



# Township of Parsippany- Troy Hills

## Division of Construction Code Enforcement

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### Smoke Alarm and Carbon Monoxide Alarm Guidelines

The following is a guide for the location of residential smoke alarms and carbon monoxide alarms in dwellings. This guide has been provided because the work being performed requires that smoke alarms and carbon monoxide alarms be installed in the new construction, additions and/or alterations in the existing dwelling.

### Carbon Monoxide Alarms

The International Residential Code 2021, NJ Edition Section R315 and the NJ Rehabilitation Code require single station carbon monoxide alarms be installed in the immediate vicinity of each sleeping area if the dwelling contains fuel-burning appliances or has an attached garage. Carbon monoxide alarms must be UL 2034 listed and installed in accordance with the manufactures instructions and National Fire Protection Association (NFPA) 720. Hard-wired types are the only accepted option in new construction. In the cases of installation being required in the existing portions of a home, the Rehab code allows Battery operated, hard-wired, or plug-in to fulfill the requirement, dependent on the scope of work. Combination smoke and carbon monoxide alarms are acceptable shall be listed in accordance with UL 2034 and UL 217. Combination smoke and carbon monoxide alarms shall be permitted to be used in lieu of smoke alarms.

### General Requirements for Smoke Alarms

All smoke alarm installations are subject to manufactures instructions, National Fire Protection Association NFPA 72-2019 and International Residential Code 2021, NJ Edition Section R314 requirements.

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.

- When required, smoke alarms must also be located in all sleeping rooms.  
(If checked this item is required.)

### Where Required

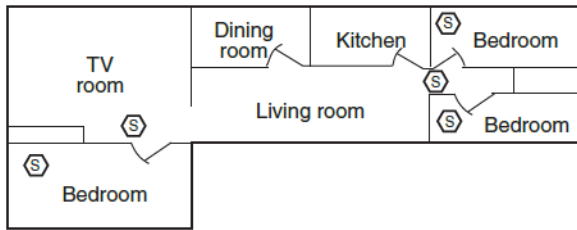
1. Smoke alarms are required on all levels of the dwelling.
2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional story of the dwelling, including basements and habitable attics and not including crawl spaces and uninhabitable attics.

Interconnection: Where more than one (1) smoke alarm is required to be installed within an individual dwelling unit, the alarm devices shall be interconnected in such a manner that the activation 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 alarm sound upon activation of one alarm.

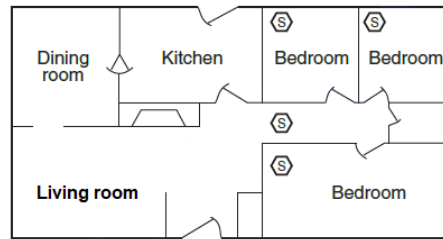
When a fire alarm system installed in lieu of smoke alarms, smoke detectors shall comply with the International Residential Code 2021, NJ Edition Section R314.7 requirements. See section on fire alarm systems. All smoke detectors shall be listed in accordance with UL 268.

## Required Locations

Smoke alarms shall be located outside of each separate sleeping area in the immediate vicinity of the bedrooms and on each additional story (excluding crawl spaces and unfinished attics). See Figure A.29.5.1(b) & (c).



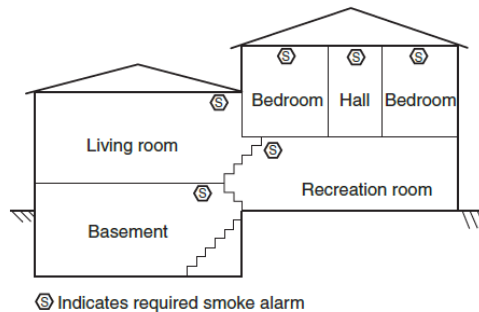
**FIGURE A.29.8.1(c) In Dwelling Units with More Than One Sleeping Area, Smoke Alarm Should Be Provided to Protect Each Sleeping Area in Addition to Smoke Alarms Required in Bedrooms.**



**FIGURE A.29.8.1 (b) Smoke Alarm Should be Located Between Sleeping Area and Rest of Dwelling Unit, as Well as in Each Bedroom.**

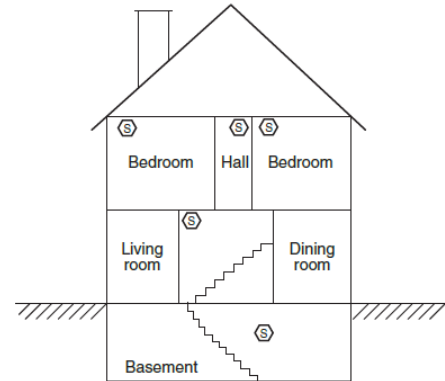
Smoke Alarms on each story of the dwelling.

Split Level Homes without and intervening door between 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. See Figure A.29.5.1(a)



Ⓢ Indicates required smoke alarm

**FIGURE A.29.8.1(a) Split Level Arrangement.**



**FIGURE A.29.8.1(d) Smoke Alarm Should Be Located on Each Level in Addition to Each Bedroom.**

## Prohibited Locations:

Smoke alarms shall not be located in garages, or in spaces where temperatures can fall below 40° F (4°C) or exceed 100°F (38°C). Example: unfinished attic.

Smoke alarms shall not be located closer than 3 feet horizontally from: (1) The door to a bathroom containing a tub or shower, (2) the tip of the blade of a ceiling-suspended (paddle) fan; (3) the supply registers of a forced air heating or cooling system, and outside of the airflow from those registers.

Smoke alarms shall not be located within the airflow of any air-moving device that would prevent or delay the delay the operation of the detector. Example: wall mounted air conditioner.

Ionization Smoke alarms shall not be install less than 20 ft. horizontal from a permanently installed cooking appliance. An ionization smoke alarm equipped with an alarm-silencing means shall not be installed less than 10 ft. horizontal from a permanently installed cooking appliance.

Photoelectric smoke alarms shall not be install less than 6 ft. horizontal from a permanently installed cooking appliance.

## Mounting on other types of ceilings

Smoke alarms, smoke detectors, devices, combination of devices, and equipment shall be installed in accordance with the manufacturers listing and published instructions, and, unless specifically listed for the application, shall comply with requirements in 29.11.3.1 through 29.11.3.4. Smoke alarms or smoke detectors mounted on walls shall be located not farther than 12 in (300 mm) from adjoining ceiling surface.

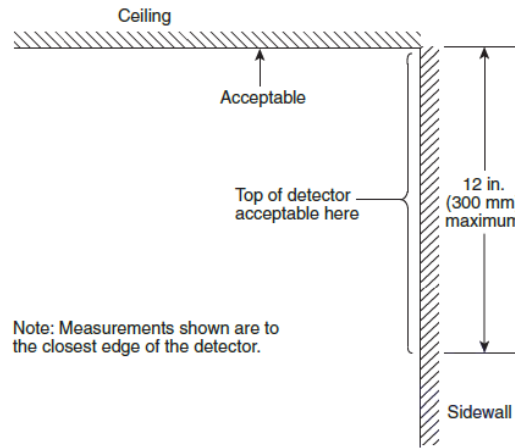


FIGURE A.29.11.3 Example of Proper Mounting for Smoke Alarms and Smoke Detectors.

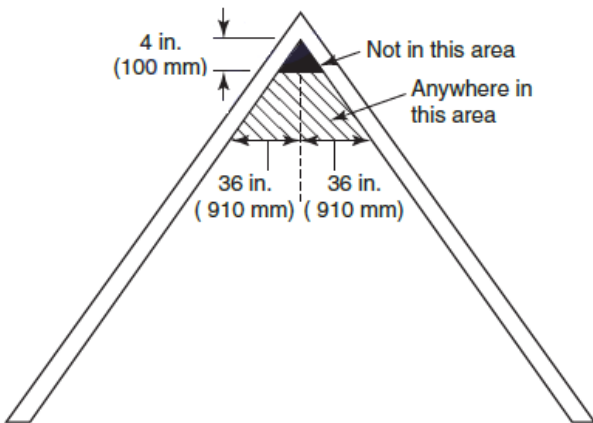


FIGURE A.29.11.3.1 Example of Proper Mounting for Alarms and Detectors with Peaked Ceilings.

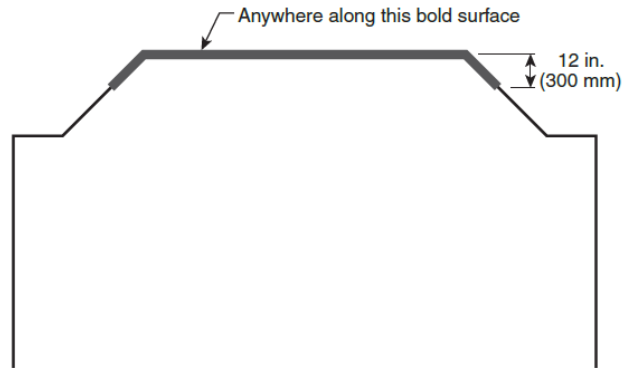


FIGURE A.29.11.3.4(12) Locations Permitted for Smoke Alarms and Smoke Detectors on Tray-Shaped Ceilings.

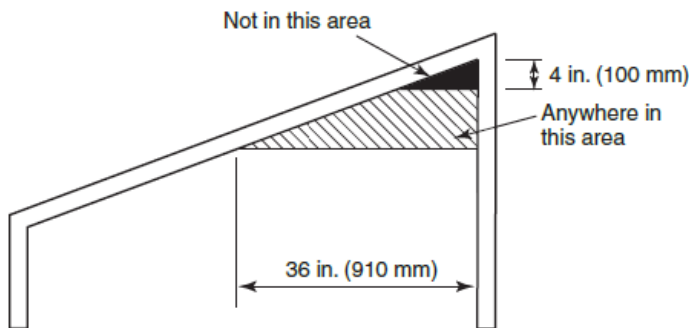


FIGURE A.29.11.3.2 Example of Proper Mounting for Alarms and Detectors with Sloped Ceilings.

## Mounting on other types of ceilings

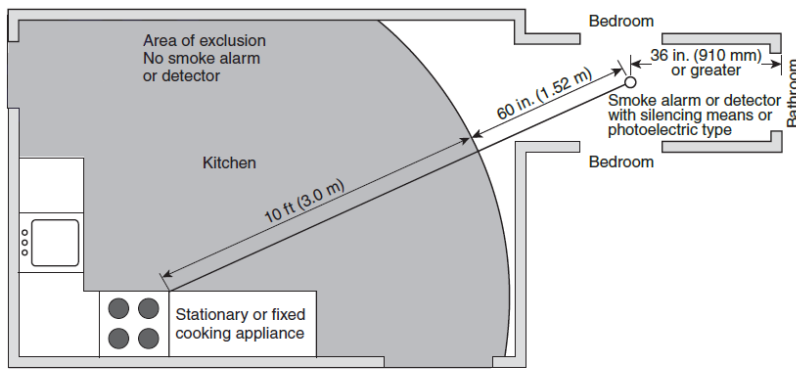


FIGURE A.29.11.3.4(4)(b) Example of Smoke Alarm or Smoke Detector Placement Between 10 ft (3.0 m) and 20 ft (6.1 m) Away in Hallway from Center of Stationary or Fixed Cooking Appliance.

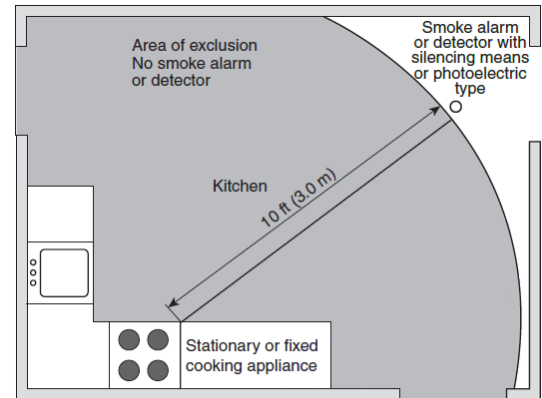


FIGURE A.29.11.3.4(4)(a) Example of Zone of Exclusion (gray area) Within Typical Residential Kitchen.

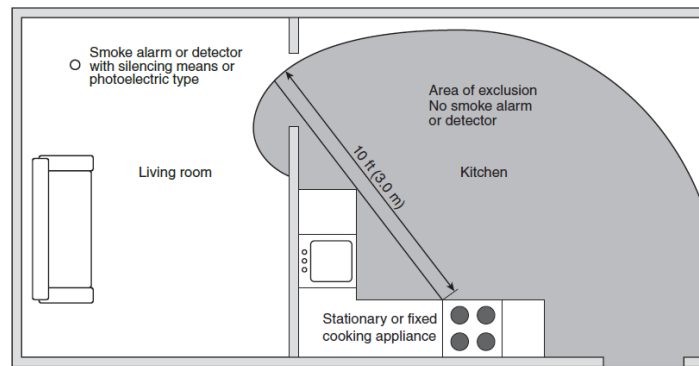


FIGURE A.29.11.3.4(4)(c) Example of Smoke Alarm or Smoke Detector Placement Between 10 ft (3.0 m) and 20 ft (6.1 m) Away in Hallway from Center of Stationary or Fixed Cooking Appliance.

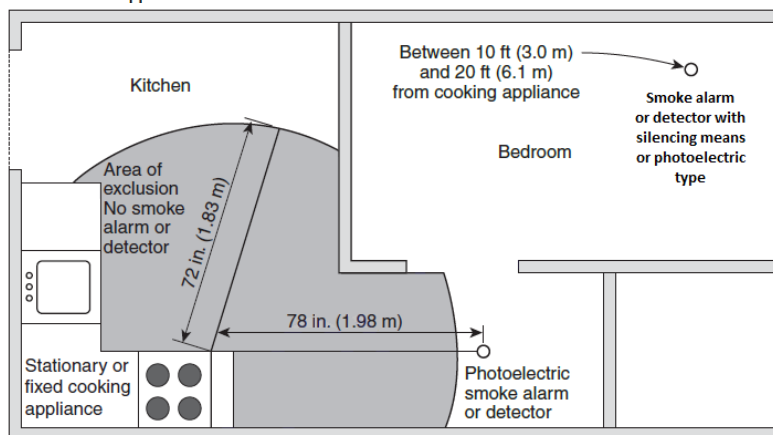


FIGURE A.29.11.3.4(4)(d) Example of Exception Placement of Photoelectric Smoke Alarm or Smoke Detector at 72 in. (1.83 m) from Stationary or Fixed Cooking Appliance

## Fire Alarm Systems

Fire Alarm Systems such as low voltage systems, shall be permitted to be used in lieu of smoke alarms and shall comply with the International Residential Code 2021, NJ Edition Section R314.7, and the provisions of NFPA 72-2019:

- Smoke detectors shall be listed in accordance with UL 268.
- Where a household fire alarm system is installed, it shall become a permanent fixture of the occupancy, owned by the homeowner.
- 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.
- Monitoring – The system shall be monitored by an approved supervising station and shall be maintained in accordance with NFPA 72.
- The system must provide the same level of smoke detection and alarm as required by the International Building Code for smoke alarms.
- Alarm/Audible Devices
- Alarms must have a minimum sound rating of 85 dBa 10 feet from the smoke detector.
- Alarms must be clearly audible in all bedrooms over background noise levels with all intervening doors closed. Audibility levels shall be tested with all household equipment that might be operating at night in full operation. Examples of equipment are air conditioners and room humidifiers.
- Audible devices are separate from smoke detectors and are used with low voltage alarm systems. Audible devices must meet the same requirements as alarms. A good rule of thumb is to locate at least one audible device on each story.
- Inspection: All smoke detectors will be tested for operation, so insure they are all working prior to inspection.
- For alarm systems: call the monitoring company and have the system put on test prior to inspection. Have your instruction booklet available as well as your reset procedure and code. You must know how to reset the fire alarm after each test. Inspectors will not wait while you attempt to operate your system. After testing is complete, call the monitoring company and have the system taken off test status.
- Where a household fire alarm system is installed, it shall become a permanent fixture of the occupancy, owned by the homeowner.