



POSITION STATEMENT

Home Smoke Alarms

Submitted by the Fire & Life Safety Section Board

The International Association of Fire Chiefs (IAFC), through its Fire & Life Safety Section (FLSS), is adopting this position paper on residential smoke alarms so fire chiefs can better understand factors related to this life saving technology.

- **Working Smoke Alarms Continue to Save Lives**

Smoke alarms that are properly installed and maintained play a vital role in reducing fire deaths and injuries. Statistics show that working smoke alarms in a home cut the risk of dying in a fire in half compared to homes without working smoke alarms.

- **Home Escape Times Are Reduced to Three Minutes**

Modern homes contain a large quantity of synthetic furnishings which ignite and burn faster than traditional natural materials such as wood and cotton. Full-scale fire tests suggest that escape times in homes can be three minutes or less due to increased heat-release rates of these synthetic materials and open-concept floor plans. Early smoke detection and alarm notification is critical so occupants can escape before conditions become untenable.

- **Coverage Throughout the Residence**

Because fires can spread rapidly through homes, having enough properly located smoke alarms is essential to maximize the amount of available escape time. The NFPA 72 National Fire Alarm and Signaling Code requires smoke alarms to be installed inside every sleeping room, outside each sleeping area and on every level of the home.

- **Interconnected Smoke Alarms**

Interconnecting smoke alarms (when one detects smoke, they all sound an alarm) allows for faster notification of occupants in areas remote from where initial ignition occurs in the home. They also allow families to sleep with bedroom doors closed and have the smoke alarm in their bedroom sound as soon as smoke is sensed anywhere in the home. Wireless smoke alarms provide a cost effective solution for providing interconnection for existing homes without AC hard-wired interconnected smoke alarms.

- **Battery Considerations**

Smoke alarms in new homes are required to be AC powered with standby batteries. Smoke alarms in existing and remodeled homes can be battery powered. There are two types of battery-powered smoke alarms, (a) smoke alarms with a replaceable battery designed to operate one year or more and

This position paper supersedes previous IAFC smoke alarm position papers.

(b) smoke alarms with nonreplaceable batteries designed to operate for ten years before replacing the entire alarm. All battery-powered alarms will produce a low-battery chirp. In addition, newer smoke alarms provide an end-of-life alarm, which indicates that the entire unit needs to be replaced.

The IAFC recognizes the value of smoke alarms with both one-year replaceable batteries and ten-year, nonreplaceable batteries, and encourages smoke alarms with ten-year, nonreplaceable batteries to be used where battery powered units are allowed. However, it is recognized that units with ten-year, nonreplaceable batteries may preclude the use of features such as wireless interconnection and multi-sensor detection technology and recommends exceptions be made if these features are to be provided.

- **Reducing Unwanted Alarms**

When smoke alarms activate for reasons other than actual fires, people may disable their alarms. Smoke from cooking is the biggest source of unwanted alarms. NFPA 72 has specific requirements for how close smoke alarms can be placed near fixed cooking appliances, which are also included in the installation instructions provided with the smoke alarm.

Smoke alarms may contain an alarm silencing (hush) feature which will silence the audible alarm and temporarily desensitize the smoke detection levels for up to 15 minutes. Fire officials should make sure that people understand the importance of using the hush button rather than disabling the alarm when nuisance alarms occur.

- **New “Smarter” Smoke Alarms are Here**

Significant changes were recently made to UL 217, the standard used to list smoke alarms. These changes include, among other things, a new cooking test that requires smoke alarms to better distinguish between cooking smoke and that of a potentially life-threatening fire. These enhancements help minimize cooking nuisance alarms, the top reason why people disable their smoke alarms. Smoke alarms listed to the new UL 217 requirements are currently available from some manufacturers, and the number of manufacturers with these listings will be increasing in the near future.

The new UL 217 requirements apply to single detection or multiple sensing (multi-criteria) technologies. However, it is likely that without modifications the traditional ionization or photoelectric technologies cannot comply with the new requirements without redesign.

The International Association of Fire Chiefs believes that having working smoke alarms in residences is the most important consideration for protecting occupants, regardless of whether they are listed to the previous or new 8th edition of UL 217. However, in requesting grants for future smoke alarm installation programs, fire departments are encouraged to order smoke alarms listed to the new of UL 217.

Smoke alarms listed to the new UL 217 requirements can be identified by “Helps reduce nuisance cooking alarms” or equivalent markings on the packaging and the smoke alarm. For additional facts, tips and public education material on smoke alarms see <https://smokealarms.ul.org/>.

- **Changes Called for Legislation, Regulations and Ordinances**

Several states and jurisdictions have legislation, regulations or ordinances specifying a particular type of smoke alarm detection be installed, such as photoelectric. The IAFC encourages these requirements be

This position paper supersedes previous IAFC smoke alarm position papers.

rescinded to remove references to a particular smoke alarm technology. While well intentioned when they were adopted, these restrictions may now preclude the installation of the newer generation of “smarter” smoke alarms. It is preferred that the locally enforced regulations do not specify a particular smoke alarm technology, but instead reference current edition of fire codes and NFPA 72, since those consensus documents are updated on a regular basis to reflect enhancements to safety standards.

- **Testing, Reliability and Replacement of Smoke Alarms**

Smoke alarms do not last forever and should be replaced when they fail to respond to monthly push button tests or generate an end-of-life signal. Both NFPA 72 and the International Fire Code have also adopted requirements for smoke alarms to be replaced after ten years. Fire chiefs may address replacement of old smoke alarms through code enforcement, public education or with the assistance of other stakeholders such as landlords and real estate agents.

- **Home Safety Visit Programs**

Smoke alarms are a very cost-effective way to provide early detection and valuable extra time and yet a large segment of the population lives with too few or no work smoke alarms. Typically, those in high-risk population groups such as low-income earners, those living in rural areas, older adults, and those with disabilities are in the greatest need of support. Community Risk Reduction strategies that include a home safety visit program to install smoke alarms in high-risk homes in your community can make a measurable difference in reducing deaths and injuries from fire. For assistance in setting up an effective program, NFPA provides documentation on “[Planning and Implementing a Successful Smoke Alarm Installation Program](#)”. This includes a comprehensive guide including everything you’ll need to get started, from tips on how to select partners, to pointers on soliciting donations and publicizing your program. In addition, see www.homesafetyvisit.org from Vision 20/20.

- **Conclusion**

Working smoke alarms are the most cost-effective way to save lives of occupants in a residential dwelling. The IAFC/FLSS stresses the importance for fire chiefs to educate the community and their staff to understand issues related to home fires and smoke alarms, to be aware of factors that may prevent smoke alarms from operating, and to take all possible steps to minimize these risks through enforcement, public education and interaction with other stakeholders in the community.

SUBMITTED BY: IAFC Fire & Life Safety Section

ADOPTED BY THE IAFC BOARD OF DIRECTORS: 27 JUL 2020