

2018 IRC Smoke Alarm and CO2 Detector Requirements

R314.1 General

Smoke alarms shall comply with NFPA 72 and [Section R314](#).

R314.1.1 Listings

Smoke alarms shall be *listed* in accordance with UL 217.

Combination smoke and [carbon monoxide alarms](#) shall be *listed* in accordance with UL 217 and UL 2034.

R314.2 Where Required

Smoke alarms shall be provided in accordance with this section.

R314.2.1 New Construction

Smoke alarms shall be provided in [dwelling units](#).

R314.2.2 Alterations, Repairs and Additions

Where [alterations](#), [repairs](#) or [additions](#) requiring a [permit](#) occur, the individual [dwelling unit](#) shall be equipped with smoke alarms located as required for new [dwellings](#).

Exceptions:

1. Work involving the exterior surfaces of [dwellings](#), such as the replacement of roofing or siding, the [addition](#) or replacement of windows or doors, or the [addition](#) of a porch or deck.
2. Installation, [alteration](#) or [repairs](#) of [plumbing](#) or [mechanical systems](#).

R314.3 Location

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 [habitable attics](#) and not including [crawl spaces](#) and uninhabitable [attics](#). In [dwellings](#) or [dwelling units](#) with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full [story](#) below the upper level.
4. Smoke alarms shall be installed not less than 3 feet (914 mm) horizontally from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by this section.

R314.3.1 Installation Near Cooking Appliances

Smoke alarms shall not be installed in the following locations unless this would prevent placement of a smoke alarm in a location required by [Section R314.3](#).

1. Ionization smoke alarms shall not be installed less than 20 feet (6096 mm) horizontally from a permanently installed cooking [appliance](#).
2. Ionization smoke alarms with an alarm-silencing switch shall not be installed less than 10 feet (3048 mm) horizontally from a permanently installed cooking [appliance](#).
3. Photoelectric smoke alarms shall not be installed less than 6 feet (1828 mm) horizontally from a permanently installed cooking [appliance](#).

R314.4 Interconnection

Where more than one smoke alarm is required to be installed within an individual [dwelling unit](#) in accordance with [Section R314.3](#), the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual [dwelling unit](#). Physical interconnection of smoke alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.

R314.5 Combination Alarms

Combination smoke and [carbon monoxide alarms](#) shall be permitted to be used in lieu of smoke alarms.

R314.6 Power Source

Smoke alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source and, where 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.

Exceptions:

1. Smoke alarms shall be permitted to be battery operated where installed in buildings without commercial power.
2. Smoke alarms installed in accordance with [Section R314.2.2](#) shall be permitted to be battery powered.

R314.7 Fire Alarm Systems

Fire alarm systems shall be permitted to be used in lieu of smoke alarms and shall comply with Sections [R314.7.1](#) through [R314.7.4](#).

R314.7.1 General

Fire alarm systems shall comply with the provisions of this code and the household fire warning [equipment](#) provisions of NFPA 72. Smoke detectors shall be *listed* in accordance with UL 268.

R314.7.2 Location

Smoke detectors shall be installed in the locations specified in [Section R314.3](#).

R314.7.3 Permanent Fixture

Where a household fire alarm system is installed, it shall become a permanent fixture of the occupancy, owned by the homeowner.

R314.7.4 Combination Detectors

Combination smoke and [carbon monoxide detectors](#) shall be permitted to be installed in fire alarm systems in lieu of smoke detectors, provided that they are *listed* in accordance with UL 268 and UL 2075.

R315.1 General

[Carbon monoxide alarms](#) shall comply with [Section R315](#).

R315.1.1 Listings

[Carbon monoxide alarms](#) shall be *listed* in accordance with UL 2034. Combination carbon monoxide and smoke alarms shall be *listed* in accordance with UL 2034 and UL 217.

R315.2 Where Required

[Carbon monoxide alarms](#) shall be provided in accordance with Sections [R315.2.1](#) and [R315.2.2](#).

R315.2.1 New Construction

For new construction, [carbon monoxide alarms](#) shall be provided in [dwelling units](#).

(Effective January 1, 2020)

R315.2.2 Alterations, Repairs and Additions

Where [alterations](#), [repairs](#) or [additions](#) requiring a [permit](#) occur, the individual [dwelling unit](#) shall be equipped with [carbon monoxide alarms](#) located as required for new [dwellings](#).

Exceptions:

1. Work involving the exterior surfaces of [dwellings](#), such as the replacement of roofing or siding, or the [addition](#) or replacement of windows or doors, or the [addition](#) of a porch or deck.
2. Installation, [alteration](#) or [repairs](#) of [plumbing](#) or [mechanical systems](#).

R315.3 Location

[Carbon monoxide alarms](#) in [dwelling units](#) shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms. Where a fuel-burning [appliance](#) is located within a bedroom or its attached bathroom, a [carbon monoxide alarm](#) shall be installed within the bedroom.

R315.4 Combination Alarms

Combination carbon monoxide and smoke alarms shall be permitted to be used in lieu of [carbon monoxide alarms](#).

R315.5 Interconnectivity

Where more than one [carbon monoxide alarm](#) is required to be installed within an individual [dwelling unit](#) in accordance with [Section R315.3](#), the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual [dwelling unit](#). Physical interconnection of [carbon monoxide alarms](#) shall not be required where *listed* wireless alarms are installed and all alarms sound upon activation of one alarm.

Exception: Interconnection of [carbon monoxide alarms](#) in existing areas shall not be required where [alterations](#) or [repairs](#) do not result in removal of interior wall or ceiling finishes exposing the structure, unless there is an [attic](#), [crawl space](#) or [basement](#) available that could provide [access](#) for interconnection without the removal of interior finishes.

R315.6 Power Source

[Carbon monoxide alarms](#) shall receive their primary power from the building wiring where such wiring is served from a commercial source and, where 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.

Exceptions:

1. [Carbon monoxide alarms](#) shall be permitted to be battery operated where installed in buildings without commercial power.
2. [Carbon monoxide alarms](#) installed in accordance with [Section R315.2.2](#) shall be permitted to be battery powered.

R315.7 Carbon Monoxide Detection Systems

Carbon monoxide detection systems shall be permitted to be used in lieu of [carbon monoxide alarms](#) and shall comply with Sections [R315.7.1](#) through [R315.7.4](#).

R315.7.1 General

Household carbon monoxide detection systems shall comply with NFPA 720. [Carbon monoxide detectors](#) shall be *listed* in accordance with UL 2075.

R315.7.2 Location

[Carbon monoxide detectors](#) shall be installed in the locations specified in Section R315.3. These locations supersede the locations specified in NFPA 720.

R315.7.3 Permanent Fixture

Where a household carbon monoxide detection system is installed, it shall become a permanent fixture of the occupancy and owned by the homeowner.

R315.7.4 Combination Detectors

Combination carbon monoxide and smoke detectors installed in carbon monoxide detection systems in lieu of [carbon monoxide detectors](#) shall be *listed* in accordance with UL 2075 and UL 268.