

# Smoke and Carbon Monoxide Alarms in Residences and Family Home Day Care

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This Tip and the Seattle Residential Code apply to detached single-family houses, duplexes, family home day cares, and townhouses not more than three stories in height. When we use the term, “residence” in this Tip, we mean both single- and multi- family dwellings. This Tip describes the requirements for smoke and carbon monoxide alarms in residences and in home day cares.

## References

- SRC refers to the Seattle Residential Code (International Residential Code with Seattle amendments).
- SBC refers to the Seattle Building Code (International Building Code with Seattle amendments).
- SFC refers to the Seattle Fire Code.
- RCW refers to the Revised Code of Washington.

Smoke and carbon monoxide alarms are important safety devices. When installed and used correctly, they can save us from the dangers of fire and from carbon monoxide poisoning. Smoke alarms are important in alerting sleeping people to a fire. Carbon monoxide alarms alert us to the presence of carbon monoxide in our homes. Smoke and carbon monoxide alarms must be located and operated so they are effective both in detecting smoke and carbon monoxide and alerting residents.

## When Smoke Alarms Are Required

The Seattle Residential Code (SRC) Section R314 requires smoke alarms to be installed in all new construction of single- and multi- family residences, including townhouses and duplexes, in all home day cares, and in many existing residences, too. State law also requires all existing rental units to have smoke alarms. Every home must have smoke alarms when sold.

All smoke alarms in new homes must be powered by the home’s electrical system with a battery back-up. All the smoke alarms in the home must be interconnected so that they all will sound if one of them detects smoke.

Smoke alarms must be added throughout an existing home when a bedroom is added, or when other interior work requiring a permit occurs. If you do not remove interior finishes when you remodel an existing home, and there is no available attic or basement access, these new alarms may be battery operated and function separately from one another.

## Where to Put Smoke Alarms

The general rule is that smoke alarms must be installed in every bedroom, outside every bedroom, and on every level of the residence. A smoke alarm is required on each story of a residence, including the basement. When a story is split into different levels, an additional smoke alarm must be installed on the upper level. Although not required, it is good policy to place additional smoke alarms in any areas where someone might fall asleep.

Figures A-D below show several typical smoke alarm installations which meet these requirements.

## Where to Locate Smoke Alarms Within Rooms

A smoke alarm may be installed anywhere in a bedroom. In a hallway, a smoke alarm must be located centrally outside all bedrooms. When a bedroom is on an upper floor, the hallway smoke alarm should be placed near the top of the stairs.



## Special Considerations

A smoke alarm is normally installed on a ceiling or high on a wall, with the top of an alarm not closer than 4 inches or further than 12 inches from the ceiling.

Sometimes, a smoke alarm should be placed on a wall instead of a ceiling. For example, in a room with a steeply sloping ceiling, the smoke alarm should be installed on a wall near the highest point of the ceiling within 3 feet of its peak. If there is a big temperature difference between a room's ceiling and the room itself, this temperature difference can prevent the smoke from getting to the alarm. This can occur when a ceiling is directly under a roof with little or no insulation or when a ceiling has radiant heating. Placing a smoke alarm on the wall avoids this problem.

A smoke alarm installed in a stairway must be located so that no doors or other obstructions, such as exposed beams, could prevent smoke from reaching the alarm. No smoke alarms may be mounted in front of an air supply duct, or between a bedroom and a furnace cold air return.

Figure D shows the acceptable area for a smoke alarm's location. All smoke alarms should be installed in accordance with the manufacturer's recommendations.

## Smoke Alarms in Family Day Care Centers

In home day cares (home day care for 12 or fewer children), the basic rules are the same as for residences. An additional smoke alarm must be mounted in any space where children may sleep or nap.

## Duties of Tenants and Landlords

In a rental unit, both the tenant and the building owner have responsibilities for smoke alarms. The tenant must keep the alarms in good working order during the tenancy. The owner must install the alarms, inspect, test, and repair or replace smoke alarms when a rental unit becomes vacant, and instruct tenants on the purpose, operation, and maintenance of the devices.

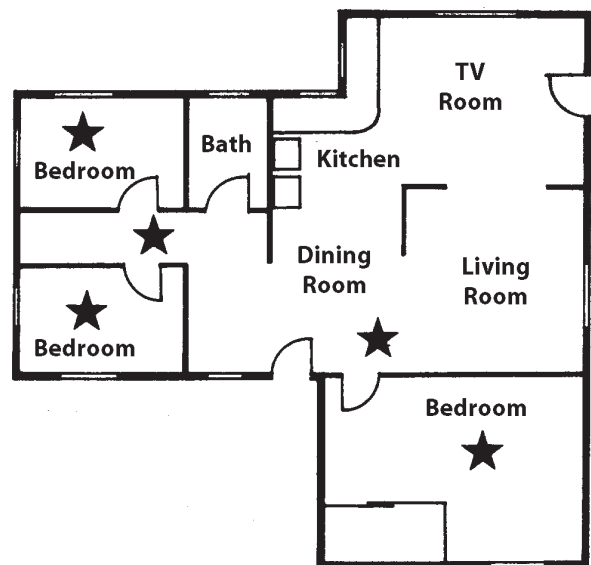
The owner must provide a "Fire Safety and Protection Information" document to the tenant, according to state law RCW 59.18.060.11(a). At the time of a vacancy, the owner shall insure that the smoke alarm works before the rental unit is re-occupied.

## Enforcement Procedures

Smoke alarm rules are enforced by the Seattle Fire Department (SFD) and the Seattle Department of Construction and Inspections (Seattle DCI). Failure of either a building owner or tenant to comply with these rules may result in a fine.

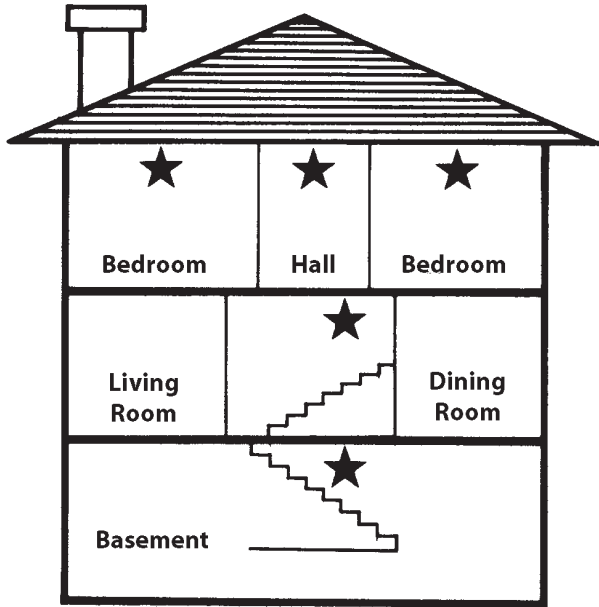
### Figure A

Smoke alarms (indicated by stars) must be located in each bedroom, as well as the hallway adjacent to each sleeping area. The hallway smoke alarm must be in a position central to all the bedrooms. Homes with more than one sleeping area must have alarms to protect each area.



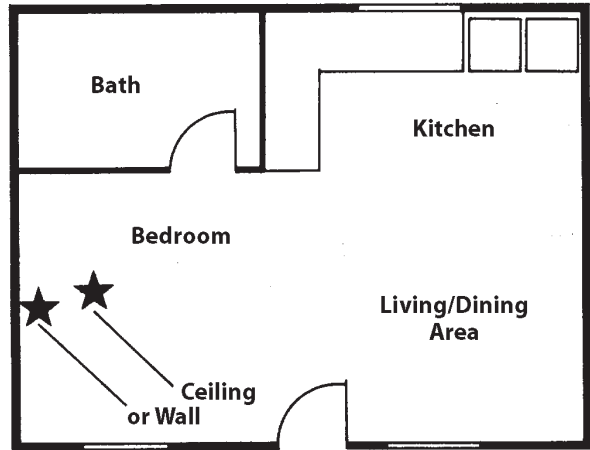
**Figure B**

A smoke alarm must be located on each story (including basements). Every bedroom must have its own smoke alarm. All smoke alarms must be interconnected to sound an alarm audible in all sleeping areas of the residence.



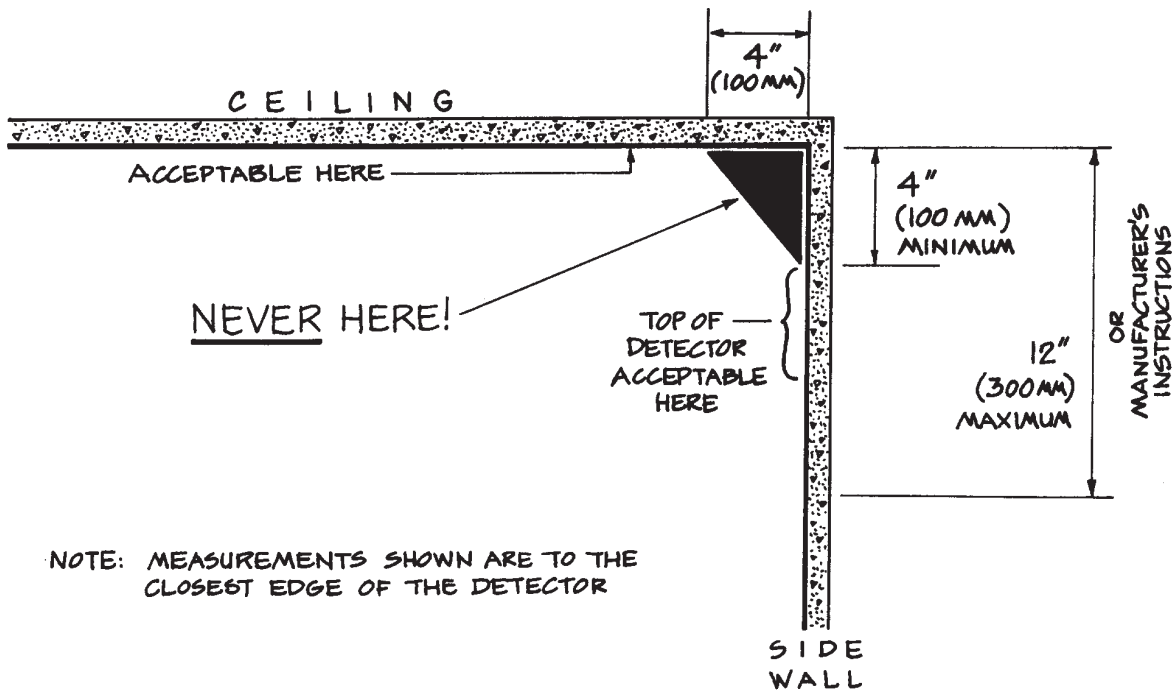
**Figure C**

In an efficiency apartment, the smoke alarm should be placed in the sleeping room on the wall or ceiling farthest from the kitchen and away from the bathroom. This reduces nuisance alarms from cooking and bath steam.



**Figure D**

Smoke alarms should be installed at least 4 inches away from corners in order to avoid dead air space that smoke won't reach. On ceilings, the alarm should be mounted at least 4 inches from any side wall. On walls, the alarm should be mounted no closer than 4 inches from the ceiling and no farther than 12 inches, or according to manufacturer's instructions.



## Rules for Carbon Monoxide Alarms

Carbon monoxide is an odorless, colorless, and tasteless poisonous gas. Washington State law requires carbon monoxide alarms in most residential buildings, including single- and multi-family homes (RCW 19.27.530). The Seattle Building Code (SBC) and the Seattle Residential Code (SRC) have adopted and incorporated these requirements (SBC Section 908.7; SRC Section R315). Carbon monoxide alarms can be either stand-alone devices or a system that includes separate detection and alarm devices.

## When Carbon Monoxide Alarms Are Required

Carbon monoxide alarms are required in all newly constructed residences including single-family and multifamily houses, townhouses, condominiums and duplexes. Each residential unit is required to have carbon monoxide alarms. Permit applications for alterations to existing single- and multi-family residences must show that the carbon monoxide alarms are already in place or include them as part of the project.

Existing owner-occupied single-family homes are exempt from the carbon monoxide alarm requirement, but the requirement for a carbon monoxide alarm is triggered with any building permit application for work on the home. Inspections are required for permits for interior alterations, repairs or new construction. Every home must have a carbon monoxide alarm when it is sold.

## Where to Put Carbon Monoxide Alarms

Simply install the carbon monoxide alarms in the area right outside of each bedroom, with at least one alarm on each floor.

## Carbon Monoxide Detection Systems

Carbon monoxide detection systems are allowed to be installed, but they are not required. If a carbon monoxide detection system is installed, it will be a considered a permanent fixture.

## Additional Information

You may call either Seattle DCI or SFD with questions or for help in complying with these rules.

For information about the installation and maintenance of smoke alarms, or to obtain smoke alarms if you are low income, contact the SFD Public Education Section at (206) 386-1337, or visit its website at **www.seattle.gov/fire**

For information about the location of smoke and carbon monoxide alarms and other requirements in new or remodel construction, come to Seattle DCI's Applicant Services Center at 700 5th Ave., 20th Floor.

For information about tenant and owner responsibilities, contact Seattle DCI Code Compliance Program/Housing and Zoning Enforcement, at (206) 615-0808.

## Access to Information

Links to electronic versions of Seattle DCI **Tips**, **Director's Rules**, and the **Seattle Municipal Code** are available on the "Tools & Resources" page of our website at **www.seattle.gov/sdci**. Paper copies of these documents, as well as additional regulations mentioned in this Tip, are available from our Public Resource Center, located on the 20th floor of Seattle Municipal Tower at 700 Fifth Ave. in downtown Seattle, (206) 684-8467.