



TOPIC: Emergency and Required Standby Power Systems – OSSC/27/#1 & NEC/7/#1

CODE: Oregon Structural Specialty Code: 2014 Edition
Oregon Electrical Specialty Code: 2014 Edition

REVISED: September 22, 2017 [Rebecca Esau], Interim Director

REFERENCE: Oregon Structural Specialty Code, Chapter 27
National Electrical Code, Chapter 7

SUBJECT: Generator Installation for Emergency or Required Standby Power Supply Systems

QUESTION: In several instances, the Oregon Structural Specialty Code (OSSC) requires that a building be supplied with an emergency power supply system or required standby power supply system. In many cases an on-site generator is chosen to provide that emergency power or required standby power. What are the requirements for a generator being used as an emergency or required standby power supply system?

RESPONSE: The OSSC specifies that all emergency and required standby power supply systems be installed in conformance with the National Electrical Code (NEC) for the electric safety of the installation, operation and maintenance of generator systems. Beyond that requirement, the codes adopted by the State of Oregon and the City of Portland are relatively silent on the installation requirements of generators.

This code guide provides additional installation requirements for these systems.

I. General Requirements

A. When this Code Guide Applies.

This code guide applies to:

1. All emergency power systems; and
2. Required standby power systems.

B. Installation Standards. Under the provisions of Portland City Code Section 24.10.040, subsection B, Portland Permitting & Development (PP&D) recognizes National Fire Protection Association (NFPA) Standards 110 and 111 for Emergency and Standby Power Systems, as the accepted installation standards. To ensure proper installation, the codes, this code guide, NFPA 110, NFPA 111 and the manufacturer's instructions must be followed.

C. Equipment Level. NFPA 110 and 111 categorizes generator sets as either Level 1 or Level 2 equipment. PP&D shall consider all generators used for emergency or required standby power as Level I equipment.

D. Permits. All appropriate permits (building, fire, plumbing and mechanical) must be obtained prior to installation.

II. Specific Requirements. Generators that serve emergency or required standby power loads shall meet the following requirements:

A. Size. Generators shall at least be sized to accommodate the required load. Per the NEC, the fuel supply for a required system shall be sufficient to provide a minimum operating time of two hours at full load. Where this requirement differs from the OSSC, the most restrictive requirement shall apply;

B. Location.

1. Interior. Where installed inside a building, the equipment shall be located in an enclosure providing a two-hour occupancy separation from all other occupancies and uses, including mechanical equipment;

2. Exterior. Where installed outside a building, the equipment shall be located in an enclosure capable of providing protection from weather, mechanical damage and vandalism. The enclosure shall be used for the generator and related equipment only. Alternately, the equipment shall be listed for exterior locations. Exterior equipment must meet the requirements of Title 33, Planning & Zoning;

3. Open Parking Structures. Installation of a generator in an open parking structure shall be considered an outside installation, and is subject to the same restrictions. The placement of the generator shall include such considerations as relationship to traffic patterns and elevator installation. Final placement shall be subject to approval from PP&D and Fire Bureau plan review staff; and

4. Rooftop. Rooftop installation of generators, or generators installed inside a penthouse, shall be separated from all other uses, occupancies or equipment,

including mechanical equipment, and including the support structure, by a two-hour separation;

C. Transfer Switches. Transfer switches must be listed for their intended use. In addition, transfer switches must be protected (e.g. located in a cabinet). The cabinet or other switch enclosure need not be of rated construction. The transfer switch may be located in the same enclosure as the generator;

D. Fuel Supply.

1. **General.** All fuel supply sources and tank locations shall be approved by the Fire Bureau; and

2. **Natural Gas.** Natural gas may only be used as emergency or required standby power supply for elevators required for accessible means of egress and not for other systems. However, natural gas powered CHP/CoGen systems may be used subject to the following:

a. The CHP/CoGen system may only serve elevators required for accessible means of egress, stair pressurization fans, accessible means of egress elevator pressurization fans, sub-duct fans, and/or atrium smoke control fans, and

b. The building served must be a Risk Category I, II, or III as shown in the OSSC Table 1604.5; and

3. **Diesel.** Diesel tanks for generators require a separate permit from the Fire Marshal's Office.

E. Fire pumps. Where fire pumps are provided in conjunction with generators, separate requirements exist. Those requirements are detailed in Portland Policy Document FIR 8.06 at <https://www.portlandoregon.gov/citycode/article/26000>.

Other alternatives may be reviewed and considered on a case-by-case basis through the building code administrative appeals process.

Amended with new bureau name July 08, 2024.

Updates January 16, 2013 edition and replaces NEC/700/#1

Updates January 1, 1999 edition, Code Guide UBC/10/#6 & NEC/701/#1

New – January 1, 1999