



**NFPA 72-2010:**

## Reducing Household **Nuisance Alarms**

During the revision cycle for the 2010 edition of NFPA 72, the SIG-HOU (Chapter 29) Technical Committee on Single- and Multiple-Station Alarms and Household Fire Alarm Systems formed several Task Groups to evaluate all the available technical information relating to the effectiveness of smoke detection technologies. The work of the Task Groups resulted in new smoke detection installation requirements relative to cooking appliances. Compliance with these new requirements is essential for an effective installation that provides optimum detection performance with a higher immunity to nuisance activations.

### Important Aspects of Chapter 29

The requirements of Chapter 29 cover the installation, service, and maintenance of single- and multiple-station smoke alarms or household fire alarm systems using system-connected smoke detectors when they are required by laws or codes.

Chapter 29 is not an occupancy chapter. In 2002, the scope of this chapter was changed from covering one- and two-family dwelling units to covering all occupancies that are required to install smoke alarms or household fire alarm systems.

The appendix of the standard states the requirements of Chapter 29 are intended to apply to:

- One- and two-family dwelling units
- Sleeping rooms of hotels
- Dormitories
- Individual dwelling units of apartment buildings
- Day-care homes
- Residential board and care facilities

Note that the application and placement requirements specified in Chapter 29 are not intended to cover requirements for common or tenantless areas of a building, such as apartment lobbies or corridors. The smoke detection installation requirements for these common areas are covered in other sections of the standard.

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One common question is if it is permissible to use both smoke alarms and smoke detectors to meet the number and location requirements of Chapter 29. For example, can smoke alarms be installed on the first floor and system-connected smoke detectors installed on the second floor?

The answer is “no.” Compliance with the requirements of Chapter 29 cannot rely on the combination of single-station alarms, multiple station alarms, or a household fire alarm system using system-connected detectors. The required number and location of smoke detection devices shall be satisfied (independently) through the installation of either system smoke detectors or smoke alarms.

### Smoke Detection Requirements in NFPA 72-2010

The Chapter 29 Task Groups spent two years reviewing several research studies on the responsiveness and resistance to nuisance alarms of smoke detection technologies. After reviewing the information in these studies, they identified the following key findings:

- Disabled smoke alarms account for roughly 20 percent of the smoke alarms installed in U.S. homes. That number may be higher in high-risk areas, such as inner cities and rural communities.
- Nuisance alarms are the leading cause of occupants disabling their smoke alarms.
- Cooking is the leading cause of nuisance alarms.
- Ionization and photoelectric technologies are both sensitive to cooking aerosols. However, several studies have shown that ionization technology installed too close to a cooking appliance has a higher frequency of nuisance alarms than photoelectric technology.

For these reasons, section 29.8.3.4(4) of the 2010 edition of NFPA 72 was revised to prohibit the installation of smoke alarms or smoke detectors within 10 feet of a stationary or fixed cooking appliance, unless listed for installation in close proximity to cooking appliances. In addition, smoke alarms or smoke detectors installed between 10 and 20 feet from a stationary or fixed cooking appliance must be equipped with an alarm-silencing means or use photoelectric detection technology.

In many small living spaces, it may not be possible to place a smoke alarm 20 feet from the cooking appliance. Therefore, an exception to these requirements permits photoelectric detection to be installed between 6 and 10 feet from any stationary or fixed cooking appliance when the kitchen or cooking area and adjacent spaces have no clear interior partitions or headers and the 10-foot area of exclusion would prohibit the placement of a smoke alarm or smoke detector required by other sections of the code. There are several diagrams in the annex of NFPA 72 that help to illustrate these requirements.