



# SMART CHOICES *for* SMOKE ALARM PLACEMENT

## Supporting Studies

The National Fire Protection Association (NFPA) and the U.S. Fire Administration (USFA) estimate that the use of smoke alarms in homes has risen from less than 10% in 1975 to its current rate of 96%. During that time, the number of home fire deaths has been cut nearly in half. Thus the home smoke alarm can be credited as one of the greatest success stories in fire safety in the last part of the 20th century.

However, over the past 10 years, home fire deaths have reached a plateau of approximately 2,650 per year. More education and awareness is needed about replacing outdated alarms, i.e. ones that are 10 years or older, and about installing alarms in rooms throughout the home. This document summarizes fire industry studies which support the importance of location-based smoke alarms the IAFC's Smart Choices for Smoke Alarm Placement Campaign toolkit.

### ***USFA Position on Smoke Alarms***

- Locations of smoke alarms in a home may be more important than the type of smoke alarm present, depending on the location of a fire. Users should follow the owner's manual on the recommended location of smoke alarms in a home.

### ***National Sample Survey of Unreported Residential Fires (performed by the CPSC)***

- 82% of the households that had unreported fires and 84% of non-fire households had smoke alarms on every level.
- Less than one-quarter (22%) of fire households had smoke alarms in all bedrooms.
- Almost one-third (31%) of non-fire households had smoke alarms in all bedrooms.

### ***Home Smoke Alarms – The Data as Context for Decision (performed by NFPA)***

- Some portion of the 34% of fire deaths resulting from fires with working smoke alarms may be reduced by changes in smoke alarm placement practices.
- Requirements for smoke alarms in bedrooms and interconnectivity increases the likelihood that occupants will be alerted to fire in another part of the home.
- Many homes with smoke alarms do not have alarms on every level.
- Ambient noise and closed doors can diminish a smoke alarm's waking effectiveness.

### ***Civilian Fire Fatalities in Residential Buildings (performed by the USFA)***

- The leading specific location where civilian fire fatalities occur in residential buildings is the bedroom (55%).
- 55% of civilian fire fatalities in residential buildings occur between the hours of 10 p.m. and 6 a.m. This period accounts for 47% of fatal fires.
- 35% of fire victims in residential buildings were sleeping at the time of their deaths.

For more information, visit [www.SmartAlarmChoices.com](http://www.SmartAlarmChoices.com)

#### ***Smoke Alarms in U.S. Home Fires (performed by NFPA)***

- Almost all U.S. households have at least one smoke alarm, yet in 2005-2009, smoke alarms were present in less than three-quarters (72%) of all reported home fires and operated in half (51%) of the reported home fires.
- More than one-third (38%) of all home fire deaths resulted from fires in homes with no smoke alarms, while one-quarter (24%) resulted from fires in homes in which smoke alarms were present but did not operate.
- The death rate per 100 reported fires was twice as high in homes without a working smoke alarm as it was in home fires with this protection.

#### ***Residential Structure and Building Fires (performed by the USFA)***

- Nearly 40% of all residential fires are caused by cooking, while smoking is the number one cause of residential fire fatalities (19%).
- Although fire incidents drop when people sleep, fatal fires are at their highest late at night and early in the morning.

#### ***An Analysis of the Performance of Smoke Alarms (performed by NIST)***

- A combination of ionization and photoelectric alarm technologies is ideal for homes.
- Vulnerable populations who may require significantly more time to escape than more mobile populations would benefit the most from dual alarm technology or side-by-side photoelectric and ionization alarms with alarm placement following current NFPA 72 requirements.

#### ***Home Smoke Alarm Tests (performed by NIST)***

- Smoke alarms of either the ionization type or the photoelectric type consistently provided time for occupants to escape from most residential fires.
- Ionization alarms provided somewhat better response to flaming fires than photoelectric alarms, and photoelectric alarms provide faster response to smoldering fires than ionization type alarms.