL 1778, Uninterruptible Power Systems and UL 924 Emergency Lighting and Power Equipment is the appropriate standard for emergency equipment, for further information.</i></p> <p>(2) Fuel cell system (3) Energy storage system (ESS) (4) Storage battery (5) Other approved equivalent stored energy sources that comply with 700.12</p>	
--	--	--	---	--

		<p>DC microgrid systems used as a source of power for emergency systems shall be of suitable rating and capacity to supply and maintain the total emergency load for not less than 2 hours of full-demand operation.</p> <p>Where a dc microgrid system source serves as the normal supply for the building or group of buildings concerned, it shall not serve as the sole source of power for the emergency standby system.</p> <p>(I) Unit Equipment.</p> <p>(1) Components of Unit Equipment. Individual unit equipment for emergency illumination shall consist of the following:</p> <p>(1) A rechargeable battery (2) A battery charging means</p> <p>(3) Provisions for one or more lamps mounted on the equipment, or shall be permitted to have terminals for remote lamps, or both</p> <p>(4) A relaying device arranged to energize the lamps automatically upon failure of the supply to the unit equipment</p> <p>Δ (2) Installation of Unit Equipment. Unit equipment shall be installed in accordance with the following:</p> <p>(1) The batteries shall be of suitable rating and capacity to supply and maintain the total lamp load associated with the unit in accordance with the following:</p> <p>a. For a period of at least 1 ½ hours without the voltage falling below 87 ½ percent of normal battery voltage.</p> <p>b. The unit equipment shall supply and maintain not less than 60 percent of the initial emergency illumination for a period of at least 1 1/2 hours.</p> <p>(2) Unit equipment shall be permanently fixed (i.e., not portable) in place and shall have all wiring to each unit installed in accordance with the requirements of any of the wiring methods in Chapter 3. Flexible cord-and-plug connection shall be permitted, provided that the cord does not exceed 900 mm (3 ft) in length.</p> <p>(3) The branch circuit feeding the unit equipment shall be one of the following:</p> <p>a. The same branch circuit as that serving the normal lighting in the area and connected ahead of any local switches</p> <p>b. Where the normal lighting circuit is served by one or more branch circuits, a separate branch circuit, provided with a lock-on feature, that originates from the same panelboard as the normal lighting circuits. The branch circuit disconnecting means for this branch circuit shall be provided with a lock-on feature.</p> <p>(4) The branch circuit that feeds unit equipment shall be clearly identified at the distribution panel.</p>	<p>N (2) Fire Protection, Suppression, Ventilation, and Separation. The systems in 700.12(E)(1) shall be installed with the fire protection, suppression, ventilation, and separation requirements specified in the manufacturer’s instructions or equipment listing.</p> <p>Informational Note: See NFPA 853-2020, Standard for the Installation of Stationary Fuel Cell Power Systems, and NFPA 855-2020, Standard for the Installation of Stationary Energy Storage Systems, for additional information on fire protection installation requirements.</p> <p>(F) Separate Service. Where approved by the authority having jurisdiction as suitable for use as an emergency source of power, an additional service shall be permitted. This service shall be in accordance with the applicable provisions of Article 230 and the following additional requirements:</p> <p>(1) Separate (overhead service conductors), service drops, underground service conductors, or service laterals shall be installed.</p> <p>(2) The service conductors for the separate service shall be installed sufficiently remote electrically and physically from any other service conductors to minimize the possibility of simultaneous interruption of supply.</p> <p>Δ (G) Microgrid Systems. On-site sources, designated as emergency sources, shall be permitted to be connected to a microgrid system.</p> <p>The system shall isolate the emergency system from all nonemergency loads when the normal electric supply is interrupted or shall meet the requirements of 700.4(B). Interruption or partial or complete failure of the normal or nonemergency source(s) shall not impact the availability, capacity, and duration provided by the designated emergency sources.</p> <p>The designated stored-energy electrical emergency power source(s) of a microgrid system shall be permitted to remain interconnected to any available power production source during operation of the emergency source(s) where the lack of, or failure of, the interconnected power production source(s), or related controls, does not impact system operation. Interconnected power production sources, other than the designated stored emergency power source(s), shall not be required to meet the requirements of this article.</p> <p>(H) Battery-Equipped Emergency Luminaires.</p> <p>Δ (1) Listing. All battery-equipped emergency luminaires shall be listed.</p> <p>Informational Note No. 1: See ANSI/UL 924, Emergency Lighting and Power Equipment, for the requirements covering battery-equipped emergency luminaires and emergency battery packs. A listed emergency battery pack installed in a listed luminaire will provide similar functionality as a listed battery-equipped emergency luminaire.</p> <p>Informational Note No. 2: Unit equipment is a type of battery-equipped emergency luminaire.</p>	
--	--	--	--	--

			<p>(5) Emergency luminaires that obtain power from a unit equipment and are not part of the unit equipment shall be wired to the unit equipment as required by 700.10 and by one of the wiring methods of Chapter 3.</p> <p>(6) Remote heads providing lighting for the exterior of an exit door shall be permitted to be supplied by the unit equipment serving the area immediately inside the exit door.</p>	<p>Δ (2) Installation. Battery-equipped emergency luminaires shall be installed in accordance with the following:</p> <p>(1) Battery-equipped emergency luminaires shall be permanently fixed in place (i.e., not portable).</p> <p>(2) Wiring to each luminaire shall be installed in accordance with the requirements of any of the wiring methods in Chapter 3 unless otherwise specified in Part II, IV, or V of this article. Flexible cord-and-plug connection shall be permitted for unit equipment, provided that the cord does not exceed 900 mm (3 ft) in length. Flexible cord, with or without a plug, shall also be permitted for battery-equipped emergency luminaires installed in accordance with 410.62(C)(1).</p> <p>(3) The branch circuit feeding the battery-equipped emergency luminaire shall be one of the following:</p> <p>a. The same branch circuit as that serving the normal lighting in the area and connected ahead of any local switches.</p> <p>b. The same or a different branch circuit as that serving the normal lighting in the area if that circuit is equipped with means to monitor the status of that area's normal lighting branch circuit ahead of any local switches.</p> <p>c. A separate branch circuit originating from the same panelboard as one or more normal lighting circuits. This separate branch circuit disconnecting means shall be provided with a lock-on feature.</p> <p>(4) The branch circuit that feeds battery-equipped emergency luminaires shall be clearly identified at the distribution panel.</p> <p>(5) Emergency luminaires that obtain power from a battery-equipped emergency luminaire shall be wired to the battery-equipped emergency luminaires as required in Part II, IV, or V of this article.</p> <p>(6) Remote luminaires providing lighting for the exterior of an exit door shall be permitted to be supplied by the battery-equipped emergency luminaire serving the area immediately inside the exit door.</p>	
S	700.16	Emergency Illumination	<p>Δ 700.16 Emergency Illumination.</p> <p>N (A) General. Emergency illumination shall include means of egress lighting, illuminated exit signs, and all other luminaires specified as necessary to provide required illumination.</p> <p>N (B) System Reliability. Emergency lighting systems shall be designed and installed so that the failure of any illumination source cannot leave in total darkness any space that requires emergency illumination. Control</p>	<p>700.16 Emergency Illumination.</p> <p>(A) General. Emergency illumination shall include means of egress lighting, illuminated exit signs, and all other luminaires specified as necessary to provide required illumination.</p> <p>Δ (B) System Reliability. Emergency lighting systems shall be designed and installed so that the failure of any illumination source, <u>or branch circuit supplying an illumination source</u>, cannot leave in total darkness any</p>	<p>No WAC amendment.</p> <p>Seattle proposes:</p> <p>adding language about branch circuit reliability in emergency lighting systems to codify/clarify our</p>

			<p>devices in the emergency lighting system shall be listed for use in emergency systems. Listed unit equipment in accordance with 700.12(I) shall be considered as meeting the provisions of this section.</p> <p>Informational Note: 700.23 through 700.26 provide requirements for applications of emergency system control devices.</p> <p>N (C) Discharge Lighting. Where high-intensity discharge lighting such as high- and low-pressure sodium, mercury vapor, and metal halide is used as the sole source of normal illumination, the emergency lighting system shall be required to operate until normal illumination has been restored.</p> <p>N (D) Disconnecting Means. Where an emergency system is installed, emergency illumination shall be provided in the area of the disconnecting means required by 225.31 and 230.70, as applicable, where the disconnecting means are installed indoors.</p> <p><u>Exit signs with open bottom lighting shall not be used in lieu of a required pathway light unless specifically approved for the purpose.</u></p> <p><u>Exit illumination (pathway lighting) and emergency area lighting shall comply with Chapter 10 of the Seattle Building Code.</u></p> <p><i>Exception: Alternative means that ensure that the emergency lighting illumination level is maintained shall be permitted when preapproved by the authority having jurisdiction.</i></p>	<p>space that requires emergency illumination. Emergency lighting control devices in the emergency lighting system shall be listed for use in emergency systems. Listed unit equipment in accordance with 700.12(H) shall be considered as meeting the provisions of this section.</p> <p>Informational Note: See 700.23 through 700.26 for applications of emergency system control devices.</p> <p>(C) Discharge Lighting. Where high-intensity discharge lighting such as high- and low-pressure sodium, mercury vapor, and metal halide is used as the sole source of normal illumination, the emergency lighting system shall be required to operate until normal illumination has been restored.</p> <p>(D) Disconnecting Means. Where an emergency system is installed, emergency illumination shall be provided in the area of the disconnecting means required by 225.31 and 230.70, as applicable, where the disconnecting means are installed indoors.</p> <p><u>Exit signs with open bottom lighting shall not be used in lieu of a required pathway light unless specifically approved for the purpose.</u></p> <p><u>Exit illumination (pathway lighting) and emergency area lighting shall comply with Chapter 10 of the Seattle Building Code.</u></p> <p><i>Exception: Alternative means that ensure that the emergency lighting illumination level is maintained shall be permitted when preapproved by the authority having jurisdiction.</i></p>	<p>interpretation of 700.16 and 17.</p>
S	700.17	Branch Circuits for Emergency Lighting	None.	<p>▲ 700.17 Branch Circuits for Emergency Lighting. Branch circuits that supply emergency lighting shall be installed to provide service from a source complying with 700.12 when the normal supply for lighting is interrupted. Such installations shall provide either of the following, so that the failure of any branch circuit supplying an illumination source cannot leave in total darkness any space that requires emergency illumination:</p> <p>(1) An emergency lighting supply, independent of the normal lighting supply, with provisions for automatically transferring the emergency lights upon the event of failure of the normal lighting supply.</p> <p>(2) Two or more branch circuits supplied from separate and complete systems with independent power sources. One of the two power sources and systems shall be part of the emergency system, and the other shall be permitted to be part of the normal power source and system. Each system shall provide sufficient power for emergency lighting purposes. Unless both systems are used for regular lighting purposes and both are kept lighted, means shall be provided for automatically energizing either system upon failure of the other. Either system or both systems shall be permitted to be a part of the general lighting of the protected occupancy if circuits supplying lights for emergency illumination are installed in accordance with other sections of this article.</p>	<p>No WAC amendment.</p> <p>Seattle proposes: to clarify our current “interpretation” by adding language about needing redundancy of branch circuits affecting emergency illumination in spaces that are required to have it.</p>
W	700.32	Selective Coordination (legally required standby OCPD’s)	<p>700.32 Selective Coordination. Emergency system(s) overcurrent devices shall be selectively coordinated with supply side overcurrent protective devices. Selective coordination shall be selected by a licensed professional engineer or other qualified persons engaged primarily in the design,</p>	<p>▲ 700.32 Selective Coordination.</p> <p>N (A) General. Emergency overcurrent protective devices (OCPDs) shall be selectively coordinated with all supply-side and load-side OCPDs.</p>	<p>Changes to WAC amendment.</p> <p>Seattle proposes:</p>

			<p>installation, or maintenance of electrical systems. The selection shall be documented and made available to those authorized to design, install, inspect, maintain, and operate the system.</p> <p><i>Exception No. 1: Selective coordination shall not be required between two overcurrent devices located in series if no loads are connected in parallel with the downstream device.</i></p> <p><i>Exception No. 2: When an electrical engineer provides stamped and signed time current curves, the emergency system(s) overcurrent protective devices may be selectively coordinated with emergency system supply side overcurrent protective devices for faults with a duration of 0.1 seconds and longer.</i></p> <p>Informational Note: See Informational Note Figure 700.32 for an example of how emergency system overcurrent protective devices (OCPDs) selectively coordinate with all supply-side OCPDs.</p> <p>OCPD D selectively coordinates with OCPDs C, F, E, B, and A. OCPD C selectively coordinates with OCPDs F, E, B, and A. OCPD F selectively coordinates with OCPD E. OCPD B is not required to selectively coordinate with OCPD A because OCPD B is not an emergency system OCPD.</p>	<p>Selective coordination shall be selected by a licensed professional engineer or other qualified persons engaged primarily in the design, installation or maintenance of electrical systems. The selection shall be documented and made available to those authorized to design, install, inspect, maintain, and operate the system.</p> <p>N (B) Replacements. Where emergency system(s) OCPDs are replaced, they shall be reevaluated to ensure selective coordination is maintained with all supply-side and load-side OCPDs.</p> <p>N (C) Modifications. If modifications, additions, or deletions to the emergency system(s) occur, selective coordination of the emergency system(s) OCPDs with all supply-side and load-side OCPDs shall be reevaluated.</p> <p><i>Exception No. 1: Selective coordination shall not be required between two overcurrent devices located in series if no loads are connected in parallel with the downstream device.</i></p> <p><i>Exception No. 2: When an electrical engineer provides stamped and signed time current curves, the emergency system(s) overcurrent protective devices may be selectively coordinated with emergency system supply side overcurrent protective devices for faults with a duration of 0.1 seconds and longer.</i></p> <p><i>Exception No. 3 to (A), (B) and (C): Selective coordination shall not be required for emergency overcurrent protective devices installed prior to June 1, 2006.</i></p> <p>Informational Note No. 1: See Informational Note Figure 700.32 for an example of how emergency system overcurrent protective devices (OCPDs) selectively coordinate with all supply-side OCPDs.</p> <p>Informational Note No. 2: The requirements of 296-46B-700.032 are incorporated herein with edits.</p> <p>OCPD D selectively coordinates with OCPDs C, F, E, B, and A. OCPD C selectively coordinates with OCPDs F, E, B, and A. OCPD F selectively coordinates with OCPD E. OCPD B is not required to selectively coordinate with OCPD A because OCPD B is not an emergency system OCPD.</p>	<p>Incorporating WAC amendments as Exception No. 3 to (A), (B), (C) by not requiring selective coordination of overcurrent protective devices installed before June 1, 2006.</p> <p>Info Note No. 2 provides a pointer to the correlating WAC section.</p> <p>Not adopting from WAC: <u>...provided that no system modifications, additions, deletions, or overcurrent protective devices in that system were replaced on or after April 1, 2024.</u></p>
S	701.4	Capacity and Rating	<p>A 701.4 Capacity and Rating.</p> <p>N (A) Rating. Legally required standby system equipment shall be suitable for the available fault current at its terminals.</p> <p>N (B) Capacity. A legally required standby system shall have adequate capacity in accordance with Article 220 or by another approved method.</p> <p>N (C) Load Pickup, Load Shedding, and Peak Load Shaving. The alternate power source shall be permitted to supply legally required standby and optional standby system loads where the alternate source has adequate capacity or where automatic selective load pickup and load shedding are provided that will ensure adequate power to the legally required standby circuits.</p>	<p>701.4 Capacity and Rating.</p> <p>(A) Rating. Legally required standby system equipment shall be suitable for the available fault current at its terminals.</p> <p>(B) Capacity. A legally required standby system shall have adequate capacity in accordance with Parts I through IV of Article 220 or by another approved method. The system capacity shall be sufficient for the rapid load changes and transient power and energy requirements associated with any expected loads.</p> <p>(C) Load Management. The alternate power source shall be permitted to supply legally required standby and optional standby system loads where the alternate source has adequate capacity or where load management (that</p>	<p>No WAC amendment.</p> <p>Seattle proposes eliminating 701.3 Informational Note.</p> <p>Doesn't belong in legally required standby. Don't think this is helpful to code users.</p>

			<p><u>Informational Note: Optional standby systems shall meet the requirements of Section 702.5 of this Code for Transfer Equipment.</u></p>	<p>includes automatic selective load pickup and load shedding) is provided that will ensure adequate power to the legally required standby circuits.</p> <p><u>Informational Note: Optional standby systems shall meet the requirements of Section 702.5 of this Code for Transfer Equipment.</u></p> <p>N (D) Parallel Operation. Parallel operation shall comply with Part I or Part II of Article 705 where the legally required source capacity required to supply the legally required load is maintained at all times. Parallel operation of the legally required source(s) shall consist of the sources specified in 701.4(D)(1) and (D)(2).</p> <p>N (1) Normal Source. The alternate power source shall be permitted to operate in parallel with the normal source in compliance with Part I or Part II of Article 705 where the capacity required to supply the legally required standby load is maintained at all times. Any operating condition that results in less than the required source capacity shall initiate a legally required standby source malfunction signal in 701.6(A).</p> <p>Parallel operation shall be permitted for satisfying the test requirements of 701.3(B), provided all other conditions of 701.3 are met.</p> <p style="text-align: center;">Informational Note: Peak load shaving is one application for parallel source operation.</p> <p>N (2) Alternate Source. Legally required standby sources shall be permitted to operate in parallel where the necessary equipment to establish and maintain a synchronous condition is provided.</p>	
W	701.7	Signs	<p>701.7 Signs.</p> <p>(A) Mandated Standby. A sign shall be placed at the service entrance indicating type and location of each on-site legally required standby power source.</p> <p><u>Sign(s) must be placed at the service disconnecting means and the meter base if the service disconnecting means and meter base are not located within sight and within 5 ft of each other.</u></p> <p><i>Exception: A sign shall not be required for individual unit equipment as specified in 701.12(G).</i></p> <p><u>Informational Note: WAC 296-46B-701.007(1) requirements for signage not located within sight is incorporated herein with edits.</u></p> <p>(B) Grounding. Where removal of a grounding or bonding connection in normal power source equipment interrupts the grounding electrode conductor connection to the alternate power source(s) grounded conductor, a warning sign shall be installed at the normal power source equipment stating:</p> <p style="text-align: center;">WARNING SHOCK HAZARD EXISTS IF GROUNDING ELECTRODE CONDUCTOR OR BONDING</p>	<p>701.7 Signs.</p> <p>(A) Mandated Standby. A sign shall be placed at the service entrance indicating type and location of each on-site legally required standby power source.</p> <p><u>Sign(s) must be placed at the service disconnecting means and the meter base if the service disconnecting means and meter base are not located within sight and within 5 ft of each other.</u></p> <p><i>Exception: A sign shall not be required for individual unit equipment as specified in 701.12(G).</i></p> <p><u>Informational Note: WAC 296-46B-701.007(1) requirements for signage not located within sight is incorporated herein with edits.</u></p> <p>A (B) Grounding. Where removal of a grounding or bonding connection in normal power source equipment interrupts the grounding electrode conductor connection to the alternate power source(s) grounded conductor, a warning sign shall be installed at the normal power source equipment stating:</p> <p style="text-align: center;">WARNING SHOCK HAZARD EXISTS IF GROUNDING ELECTRODE CONDUCTOR OR BONDING</p>	<p>Small change to WAC amendment.: changed from 5 ft to five feet.</p> <p>Seattle proposes: Don't change [S] language in the first paragraph after (A) (the 5 ft) to match the state.</p> <p>Carry over 2020 WAC amendments as shown in 2020 SEC into 2023 SEC.</p>

			JUMPER CONNECTION IN THIS EQUIPMENT IS REMOVED WHILE ALTERNATE SOURCE(S) IS ENERGIZED. The warning sign(s) or label(s) shall comply with 110.21(B).	JUMPER CONNECTION IN THIS EQUIPMENT IS REMOVED WHILE ALTERNATE SOURCE(S) IS ENERGIZED. The warning sign(s) or label(s) shall comply with 110.21(B).	
	701.10	Wiring Legally Required Standby Systems	<p>701.10 Wiring Legally Required Standby Systems. The legally required standby system wiring shall be ((permitted to occupy)) <u>kept entirely independent of all wiring and equipment and shall not enter the same raceways, cables, boxes, and cabinets with other general wiring ((.) for the following systems:</u></p> <p><u>(1) Shaft pressurization systems installed according to Chapter 9 of the Seattle Building Code, and</u></p> <p><u>(2) Elevators serving as an accessible means of egress according to Chapter 10 of the Seattle Building Code.</u></p> <p><u>Other legally required standby system wiring shall be permitted to occupy the same raceways, cables, boxes, and cabinets with other general wiring.</u></p>	<p>701.10 Wiring Legally Required Standby Systems.</p> <p>N (A) General. The legally required standby system wiring shall be ((permitted to occupy)) <u>kept entirely independent of all wiring and equipment and shall not enter the same raceways, cables, boxes, and cabinets with other general wiring for the following systems:</u></p> <p><u>(1) Shaft pressurization systems installed according to Chapter 9 of the Seattle Building Code, and</u></p> <p><u>(2) Elevators serving as an accessible means of egress according to Chapter 10 of the Seattle Building Code.</u></p> <p><u>Other legally required standby system wiring shall be permitted to occupy the same raceways, cables, boxes, and cabinets with other general wiring.</u></p> <p>N (B) Wiring. Wiring from a legally required source to supply legally required and other (nonlegally required) loads shall be in accordance with the following:</p> <p>(1) The common bus of switchgear, sections of a switchboard, or individual enclosures shall be either of the following:</p> <p>a. Supplied by single or multiple feeders without overcurrent protection at the source</p> <p>b. Supplied by single or multiple feeders with overcurrent protection, provided that the overcurrent protection that is common to a legally required system and any nonlegally required system(s) is selectively coordinated with the next downstream overcurrent protective device in the nonlegally required system(s)</p> <p>Informational Note: See Informational Note Figure 701.10(B)(1) and Informational Note Figure 701.10(B)(2) for further information.</p>	<p>No WAC amendment.</p> <p>ON HOLD!: Add language so these systems are identified.</p>
S	701.12	General Requirements	<p>701.12 General Requirements. Current supply shall be such that, in the event of failure of the normal supply to, or within, the building or group of buildings concerned, legally required standby power will be available within the time required for the application but not to exceed 60 seconds. The supply system for legally required standby purposes, in addition to the normal services to the building, shall be permitted to comprise one or more of the types of systems described in 701.12(A) through (I). Unit equipment in accordance with 701.12(J) shall satisfy the applicable requirements of this article.</p>	<p>701.12 General Requirements. Current supply shall be such that, in the event of failure of the normal supply to, or within, the building or group of buildings concerned, legally required standby power will be available within the time required for the application but not to exceed 60 seconds. The supply system for legally required standby purposes, in addition to the normal services to the building, shall be permitted to comprise one or more of the types of systems described in 701.12(A) through (I). Unit equipment in accordance with 701.12(I) shall satisfy the applicable requirements of this article.</p>	<p>No WAC amendments.</p> <p>Seattle proposes: Carry forward 2020 SEC amendment and overlay on 2023 NEC.</p>

		<p>N (A) Power Source Considerations. In selecting a legally required standby source of power, consideration shall be given to the type of service to be rendered, whether of short-time duration or long duration.</p> <p>N (B) Equipment Design and Location. Consideration shall be given to the location or design, or both, of all equipment to minimize the hazards that might cause complete failure due to floods, fires, icing, and vandalism.</p> <p>Informational Note: For further information, see ANSI/IEEE 493-2007, <i>Recommended Practice for the Design of Reliable Industrial and Commercial Power Systems</i>.</p> <p>(C) Storage Battery. Storage batteries shall be of suitable rating and capacity to supply and maintain the total load for a minimum period of 1 ½ hours without the voltage applied to the load falling below 87 ½ percent of normal. Automotive-type batteries shall not be used.</p> <p>An automatic battery charging means shall be provided.</p> <p>(D) Generator Set.</p> <p>(1) Prime Mover-Driven. For a generator set driven by a prime mover approved by the authority having jurisdiction and sized in accordance with 701.4, means shall be provided for automatically starting the prime mover upon failure of the normal service and for automatic transfer and operation of all required electrical circuits. A time-delay feature permitting a 15-minute setting shall be provided to avoid retransfer in case of short-time re-establishment of the normal source.</p> <p>(2) Internal Combustion Engines as Prime Mover. Where internal combustion engines are used as the prime mover, an on-site fuel supply shall be provided with an on-premises fuel supply sufficient for not less than 2 hours of full-demand operation of the system. Where power is needed for the operation of the fuel transfer pumps to deliver fuel to a generator set day tank, the pumps shall be connected to the legally required standby power system.</p> <p>(3) Public Gas System, Municipal Water Supply. Prime movers shall not be solely dependent on a public utility gas system for their fuel supply or on a municipal water supply for their cooling systems. Means shall be provided for automatically transferring one fuel supply to another where dual fuel supplies are used.</p> <p><i>(Exception: Where approved by the authority having jurisdiction, the use of other than on-site fuels shall be permitted where there is a low probability of a simultaneous failure of both the off-site fuel delivery system and power from the outside electrical utility company.)</i></p> <p>(4) Battery Power. Where a storage battery is used for control or signal power or as the means of starting the prime mover, it shall be suitable for the purpose and shall be equipped with an automatic charging means independent of the generator set.</p> <p>(5) Outdoor Generator Sets. Where an outdoor housed generator set is equipped with a readily accessible disconnecting means in accordance with 445.18, and the disconnecting means is located within sight of the building or structure supplied, an additional disconnecting means shall not be</p>	<p>(A) Power Source Considerations. In selecting a legally required standby source of power, consideration shall be given to the type of service to be rendered, whether of short-time duration or long duration.</p> <p>(B) Equipment Design and Location. Consideration shall be given to the location or design, or both, of all equipment to minimize the hazards that might cause complete failure due to floods, fires, icing, and vandalism.</p> <p>Informational Note: See ANSI/IEEE 493-2007, <i>Recommended Practice for the Design of Reliable Industrial and Commercial Power Systems</i>, for further information.</p> <p>Δ (C) Supply Duration. The alternate power source shall be of suitable rating and capacity to supply and maintain the total load for the duration determined by the system design. In no case shall the duration be less than 2 hours of system operation. Additionally, the power source shall comply with 701.12(C)(1) through (C)(5) as applicable.</p> <p>Informational Note: See NFPA 110-2022, <i>Standard for Emergency and Standby Power Systems</i>, for information on classification of emergency power supply systems (EPSS).</p> <p>N (1) On-Site Fuel Supply. An on-site fuel supply shall be provided, sufficient for not less than 2 hours operation of the system.</p> <p>Δ (2) Fuel Transfer Pumps. Where power is needed for the operation of the fuel transfer pumps to deliver fuel to the source, these pumps shall be connected to the legally required standby power system.</p> <p>Δ (3) Public Gas System, Municipal Water Supply. Sources shall not be solely dependent on a public utility gas system for their fuel supply or on a municipal water supply for their cooling systems.</p> <p><i>(Exception: Where approved by the authority having jurisdiction, the use of other than on-site fuels shall be permitted where there is a low probability of a simultaneous failure of both the off-site fuel delivery system and power from the outside electrical utility company. Where a public gas system is approved, the requirements of 701.12(C)(1) shall not apply.)</i></p> <p>N (4) Storage Batteries and UPS. Storage batteries and UPS used to supply standby illumination shall be of suitable rating and capacity to supply and maintain the total load for a minimum period of 1 1/2 hours, without the voltage applied to the load falling below 87 1/2 percent of nominal voltage. Automotive-type batteries shall not be used. An automatic battery charging means shall be provided.</p> <p>N (5) Automatic Fuel Source Transfer. Where dual fuel sources are used, means shall be provided for automatically transferring from one fuel source to another.</p> <p>(D) Generator Set.</p> <p>(1) Prime Mover-Driven. For a generator set driven by a prime mover approved by the authority having jurisdiction and sized in accordance with 701.4, means shall be provided for automatically starting the prime mover upon failure of the normal power source and for automatic transfer</p>	
--	--	--	---	--

		<p>required where ungrounded conductors serve or pass through the building or structure. Where the generator supply conductors terminate at a disconnecting means in or on a building or structure, the disconnecting means shall meet the requirements of 225.36.</p> <p>(E) Uninterruptible Power Supplies. Uninterruptible power supplies used to provide power for legally required standby systems shall comply with 701.12(B) and (C).</p> <p>(F) Separate Service. Where approved, a separate service shall be permitted as a legally required source of standby power. This service shall be in accordance with Article 230, with a separate service drop or lateral or a separate set of ((overhead or)) underground service conductors sufficiently remote electrically and physically from any other service to minimize the possibility of simultaneous interruption of supply from an occurrence in another service.</p> <p>(G) Connection Ahead of Service Disconnecting Means. Where approved by the authority having jurisdiction, connections located ahead of and not within the same cabinet, enclosure, vertical switchgear section, or vertical switchboard section as the service disconnecting means shall be permitted. The legally required standby service shall be sufficiently separated from the normal main service disconnecting means to minimize simultaneous interruption of supply through an occurrence within the building or groups of buildings served.</p> <p>Informational Note: See 230.82 for equipment permitted on the supply side of a service disconnecting means.</p> <p>(H) Fuel Cell System. Fuel cell systems used as a source of power for legally required standby systems shall be of suitable rating and capacity to supply and maintain the total load for not less than 2 hours of full-demand operation. Installation of a fuel cell system shall meet the requirements of Parts II through VIII of Article 692. Where a single fuel cell system serves as the normal supply for the building or group of buildings concerned, it shall not serve as the sole source of power for the legally required standby system.</p> <p>N (1) DC Microgrid Systems. Sources connected to a dc microgrid system shall be permitted where the system is capable of being isolated from all non-legally required sources. A dc microgrid system used as a source of power for legally required systems shall be of suitable rating and capacity to supply and maintain the total legally required load for not less than 2 hours of full-demand operation.</p> <p>Where a dc microgrid system source serves as the normal supply for the building or group of buildings concerned, it shall not serve as the sole source of power for the legally required standby system.</p> <p>(J) Unit Equipment. Individual unit equipment for legally required standby illumination shall consist of the following:</p> <p>(1) A rechargeable battery</p>	<p>and operation of all required electrical circuits. A time-delay feature permitting a 15-minute setting shall be provided to avoid retransfer in case of short-time reestablishment of the normal source.</p> <p>(2) Battery Power. Where a storage battery is used for control or signal power or as the means of starting the prime mover, it shall be suitable for the purpose and shall be equipped with an automatic charging means independent of the generator set.</p> <p>(3) Outdoor Generator Sets. If an outdoor-housed generator set is equipped with a readily accessible disconnecting means in accordance with 445.18, and the disconnecting means is located within sight of the building or structure supplied, an additional disconnecting means shall not be required where ungrounded conductors serve or pass through the building or structure. Where the generator supply conductors terminate at a disconnecting means in or on a building or structure, the disconnecting means shall meet the requirements of 225.36.</p> <p>(E) Stored-Energy Power Supply Systems (SEPPS). Stored energy power supply systems shall comply with 701.12(E)(1) and (E)(2).</p> <p>N (1) Types. Systems shall consist of one or more of the following system types:</p> <ol style="list-style-type: none"> a. Uninterruptible power supply (UPS) b. Fuel cell system c. Energy storage system (ESS) d. Storage battery e. Other approved equivalent stored energy sources that comply with 701.12 <p>Informational Note: See UL 1778, <i>Uninterruptible Power Systems</i>, and UL 924, <i>Emergency Lighting and Power Equipment</i>, for further information.</p> <p>N (2) Fire Protection, Suppression, Ventilation, and Separation. The systems in 701.12(E)(1) shall be installed with the fire protection, suppression, ventilation, and separation requirements specified in the manufacturer's instructions or equipment listing.</p> <p>Informational Note: See NFPA 853-2020, <i>Standard for the Installation of Stationary Fuel Cell Power Systems</i>, and NFPA 855-2020, <i>Standard for the Installation of Stationary Energy Storage Systems</i>, for additional information on fire protection installation requirements.</p> <p>(F) Separate Service. Where approved, by the authority having jurisdiction as suitable for use as a legally required source of power, an additional service shall be permitted. This service shall be in accordance with Article 230 and the following additional requirements:</p> <p>(1) Separate overhead service conductors, service drops, underground service conductors, or service laterals shall be installed.</p>	
--	--	---	---	--

			<p>(2) A battery charging means</p> <p>(3) Provisions for one or more lamps mounted on the equipment and shall be permitted to have terminals for remote lamps</p> <p>(4) A relaying device arranged to energize the lamps automatically upon failure of the supply to the unit equipment</p> <p>The batteries shall be of suitable rating and capacity to supply and maintain the total lamp load associated with the unit for not less than the following:</p> <p>(1) For a period of 1 ½ hours, without the voltage falling below 87 ½ percent of normal voltage</p> <p>(2) The unit equipment shall supply and maintain not less than 60 percent of the initial emergency illumination for a period of at least 1 ½ hours.</p> <p>Unit equipment shall be permanently fixed in place (i.e., not portable) and shall have all wiring to each unit installed in accordance with the requirements of any of the wiring methods in Chapter 3. Flexible cord-and-plug connection shall be permitted, provided that the cord does not exceed 900 mm (3 ft) in length. The branch circuit feeding the unit equipment shall be the same branch circuit as that serving the normal lighting in the area and connected ahead of any local switches. Legally required standby luminaires that obtain power from a unit equipment and are not part of the unit equipment shall be wired to the unit equipment by one of the wiring methods of Chapter 3.</p> <p><i>Exception: In a separate and uninterrupted area supplied by a minimum of three normal lighting circuits, a separate branch circuit for unit equipment shall be permitted if it originates from the same panelboard as that of the normal lighting circuits and is provided with a lock-on feature.</i></p>	<p>(2) The service conductors for the separate service shall be installed sufficiently remote electrically and physically from any other service conductors to minimize the possibility of simultaneous interruption of supply.</p> <p>(G) Connection Ahead of Service Disconnecting Means. Where approved by the authority having jurisdiction, connections located ahead of and not within the same cabinet, enclosure, vertical switchgear section, or vertical switchboard section as the service disconnecting means shall be permitted. The legally required standby service shall be sufficiently separated from the normal main service disconnecting means to minimize simultaneous interruption of supply through an occurrence within the building or groups of buildings served.</p> <p>Informational Note: See 230.82 for equipment permitted on the supply side of a service disconnecting means.</p> <p>Δ (H) Microgrid Systems. On-site sources, designated as legally required standby sources, shall be permitted to be connected to a microgrid system.</p> <p>The system shall isolate the legally required standby system from all nonlegally required loads when the normal electric supply is interrupted or shall meet the requirements of 701.4(C). Interruption or partial or complete failure of the normal source(s) shall not impact the availability, capacity, and duration provided by the designated legally required standby sources.</p> <p>The designated stored-energy legally required standby power source(s) of a microgrid system shall be permitted to remain interconnected to any available power production source during operation of the legally required standby source(s) where the lack of, or failure of, the interconnected power production source(s), or related controls, does not impact system operation. Interconnected power production sources, other than the designated SEPSS, shall not be required to meet the requirements of this article.</p> <p>Δ (I) Battery-Equipped Emergency Luminaires, Used for Legally Required Standby Systems. Battery-equipped emergency luminaires used for legally required standby systems shall comply with 700.12(H).</p>	
W	701.32	Selective Coordination	<p>701.32 Selective Coordination. Legally required standby system(s) overcurrent devices shall be selectively coordinated with all supply-side overcurrent protective devices. Selective coordination shall be selected by a licensed professional engineer or other qualified persons engaged primarily in the design, installation, or maintenance of electrical systems. The selection shall be documented and made available to those authorized to design, install, inspect, maintain, and operate the system.</p> <p><i>Exception No. 1: Selective coordination shall not be required between two overcurrent devices located in series if no loads are connected in parallel with the downstream device.</i></p> <p><i>Exception No. 2: When an electrical engineer provides stamped fault current calculations, the overcurrent protective devices in each disconnecting means may be selectively coordinated with any other supply side overcurrent protective devices for faults with a duration of 0.1 seconds and longer.</i></p>	<p>Δ 701.32 Selective Coordination.</p> <p>N (A) General. Legally required standby system(s) overcurrent protective devices (OCPDs) shall be selectively coordinated with all supply-side and load-side OCPDs.</p> <p>Selective coordination shall be selected by a licensed professional engineer or other qualified persons engaged primarily in the design, installation, or maintenance of electrical systems. The selection shall be documented and made available to those authorized to design, install, inspect, maintain, and operate the system.</p> <p>N (B) Replacements. Where legally required standby OCPDs are replaced, they shall be reevaluated to ensure selective coordination is maintained with all supply-side and load-side OCPDs.</p>	<p>WAC Changes in this section</p> <p>Seattle Proposes: Incorporate WAC language for excepting existing construction and adopt. Not adopting from the WAC: “Provided that no system modifications, additions, deletions, or overcurrent protective devices in that system were replaced on or after April 1, 2024.”</p>

			<p>Informational Note: See Informational Note Figure 701.32 for an example of how legally required standby system overcurrent protective devices (OCPDs) selectively coordinate with all supply-side OCPDs.</p> <p>OCPD D selectively coordinates with OCPDs C, F, E, B, and A. OCPD C selectively coordinates with OCPDs F, E, B, and A. OCPD F selectively coordinates with OCPD E. OCPD B is not required to selectively coordinate with OCPD A because OCPD B is not a legally required standby system OCPD.</p>	<p>Δ (C) Modifications. If modifications, additions, or deletions to the legally required standby system(s) occur, selective coordination of the legally required system(s) OCPDs with all supply-side and load-side OCPDs shall be reevaluated.</p> <p><i>Exception No. 1: Selective coordination shall not be required between two overcurrent devices located in series if no loads are connected in parallel with the downstream device.</i></p> <p><i>Exception No. 2: When an electrical engineer provides stamped fault current calculations, the overcurrent protective devices in each disconnecting means may be selectively coordinated with any other supply side overcurrent protective devices for faults with a duration of 0.1 seconds and longer.</i></p> <p><i>Exception No. 3 to (A), (B) and (C): Selective coordination shall not be required for legally required standby overcurrent protective devices installed prior to June 1, 2006.</i></p> <p><u>Informational Note: The requirements of 296-46B-701.032 are incorporated herein with edits.</u></p> <p>Informational Note: See Informational Note Figure 701.32 for an example of how legally required standby system OCPDs selectively coordinate with all supply-side OCPDs.</p> <p>OCPD D selectively coordinates with OCPDs C, F, E, B, and A. OCPD C selectively coordinates with OCPDs F, E, B, and A. OCPD F selectively coordinates with OCPD E. OCPD B is not required to selectively coordinate with OCPD A because OCPD B is not a legally required standby system OCPD.</p>	
W	702.7	Signs		<p>Δ (A) Standby.</p> <p>A sign shall be placed at the service equipment for other than one- and two-family dwellings that indicates the type and location of each on-site optional standby power source. For one- and two-family dwelling units, a sign shall be placed at the disconnecting means required in 230.85 that indicates the location of each permanently installed on-site optional standby power source disconnect or means to shut down the prime mover as required in 445.19(C).</p> <p><u>The sign(s) required in this section must be placed where required and at the meter base if the meter base is not located within sight and within five feet of where the sign is required. When a disconnecting means required by NEC 230.85 is not present, the sign(s) required in this section must be placed at the service disconnecting means and the meter base if the service disconnecting means and the meter base are not located within sight and within five feet of each other.</u></p> <p><u>Informational note: the requirements of WAC 296-46B-702.007 are incorporated herein with edits</u></p>	<p>WAC amendment in this section.</p> <p>Added sign requirements for meter base. WAC requires that it be on the meter—not just on the source or disconnect.</p>

				<p>⚠ (B) Grounding.</p> <p>Where removal of a grounding or bonding connection in normal power source equipment interrupts the grounding electrode conductor connection to the alternate power source(s) grounded conductor, a warning sign shall be installed at the normal power source equipment stating:</p> <p style="text-align: center;">WARNING: SHOCK HAZARD EXISTS IF GROUNDING ELECTRODE CONDUCTOR OR BONDING JUMPER CONNECTION IN THIS EQUIPMENT IS REMOVED WHILE ALTERNATE SOURCE(S) IS ENERGIZED.</p> <p>The warning sign(s) or label(s) shall comply with <u>110.21(B)</u>.</p> <p>⚠ (C) Power Inlet.</p> <p>Where a power inlet is used for a temporary connection to a portable generator, a warning sign shall be placed near the inlet to indicate the type of derived system that the system is capable of based on the wiring of the transfer equipment. The sign shall display one of the following warnings:</p> <p style="text-align: center;">WARNING: FOR CONNECTION OF A SEPARATELY DERIVED (BONDED NEUTRAL) SYSTEM ONLY OR WARNING: FOR CONNECTION OF A NONSEPARATELY DERIVED (FLOATING NEUTRAL) SYSTEM ONLY</p> <p>(B) Grounding.</p> <p>Where removal of a grounding or bonding connection in normal power source equipment interrupts the grounding electrode conductor connection to the alternate power source(s) grounded conductor, a warning sign shall be installed at the normal power source equipment stating:</p> <p style="text-align: center;">WARNING: SHOCK HAZARD EXISTS IF GROUNDING ELECTRODE CONDUCTOR OR BONDING JUMPER</p>	
--	--	--	--	--	--

				<p style="text-align: center;">CONNECTION IN THIS EQUIPMENT IS REMOVED WHILE ALTERNATE SOURCE(S) IS ENERGIZED.</p> <p>The warning sign(s) or label(s) shall comply with 110.21(B).</p> <p>C) Power Inlet. Where a power inlet is used for a temporary connection to a portable generator, a warning sign shall be placed near the inlet to indicate the type of derived system that the system is capable of based on the wiring of the transfer equipment. The sign shall display one of the following warnings:</p> <p style="text-align: center;">WARNING: FOR CONNECTION OF A SEPARATELY DERIVED (BONDED NEUTRAL) SYSTEM ONLY OR WARNING: FOR CONNECTION OF A NONSEPARATELY DERIVED (FLOATING NEUTRAL) SYSTEM ONLY</p>	
	705.1	Scope		<p><u>Article 705 Interconnected Electric Power Production Sources</u> <u>Part I. General</u> <u>705.1</u> <u>(A) Scope.</u> This article covers installation of one or more electric power production sources operating in parallel with a primary source(s) of electricity. Informational Note No. 1: Examples of the types of primary sources include a utility supply or an on-site electric power source(s).</p> <p><u>(B) Utility Requirements.</u> <u>The serving utility shall be consulted by the owner, the owner’s agent, or the contractor making the installation to ensure compliance with the requirements of the utility.</u></p> <p><u>Informational Note No. 1: See Seattle City Light’s Requirements for Electrical Service Connection for information on specific utility requirements.</u></p> <p><u>Informational Note #2: The requirements of WAC 296-46B-705 (1) are incorporated herein with edits.</u></p>	<p>WAC Amendment in this section.</p> <p>Incorporates the concept from the WAC that people need to check in with the utility company when adding electric power production sources to their property. Rather than use the WAC requirements, we are pointing them to Seattle City Light.</p>
W	705.11	Source Connections to a Service		<p>Δ 705.11 Source Connections to a Service. (A) Service Connections.</p>	<p>WAC amendment in this section.</p> <p>SDCI has revisited and incorporated WAC language for wiring</p>

				<p>An electric power production source shall be permitted to be connected to a service by one of the following methods:</p> <ol style="list-style-type: none"> (1) To a new service in accordance with <u>230.2(A)</u> (2) To the supply side of the service disconnecting means in accordance with <u>230.82(6)</u> (3) To an additional set of service entrance conductors in accordance with <u>230.40</u>, Exception No. 5 <p>These connections shall comply with <u>705.11(B)</u> through (F).</p> <p>(B) Conductors. Service conductors connected to power production sources shall comply with the following:</p> <ol style="list-style-type: none"> (1) The ampacity of the service conductors connected to the power production source service disconnecting means shall not be less than the sum of the power production source maximum circuit current in <u>705.28(A)</u>. (2) The service conductors connected to the power production source service disconnecting means shall be sized in accordance with <u>705.28</u> and not be smaller than 6 AWG copper or 4 AWG aluminum or copper-clad aluminum. (3) The ampacity of any other service conductors to which the power production sources are connected shall not be less than that required in <u>705.11(B)</u>. <p>(C) Connections. Connections to service conductors or equipment shall comply with <u>705.11(C)(1)</u> through (C)(3).</p> <p>(1) Splices or Taps. Service conductor splices and taps shall be made in accordance with <u>230.33</u> or <u>230.46</u> and comply with all applicable enclosure fill requirements.</p> <p>(2) Existing Equipment. Any modifications to existing equipment shall be made in accordance with the manufacturer's instructions, or the modification must be field evaluated for the application and be field labeled.</p> <p>(3) Utility-Controlled Equipment.</p>	<p>methods—Article 230 into this section.</p>
--	--	--	--	--	---

				<p>For meter socket enclosures or other equipment under the exclusive control of the electric utility, only connections approved by the electric utility shall be permitted.</p> <p>(D) Service Disconnecting Means. A disconnecting means in accordance with Parts VI through VII of Article 230 shall be provided to disconnect all ungrounded conductors of a power production source from the conductors of other systems. <u>The disconnecting means providing overcurrent protection for the electric power production source conductors must comply with NEC 230.82(6). This disconnect is not required to be grouped with the service disconnecting means for the building or structure. Grounding and bonding must be in accordance with NEC 250.25.</u></p> <p>(E) Bonding and Grounding. All metal enclosures, metal wiring methods, and metal parts associated with the service connected to a power production source shall be bonded in accordance with Parts II through V and VIII of Article 250.</p> <p>(F) Overcurrent Protection. The power production source service conductors shall be protected from overcurrent in accordance with Part VII of Article 230. The rating of the overcurrent protection device of the power production source service disconnecting means shall be used to determine if ground-fault protection of equipment is required in accordance with 230.95.</p> <p>(G) Wiring methods. <u>Electric power production source conductors connected to the supply side of the service disconnecting means must be installed using wiring methods specified for service conductors in Seattle Electrical Code 230.43.</u></p> <p><u>Informational Note: The requirements of WAC-296-46B-705 011(2) are incorporated herein with edits.</u></p>	
S	705.12	Load-Side Source Connections	<p>705.12 Load-Side Source Connections. The output of an interconnected electric power source shall be permitted to be connected to the load side of the service disconnecting means of the other source(s) at any distribution equipment on the premises. Where distribution equipment or feeders are fed simultaneously by a primary source of electricity and one or more other power source and are capable of supplying multiple branch circuits or feeders, or both, the interconnecting equipment shall comply with 705.12(A) through (E). Where a power control system (PCS) is installed in accordance with 705.13, the setting of the PCS controller shall be considered the power-source output circuit current in 705.12(A) through (E).</p> <p><u>(1) The sum of the ratings of all overcurrent devices connected to power production sources shall not exceed the rating of the service.</u></p>	<p>Δ 705.12 Load-Side Source Connections. The output of an interconnected electric power source shall be permitted to be connected to the load side of the service disconnecting means of the other source(s) at any distribution equipment on the premises. Where distribution equipment or feeders are fed simultaneously by a primary source of electricity and one or more other power source(s), the feeders or distribution equipment shall comply with relevant sections of 705.12(A) and (B). Currents from power source connections to feeders or busbars shall be based on the maximum circuit currents calculated in 705.28(A). The ampacity of feeders and taps shall comply with 705.12(A), and the ampere ratings of busbars shall comply with 705.12(B).</p>	<p>No WAC amendment.</p> <p>Seattle proposes to:</p> <p>Remove 705.12 (1) and (2). This is an odd place to put these arbitrary requirements. Why would load side source connections need to be wired as a service? NEC already covers load side connections.</p>

		<p>(2) <u>The output conductors of the electric power production source shall be installed in accordance with Section 230.43.</u></p> <p>(A) Dedicated Overcurrent and Disconnect. Each source interconnection of one or more power sources installed in one system shall be made at a dedicated circuit breaker or fusible disconnecting means.</p> <p>(B) Bus or Conductor Ampere Rating. The power source output circuit current multiplied by 125 percent shall be used in ampacity calculations for 705.12(B)(1) through (B)(3).</p> <p>(1) Feeders. Where the power source output connection is made to a feeder, the feeder shall have an ampacity greater than or equal to 125 percent of the power-source output circuit current. Where the power-source output connection is made to a feeder at a location other than the opposite end of the feeder from the primary source overcurrent device, that portion of the feeder on the load side of the power source output connection shall be protected by one of the following:</p> <ol style="list-style-type: none"> The feeder ampacity shall be not less than the sum of the primary source overcurrent device and 125 percent of the power-source output circuit current. An overcurrent device at the load side of the power source connection point shall be rated not greater than the ampacity of the feeder. <p>(2) Taps. Where power source output connections are made at feeders, all taps shall be sized based on the sum of 125 percent of all power source(s) output circuit current(s) and the rating of the overcurrent device protecting the feeder conductors for sizing tap conductors using the calculations in 240.21(B).</p> <p>(3) Busbars. One of the following methods shall be used to determine the ratings of busbars:</p> <ol style="list-style-type: none"> The sum of 125 percent of the power source(s) output circuit current and the rating of the overcurrent device protecting the busbar shall not exceed the ampacity of the busbar. <p>Informational Note: This general rule assumes no limitation in the number of the loads or sources applied to busbars or their locations.</p> <ol style="list-style-type: none"> Where two sources, one a primary power source and the other another power source, are located at opposite ends of a busbar that contains loads, the sum of 125 percent of the power-source(s) output circuit current and the rating of the overcurrent device protecting the busbar shall not exceed 120 percent of the ampacity of the busbar. The busbar shall be sized for the loads connected in accordance with Article 220. A permanent warning label shall be applied to the distribution equipment 	<p>(1) The sum of the ratings of all overcurrent devices connected to power production sources shall not exceed the rating of the service.</p> <p>(2) The output conductors of the electric power production source shall be installed in accordance with Section 230.43.</p> <p>(A) Feeders and Feeder Taps. Where the power source output connection is made to a feeder, the following shall apply:</p> <ol style="list-style-type: none"> The feeder ampacity is greater than or equal to 125 percent of the power-source output circuit current. Where the power-source output connection is made at a location other than the opposite end of the feeder from the primary source overcurrent device, that portion of the feeder on the load side of the power source output connection shall be protected by one of the following: <ol style="list-style-type: none"> The feeder ampacity shall be not less than the sum of the rating of the primary source overcurrent device and 125 percent of the power-source output circuit current. An overcurrent device at the load side of the power source connection point shall be rated not greater than the ampacity of the feeder. For taps sized in accordance with 240.21(B)(2) or (B)(4), the ampacity of taps conductors shall not be less than one-third of the sum of the rating of the overcurrent device protecting the feeder plus the ratings of any power source overcurrent devices connected to the feeder. <p>(B) Busbars. For power source connections to distribution equipment with no specific listing and instructions for combining multiple sources, one of the following methods shall be used to determine the required ampere ratings of busbars:</p> <ol style="list-style-type: none"> The sum of 125 percent of the power source(s) output circuit current and the rating of the overcurrent device protecting the busbar shall not exceed the busbar ampere rating. <p>Informational Note: This general rule assumes no limitation in the number of the loads or sources applied to busbars or their locations.</p> <ol style="list-style-type: none"> Where two sources, one a primary power source and the other another power source, are located at opposite ends of a busbar that contains loads, the sum of 125 percent of the power-source(s) output circuit current and the rating of the overcurrent device protecting the busbar shall not exceed 120 percent of the busbar ampere rating. The busbar shall be sized for the loads connected in accordance with Article 220. A permanent warning label shall be applied to the distribution equipment adjacent to the back-fed breaker from the power source that displays the following or equivalent wording: 	<p>Remove 705.12 from SEC quick reference pages.</p>
--	--	---	--	--

			<p>adjacent to the back-fed breaker from the power source that displays the following or equivalent wording:</p> <p style="text-align: center;">WARNING: POWER SOURCE OUTPUT CONNECTION— DO NOT RELOCATE THIS OVERCURRENT DEVICE.</p> <p>The warning sign(s) or label(s) shall comply with 110.21(B).</p> <p>(3) The sum of the ampere ratings of all overcurrent devices on panelboards, both load and supply devices, excluding the rating of the overcurrent device protecting the busbar, shall not exceed the ampacity of the busbar. The rating of the overcurrent device protecting the busbar shall not exceed the rating of the busbar. Permanent warning labels shall be applied to distribution equipment displaying the following or equivalent wording:</p> <p style="text-align: center;">WARNING: THIS EQUIPMENT FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVERCURRENT DEVICES EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE SHALL NOT EXCEED AMPACITY OF BUSBAR.</p> <p>The warning sign(s) or label(s) shall comply with 110.21(B).</p> <p>(4) A connection at either end of a center-fed panelboard in dwellings shall be permitted where the sum of 125 percent of the power-source(s) output circuit current and the rating of the overcurrent device protecting the busbar does not exceed 120 percent of the current rating of the busbar.</p> <p>(5) Connections shall be permitted on switchgear, switchboards, and panelboards in configurations other than those permitted in 705.12(B)(3)(1) through (B)(3)(4) where designed under engineering supervision that includes available fault-current and busbar load calculations.</p> <p>(6) Connections shall be permitted on busbars of panelboards that supply lugs connected to feed-through conductors. The feed-through conductors shall be sized in accordance with 705.12(B)(1). Where an overcurrent device is installed at the supply end of the feed-through conductors, the busbar in the supplying panelboard shall be permitted to be sized in accordance with 705.12(B)(3)(1) through 705.12(B)(3)(3).</p> <p>(C) Marking. Equipment containing overcurrent devices in circuits supplying power to a busbar or conductor supplied from multiple sources shall be marked to indicate the presence of all sources.</p>	<p style="text-align: center;">WARNING: POWER SOURCE OUTPUT DO NOT RELOCATE THIS OVERCURRENT DEVICE.</p> <p>The warning sign(s) or label(s) shall comply with 110.21(B).</p> <p>(3) The sum of the ampere ratings of all overcurrent devices on panelboards, both load and supply devices, excluding the rating of the overcurrent device protecting the busbar, shall not exceed the ampacity of the busbar. The rating of the overcurrent device protecting the busbar shall not exceed the rating of the busbar. Permanent warning labels shall be applied to distribution equipment displaying the following or equivalent wording:</p> <p style="text-align: center;">WARNING: EQUIPMENT FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVERCURRENT DEVICES EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE SHALL NOT EXCEED AMPACITY OF BUSBAR.</p> <p>The warning sign(s) or label(s) shall comply with 110.21(B).</p> <p>(4) A connection at either end of a center-fed panelboard in dwellings shall be permitted where the sum of 125 percent of the power-source(s) output circuit current and the rating of the overcurrent device protecting the busbar does not exceed 120 percent of the busbar ampere rating.</p> <p>(5) Connections shall be permitted on busbars of panelboards that supply lugs connected to feed-through conductors or are supplied by feed-through conductors. The feed-through conductors shall be sized in accordance with 705.12(A). Where an overcurrent device is installed at either end of the feed-through conductors, panelboard busbars on either side of the feed-through conductors shall be permitted to be sized in accordance with 705.12(B)(1) through (B)(3).</p> <p>(6) Connections shall be permitted on switchgear, switchboards, and panelboards in configurations other than those permitted in 705.12(B)(1) through (B)(5) where designed under engineering supervision that includes available fault-current and busbar load calculations.</p> <p>Informational Note: Specifically designed equipment exists, listed to UL 1741, <i>Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources</i>, for the combination and distribution of sources to supply loads. The options provided in 705.12(B) are for equipment with no specific listing for combining sources.</p>	
--	--	--	---	---	--

			<p>Δ (D) Suitable for Backfeed. Fused disconnects, unless otherwise marked, shall be considered suitable for backfeed. Circuit breakers not marked “line” and “load” shall be considered suitable for backfeed. Circuit breakers marked “line” and “load” shall be considered suitable for backfeed or reverse current if specifically rated.</p> <p>(E) Fastening. Listed plug-in-type circuit breakers back-fed from electric power sources that are listed and identified as interactive shall be permitted to omit the additional fastener normally required by 408.36(D) for such applications</p>		
S	706.7	Maintenance (ESS)	<p>N 706.7 Maintenance. Energy storage systems shall be maintained in proper and safe operating condition. The required maintenance shall be in accordance with the manufacturer’s requirements and industry standards. A written record of the system maintenance shall be kept and shall include records of repairs and replacements necessary to maintain the system in proper and safe operating condition. <u>The written record shall, upon request, be made available to the authority having jurisdiction.</u></p> <p>Informational Note: For information related to general electrical equipment maintenance and developing an effective electrical preventative maintenance (EPM) program, see NFPA 70B-2019, Recommended Practice for Electrical Equipment Maintenance, or ANSI/NETA ATS-2017, Standard for Acceptance Testing Specifications for Electrical Power Equipment and Systems.</p>	<p>Δ706.7 Commissioning and Maintenance.</p> <p>N (A) Commissioning. ESSs shall be commissioned upon installation. This shall not apply in one- and two-family dwellings.</p> <p>Informational Note: See NFPA 855-2020, Standard for the Installation of Stationary Energy Storage Systems, for information related to the commissioning of ESSs.</p> <p>N (B) Maintenance. ESSs shall be maintained in proper and safe operating condition. The required maintenance shall be in accordance with the manufacturer’s requirements and industry standards. A written record of the system maintenance shall be kept and shall include records of repairs and replacements necessary to maintain the system in proper and safe operating condition. <u>The written record shall, upon request, be made available to the authority having jurisdiction.</u> This shall not apply in one- and two-family dwellings.</p> <p>Informational Note: See NFPA 70B-2019, Recommended Practice for Electrical Equipment Maintenance, or ANSI/NETA ATS-2017, Standard for Acceptance Testing Specifications for Electrical Power Equipment and Systems, for information related to general electrical equipment maintenance and developing an effective electrical preventive maintenance (EPM) program.</p>	<p>No WAC amendment.</p> <p>Seattle proposes to: Carry over the 2020 SEC amendment concerning the written record and overlay it on the 2023 NEC language.</p>
S	706.15	Disconnecting Means	<p>706.15 Disconnecting Means.</p> <p>Δ (A) ESS Disconnecting Means. A disconnecting means shall be provided for all ungrounded conductors derived from an ESS and shall be permitted to be integral to listed ESS equipment. <u>Where the ESS system is interactive with other electric power production source(s) and the ESS system disconnect is a knife switch that is not integral to the listed ESS equipment, the ESS system disconnect shall be of the heavy-duty type with two-way interlocking capability and shall comply with the requirements of 404.13(E), 705.20 and 706.16. The disconnecting means shall comply with all of the following:</u></p> <p>(1) The disconnecting means shall be readily accessible.</p> <p>(2) The disconnecting means shall be located within sight of the ESS. Where it is impractical to install the disconnecting means within sight of the ESS, the disconnect shall be installed as close as practicable, and the location of the disconnecting means shall be field marked on or immediately adjacent to the ESS. The marking shall be of sufficient durability to withstand the environment involved and shall not be hand-written.</p> <p>(3) The disconnecting means shall be lockable open in accordance with 110.25.</p>	<p>706.15 Disconnecting Means.</p> <p>Δ (A) ESS Disconnecting Means. Means shall be provided to disconnect the ESS from all wiring systems, including other power systems, utilization equipment, and its associated premises wiring. <u>Where the ESS is interactive with other electric power production source(s), and the ESS disconnect is a knife switch that is not integral to the listed ESS equipment, the ESS disconnect shall be of the heavy-duty type, with two-way interlocking capability, and shall comply with the requirements of 404.13(E), 705.20 and 706.16.</u></p> <p>N (B) Location and Control. The disconnecting means shall be readily accessible and shall comply with one or more of the following:</p> <p>(1) Located within the ESS</p> <p>(2) Located within sight and within 3 m (10 ft) from the ESS</p> <p>(3) Where not located within sight of the ESS, the disconnecting means, or the enclosure providing access to the disconnecting means, shall be capable of being locked in accordance with 110.25</p>	<p>No WAC amendment.</p> <p>Seattle proposes: Slight edits to Seattle amendment for grammar and redundancy, i.e. ESS system now ESS.</p>

		<p>For one-family and two-family dwellings, a disconnecting means or its remote control shall be located at a readily accessible location outside the building.</p> <p>A (B) Remote Actuation. Where controls to activate the disconnecting means of an ESS are used and are not located within sight of the system, the location of the controls shall be field marked on the disconnecting means.</p> <p>A (C) Notification and Marking. Each ESS disconnecting means shall plainly indicate whether it is in the open (off) or closed (on) position and be permanently marked “ENERGY STORAGE SYSTEM DISCONNECT.” The disconnecting means shall be legibly marked in the field to indicate the following:</p> <ol style="list-style-type: none"> (1) Nominal ESS ac voltage and maximum ESS dc voltage (2) Available fault current derived from the ESS (3) An arc-flash label applied in accordance with acceptable industry practice (4) Date the calculation was performed <i>Exception: List items (2), (3), and (4) shall not apply to one- and two-family dwellings.</i> <p>Informational Note No. 1: Industry practices for equipment labeling are described in NFPA 70E-2018, <i>Standard for Electrical Safety in the Workplace</i>. This standard provides specific criteria for developing arc-flash labels for equipment that provides nominal system voltage, incident energy levels, arc-flash boundaries, minimum required levels of personal protective equipment, and so forth.</p> <p>Informational Note No. 2: Battery equipment suppliers can provide information about available fault current on any particular battery model.</p> <p>For ESS disconnecting means where the line and load terminals may be energized in the open position, the device shall be marked with the following words or equivalent:</p> <p style="text-align: center;">WARNING ELECTRIC SHOCK HAZARD TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION</p> <p>The notification(s) and marking(s) shall comply with 110.21(B).</p> <p>A (D) Partitions Between Components. Where circuits from the input or output terminals of energy storage components in an ESS pass through a wall, floor, or ceiling, a readily accessible disconnecting means shall be provided within sight of the energy storage component. Fused disconnecting means or circuit breakers shall be permitted to be used.</p>	<p>Where controls to activate the disconnecting means of an ESS are used and are not located within sight of the ESS, the disconnecting means shall be lockable in accordance with 110.25, and the location of the controls shall be marked on the disconnecting means.</p> <p>For one- and two-family dwellings, an ESS shall include an emergency shutdown function to cease the export of power from the ESS to premises wiring of other systems. An initiation device(s) shall be located at a readily accessible location outside the building and shall plainly indicate whether in the "off" or "on" position. The "off" position of the device(s) shall perform the ESS emergency shutdown function.</p> <p>N (C) Notification and Marking. Each ESS disconnecting means shall plainly indicate whether it is in the open (off) or closed (on) position and be permanently marked as follows:</p> <p style="text-align: center;">“ENERGY STORAGE SYSTEM DISCONNECT”</p> <p>The disconnecting means shall be legibly marked in the field to indicate the following:</p> <ol style="list-style-type: none"> (1) Nominal ESS output voltage (2) Available fault current derived from the ESS (3) An arc-flash label applied in accordance with acceptable industry practice (4) Date the calculation was performed <p><i>Exception: List items (2), (3), and (4) shall not apply to one- and two-family dwellings.</i></p> <p>Informational Note No. 1: See NFPA 70E-2018, <i>Standard for Electrical Safety in the Workplace</i>, for industry practices for equipment labeling. This standard provides specific criteria for developing arc-flash labels for equipment that provides nominal system voltage, incident energy levels, arc-flash boundaries, minimum required levels of personal protective equipment, and so forth.</p> <p>Informational Note No. 2: ESS electronics could include inverters or other types of power conversion equipment.</p> <p>For ESS disconnecting means where the line and load terminals could be energized in the open position, the device shall be marked with the following words or equivalent:</p> <p style="text-align: center;">WARNING ELECTRIC SHOCK HAZARD TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION</p> <p>The notification(s) and marking(s) shall comply with 110.21(B).</p> <p>(D) Partitions Between Components. Where circuits from the input or output terminals of energy storage components in an ESS pass through a wall, floor, or ceiling, a readily accessible disconnecting means shall be</p>	
--	--	--	--	--

				<p>provided within sight of the energy storage component. Fused disconnecting means or circuit breakers shall be permitted to be used.</p> <p>N (E) Disconnecting Means for Batteries. In cases where the battery is separate from the ESS electronics and is subject to field servicing, 706.15(E)(1) through (E)(4) shall apply.</p> <p>Informational Note: Batteries could include an enclosure, battery monitoring and controls, or other related battery components.</p> <p>N (1) Disconnecting Means. A disconnecting means shall be provided for all ungrounded conductors. A disconnecting means shall be readily accessible and located within sight of the battery.</p> <p>Informational Note: See 240.21(H) for information on the location of the overcurrent device for battery conductors.</p> <p>N (2) Disconnection of Series Battery Circuits. Battery circuits exceeding 240 volts dc nominal between conductors or to ground shall have provisions to disconnect the series-connected strings into segments not exceeding 240 volts dc nominal for maintenance by qualified persons. Non-load-break bolted or plug-in disconnects shall be permitted.</p> <p>N (3) Remote Activation. Where a disconnecting means is provided with remote controls to activate the disconnecting means and the controls for the disconnecting means are not located within sight of the battery, the disconnecting means shall be capable of being locked in the open position, in accordance with 110.25, and the location of the controls shall be field marked on the disconnecting means.</p> <p>N (4) Notification. The disconnecting means shall be legibly marked in the field. The marking shall be of sufficient durability to withstand the environment involved and shall include the following:</p> <ul style="list-style-type: none"> (1) Nominal battery voltage (2) Available fault current derived from the stationary standby battery system <p>Informational Note No. 1: Battery equipment suppliers can provide information about available fault current on any particular battery model.</p> <ul style="list-style-type: none"> (3) An arc-flash label in accordance with acceptable industry practice <p>Informational Note No. 2: See NFPA 70E-2021, <i>Standard for Electrical Safety in the Workplace</i>, for assistance in determining the severity of potential exposure, planning safe work practices, determining arc-flash labeling, and selecting personal protective equipment.</p> <ul style="list-style-type: none"> (4) Date the calculation was performed 	
--	--	--	--	--	--

S	708.54	Selective Coordination (Critical operations power systems)	<p>708.54 Selective Coordination. Critical operations power system(s) overcurrent devices shall be selectively coordinated with all supply-side overcurrent protective devices.</p> <p>Selective coordination shall be selected by a licensed professional engineer or other qualified persons engaged primarily in the design, installation, or maintenance of electrical systems. The selection shall be documented and made available to those authorized to design, install, inspect, maintain, and operate the system.</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: When an electrical engineer provides stamped fault current calculations, the overcurrent protective devices in each disconnecting means may be selectively coordinated with any other supply side overcurrent protective devices for faults with a duration of 0.1 seconds and longer.</i></u></p> <p>Informational Note: See Informational Note Figure 708.54 for an example of how critical operations power system overcurrent protective devices (OCPDs) selectively coordinate with all supply-side OCPDs.</p> <p>OCPD D selectively coordinates with OCPDs C, F, E, B, and A. OCPD C selectively coordinates with OCPDs F, E, B, and A. OCPD F selectively coordinates with OCPD E. OCPD B is not required to selectively coordinate with OCPD A because OCPD B is not a critical operations power system OCPD.</p>	<p>708.54 Selective Coordination.</p> <p>(A) General. Critical operations power system(s) overcurrent protective devices (OCPDs) shall be selectively coordinated with all supply-side and load-side OCPDs.</p> <p>Selective coordination shall be selected by a licensed professional engineer or other qualified persons engaged primarily in the design, installation, or maintenance of electrical systems. The selection shall be documented and made available to those authorized to design, install, inspect, maintain, and operate the system.</p> <p>(B) Replacements. Where critical operations power system(s) OCPDs are replaced, they shall be reevaluated to ensure selective coordination is maintained with all supply-side and load-side OCPDs.</p> <p>(C) Modifications. If modifications, additions, or deletions to the critical operations power system(s) occur, selective coordination of the critical operations power system(s) OCPDs with all supply-side and load-side OCPDs shall be reevaluated.</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: When an electrical engineer provides stamped fault current calculations, the overcurrent protective devices in each disconnecting means may be selectively coordinated with any other supply side overcurrent protective devices for faults with a duration of 0.1 seconds and longer.</i></u></p> <p>Informational Note: See Informational Note Figure 708.54 for an example of how critical operations power system OCPDs selectively coordinate with all supply-side OCPDs.</p> <p>Informational Note Figure 708.54 Critical Operations Power System Selective Coordination. OCPD D selectively coordinates with OCPDs C, F, E, B, and A. OCPD C selectively coordinates with OCPDs F, E, B, and A. OCPD F selectively coordinates with OCPD E. OCPD B is not required to selectively coordinate with OCPD A because OCPD B is not a critical operations power system OCPD.</p>	<p>No WAC amendment.</p> <p>Seattle proposes: Carry over 2023 SEC amendments and overlay on 2023 NEC.</p>
S	710.15	General	<p>710.15 General. Premises wiring systems shall be adequate to meet the requirements of this <i>Code</i> for similar installations supplied by a feeder or service. The wiring on the supply side of the building or structure disconnecting means shall comply with the requirements of this <i>Code</i>, except as modified by 710.15(A) through (G).</p> <p>(A) Supply Output. Power supply to premises wiring systems fed by stand-alone or isolated microgrid power sources shall be permitted to have less capacity than the calculated load. The capacity of the sum of all sources of the stand-alone supply shall be equal to or greater than the load posed by the largest single utilization equipment connected to the system. Calculated general lighting loads shall not be considered as a single load.</p> <p>Informational Note: For general use-loads the system capacity can be calculated using the sum of the capacity of the firm sources, such as generators and ESS inverters. For specialty loads intended to be powered directly from a variable source,</p>	<p>710.15 General. Premises wiring systems shall be adequate to meet the requirements of this Code for similar installations supplied by a feeder or service. The wiring on the supply side of the building or structure disconnecting means shall comply with the requirements of this Code, except as modified by 710.15(A) through (G).</p> <p>(A) Supply Output. Power supply to premises wiring systems fed by stand-alone or isolated microgrid power sources shall be permitted to have less capacity than the calculated load. The capacity of the sum of all sources of the stand-alone supply shall be equal to or greater than the load posed by the largest single utilization equipment connected to the system. Calculated general lighting loads shall not be considered as a single load.</p> <p>Informational Note: For general-use loads the system capacity can be calculated using the sum of the capacity of the firm sources, such as generators and ESS inverters. For specialty loads intended to be powered directly from a variable source, the capacity can be calculated</p>	<p>No WAC amendment.</p> <p>Seattle Proposes: Carry over 2020 SEC amendments and overlay on 2023 NEC language.</p>

			<p>the capacity can be calculated using the sum of the variable sources, such as PV or wind inverters, or the combined capacity of both firm and variable sources.</p> <p>(B) Sizing and Protection. The circuit conductors between a stand-alone source and a building or structure disconnecting means shall be sized based on the sum of the output ratings of the stand-alone source(s). For three-phase interconnections, the phase loads shall be controlled or balanced to be compatible with specifications of the sum of the power supply capacities.</p> <p>(C) Single 120-Volt Supply. Stand-alone and isolated microgrid systems shall be permitted to supply 120 volts to single-phase, 3-wire, 120/240-volt service equipment or distribution panels where there are no 240-volt outlets and where there are no multiwire branch circuits. In all installations, the sum of the ratings of the power sources shall be less than the rating of the neutral bus in the service equipment. This equipment shall be marked with the following words or equivalent:</p> <p style="text-align: center;">WARNING: SINGLE 120-VOLT SUPPLY. DO NOT CONNECT MULTIWIRE BRANCH CIRCUITS!</p> <p>The warning sign(s) or label(s) shall comply with 110.21(B).</p> <p>(D) Three-Phase Supply. Stand-alone and microgrid systems shall be permitted to supply three-phase, 3-wire <u>grounded</u> or 4-wire <u>grounded</u> systems.</p> <p>(E) Energy Storage or Backup Power System Requirements. Energy storage or backup power supplies shall not be required.</p> <p>(F) Back-fed Circuit Breakers. Plug-in-type backfed circuit breakers connected to an interconnected supply shall be secured in accordance with 408.36(D). Circuit breakers marked “line” and “load” shall not be backfed.</p> <p>(G) Voltage and Frequency Control. The standalone or isolated microgrid supply shall be controlled so that voltage and frequency remain within suitable limits for the connected loads.</p>	<p>using the sum of the variable sources, such as PV or wind inverters, or the combined capacity of both firm and variable sources.</p> <p>(B) Sizing and Protection. The circuit conductors between a stand-alone source and a building or structure disconnecting means shall be sized based on the sum of the output ratings of the stand-alone source(s). For three-phase interconnections, the phase loads shall be controlled or balanced to be compatible with specifications of the sum of the power supply capacities.</p> <p>(C) Single 120-Volt Supply. Stand-alone and isolated microgrid systems shall be permitted to supply 120 volts to single-phase, 3-wire, 120/240-volt service equipment or distribution panels where there are no 240-volt outlets and where there are no multiwire branch circuits. In all installations, the sum of the ratings of the power sources shall be less than the rating of the neutral bus in the service equipment. This equipment shall be marked with the following words or equivalent:</p> <p style="text-align: center;">WARNING: SINGLE 120-VOLT SUPPLY. DO NOT CONNECT MULTIWIRE BRANCH CIRCUITS!</p> <p>The warning sign(s) or label(s) shall comply with 110.21(B).</p> <p>(D) Three-phase Supply. Stand-alone and microgrid systems shall be permitted to supply three-phase, 3-wire <u>grounded</u> or 4-wire <u>grounded</u> systems.</p> <p>(E) Energy Storage or Backup Power System Requirements. Energy storage or backup power supplies shall not be required.</p> <p>(F) Voltage and Frequency Control. The stand-alone power sources shall be controlled during operation so that voltage and frequency are supplied within limits compatible with the connected loads.</p>	
S	760.30	Fire Alarm Circuit Identification.	<p>760.30 Fire Alarm Circuit Identification. Fire alarm circuits shall be identified at terminal and junction locations in a manner that helps to prevent unintentional signals on fire alarm system circuit(s) during testing and servicing of other systems.</p> <p><u>Device and junction boxes for fire alarm systems, other than the surface raceway type, must be substantially red in color, both inside and outside. Power-limited fire protective signaling circuit conductors must be durably and plainly marked in or on junction boxes or other enclosures to indicate that it is a power-limited fire protective signaling circuit.</u></p>	<p>760.30 Fire Alarm Circuit Identification. Fire alarm circuits shall be identified at terminal and junction locations in a manner that helps to prevent unintentional signals on fire alarm system circuit(s) during testing and servicing of other systems.</p> <p><u>Device and junction boxes for fire alarm systems, other than the surface raceway type, must be substantially red in color, both inside and outside. Power-limited fire protective signaling circuit conductors must be durably and plainly marked in or on junction boxes or other enclosures to indicate that it is a power-limited fire protective signaling circuit.</u></p> <p><i>Exception: In existing fire alarm systems, installed and approved prior to this requirement being adopted, fire alarm device and junction box identification for device replacement shall match the existing fire alarm identification convention</i></p>	<p>No WAC amendment.</p> <p>Seattle proposes: Adding exception for existing systems as this has come up several times. Some inspectors enforce, some don't. Almost seems more harm than good if some FA boxes are red and some aren't when only some devices are being replaced in an existing system.</p>