

SMOKE ALARMS

The Oregon Residential Specialty Code (ORSC) mandates the installation of smoke alarms in new construction as well as additions, alterations, and repairs of existing homes. This Bulletin has been provided to help you make informed decisions that meet minimum codes and standards. You may also find interesting facts and smoke alarm maintenance information on the following web-sites; www.firstalert.com; www.kidde.com; www.oregon.gov/OOHS/SFM; and www.lebanonfire.com.

Ionization & photoelectric are the two most common types of smoke alarms. Some manufacturer's also make a combination ionization/photoelectric model. The ionization detector is more effective at detecting quick spreading, flaming type fires, whereas, the photoelectric detector is more suited for slow burning, smoldering fires.

The **ionization type** detectors contain a small amount of radioactive material that ionizes the air in a sensing chamber and causes a current to flow through the air between two charged electrodes. When smoke enters the chamber, the particles cause a reduction in the current. When the level of conductance decreases to a preset level, the detector responds with an alarm. The **photoelectric type** detectors consist primarily of a light source, a light beam, and a photosensitive device. When smoke particles enter the light beam, they reduce the light intensity in the photosensitive device. When obscuration reaches a preset level, the detector initiates an alarm.

Both models are very effective at detecting fires if properly installed in accordance with the ORSC as noted below. *Always refer to the manufacturer's instructions for specific installation requirements.*

R313.1 New Construction. Single- and multiple-station smoke alarms shall be installed in the following locations:

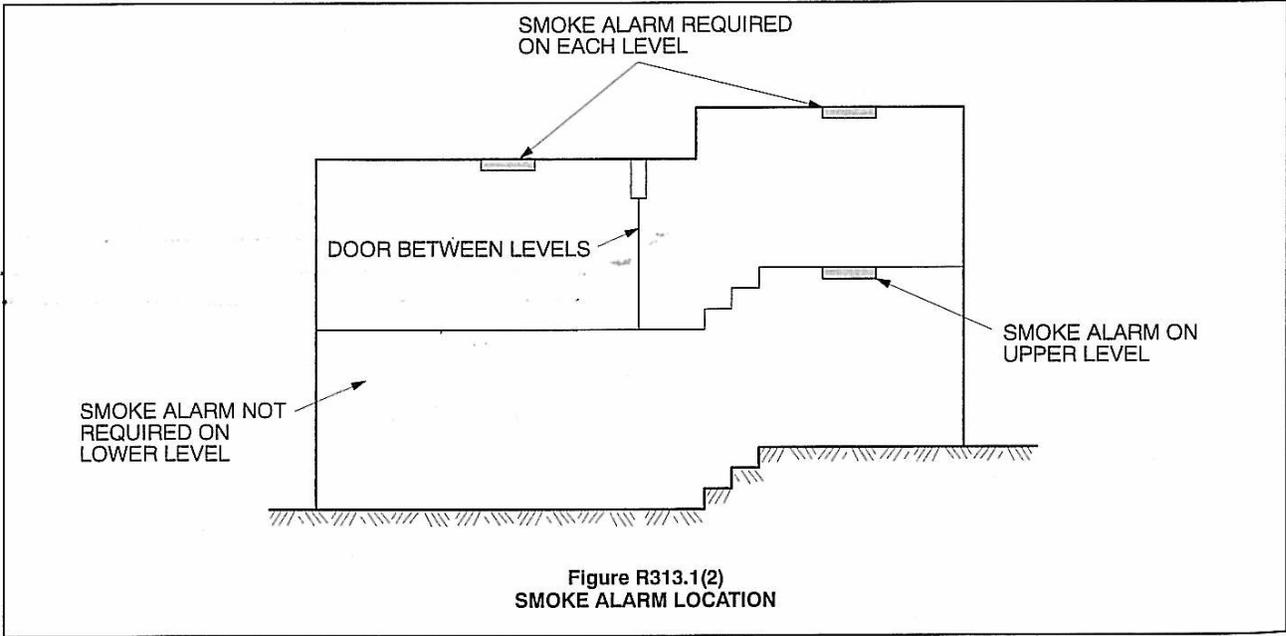
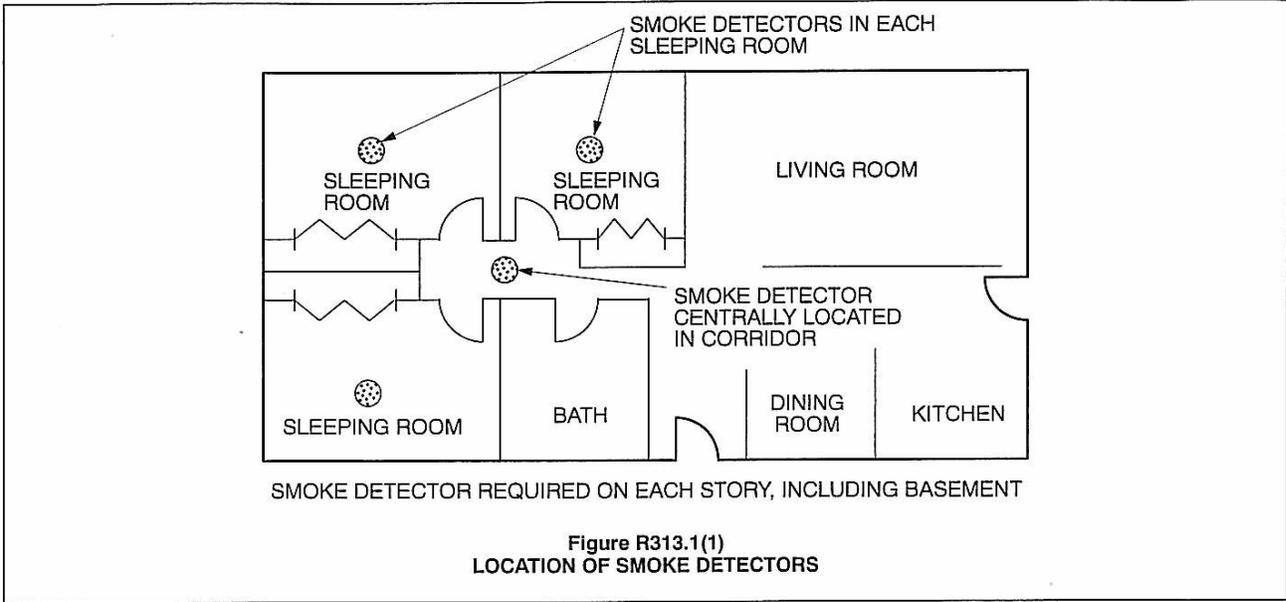
1. In each sleeping room;
2. Outside each separate sleeping area in the immediate vicinity of the bedrooms;
3. On each additional story of the dwelling, including basements and cellars but not including crawl spaces and uninhabitable attics. Consult Building Inspector for split-level homes. See figure R313.1 (1) and (2)

Multiple alarms shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit.

Required smoke alarms shall not be located within kitchens or garages, or in other spaces where temperatures can fall below 40°F (38°C). **Ionization-type** smoke alarms shall not be located closer than 3 feet horizontally from a door to a kitchen; a door to a bathroom containing a tub or shower; or within 3 feet of the registers of a forced air heating or cooling system.

A smoke alarm installed within 20 feet (direct linear path) of a cooking appliance shall be a **photoelectric-type** or the alarm shall have an approved alarm silencing means.

R313.1.1 Alterations, repairs and additions. When interior alterations, repairs, or additions requiring a structural permit occur, or when one or more sleeping rooms are added or created in existing dwellings, the individual unit shall be provided with smoke alarms located as required for new dwellings (see section R313.1 above); the smoke alarms shall be interconnected and hard wired. Consult the Building Inspector for possible exceptions.



R313.2 Power source. In new construction, the required smoke alarms shall receive their primary power from the building wiring when such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection. Smoke alarms shall be permitted to be battery operated when installed in buildings without commercial power or in buildings that undergo alterations, repairs, or additions regulated by section R313.1.1.