

- TOPIC: Optional Emergency and Standby Power Systems – CABO/11/#1 & NEC/702/#1
 - CODE: One & Two Family Dwelling Specialty Code: 1996 Edition Electrical Specialty Code: 1996 Edition
- APPROVED: September 1, 1999
- REFERENCE: Chapters 11, 12, 13, & 21: One & Two Family Dwelling Specialty Code Article 702: Electrical Specialty Code
 - SUBJECT: Optional Installation of Fuel Fired Generators for Emergency and Standby Power Supply Systems for One and Two Family Dwellings
 - **QUESTION:** If is an increasing trend for homeowners to install permanent fuel fired generator systems where a system is not otherwise required by the code. What are the installation requirements for an optional fuel fired generator that is permanently installed for use by the occupants of a one or two family dwelling?
- **RESPONSE:** The codes adopted by the State of Oregon and the City of Portland are relatively silent on installation requirements for optional generator systems with one exception. The Oregon Electrical Specialty Code Article 702, specifically addresses the requirements for the electrical safety of the installation, operation and maintenance of optional generator systems.

This code guide has been written to provide additional information about the installation of these systems.

This code guide does not apply to portable generator systems that are not permanently installed. However, if a portable system has any components that are permanently

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installed, those components must meet the applicable provisions of the governing code and this code guide.

A. General Requirements

 Under the provisions of Section 24.10.040, Sub-section B, the City recognizes NFPA Standard 37 for the installation and use of Stationary Combustion Engines and Gas Turbines as the accepted installation standard for optional generator systems. For those issues not addressed by the One and Two Family Dwelling Specialty Code, the Electrical Specialty Code or NFPA 37, the manufactures installation instructions shall govern. To insure proper installation, all applicable codes, this guide, NFPA 37 and the manufacturers instructions must be followed.

As an alternate, any systems that is listed and complies with UL standard 2200 may be installed in accordance with that listing.

- **2.** The Oregon Electrical Specialty Code, Article 702 must be followed for electrical safety of the installation, operation and maintenance of generator systems.
- 3. All generator equipment shall be sized to accommodate the desired load.
- **4.** All generators must have a maintained clearance of at least three feet surrounding the equipment. If the manufacturer's instructions specify a larger clearance, then that clearance shall be met.
- **5.** The manufacturer's installation instructions must clearly specify the following information:
 - Approved installation location, e.g. should the equipment only be installed in an interior or exterior location,
 - Specifications for the exhaust of the equipment
 - Interior ventilation requirements, and
 - Interior combustion air requirements.

This information must be supplied before the equipment is approved for installation.

6. All governing permits (e.g. building, fire, electrical and mechanical) must be obtained prior to generator equipment being installed.

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B. Specific Requirements:

Interior Installation.

- Where generators are installed inside a building, the equipment shall be located in an enclosure providing a one-hour occupancy separation from all other portions of the home or duplex, uses or equipment, including mechanical equipment. This separation requirement applies to any fuel-fired appliance such as fuel fired water heaters or furnaces.
- **2.** Generators installed under carports, under decks or within garages shall be considered interior installations.
- 3. Exhaust for all interior generator equipment shall terminate outdoors and shall not terminate beneath a portion of the residence including decks, porches, carports, patio covers or other similar design features. In addition, exhaust termination shall be located at least 12 inches above grade and a minimum of four feet from a property line. Where a forced air intake opening is located within 10 feet of the exhaust termination, the exhaust termination shall be at least 3 feet above the intake opening. Exhaust termination shall also be located a minimum of four feet below, four feet horizontally from a gravity air inlet or not less than one foot above a door, window or gravity air inlet.

Exterior Installation

- 1. Where a generator is installed outside a building and it is located closer than five feet from the building structure, a one-hour separation is required between the generator and the structure. A listed enclosure assembly may be approved in lieu of a traditional one hour separation.
- **2.** All generators installed outside of a building shall conform to all City noise control requirements and other applicable zoning regulations.

Where a separate fuel supply tank is used with the generator, the City Fire Marshal shall approve all fuel supply sources and tank locations.