OFPC information BULLETIN

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U.S. Fire Administration | FEMA

A Message from U.S. Fire Administrator Greg Cade about Home Smoke Alarms

USFA is aware that there is a growing controversy about which type of smoke alarm is most appropriate to protect Americans in their homes. In accordance with our mission to reduce life and economic losses due to fire, we offer the following guidance regarding home smoke alarms.

The body of scientific knowledge about fire, smoke, and smoke detection has developed over many years and is extensive. The USFA has either fully or partially funded a number of research efforts, including a recent study by the National Institute of Standards and Technology's (NIST) Center for Fire Research. Other contributors to this knowledge include the Consumer Product Safety Commission (CPSC), the National Fire Protection Association, Underwriters Laboratories, the Home Fire Safety Council, the Residential Fire Safety Institute, the Home Fire Sprinkler Coalition, and distinguished academics with expertise in smoke alarm and sensor technology. The body of research reflects the following:

- There are two types of smoke alarms in general use for residential smoke alarms: photoelectric and ionization. These types of smoke alarms sense the presence of smoke differently.
- The type of smoke produced by a fire depends strongly on the type of fire. Flaming fires produce a different type of smoke than smoldering fires.
- Both types of smoke alarms will detect the smoke from either a smoldering fire or a flaming fire. It has been factually established and well known for many years that:
    - Ionization type smoke alarms tend to respond faster to the smoke produced by flaming fires than photoelectric type smoke alarms, and
    - Photoelectric type smoke alarms tend to respond faster to the smoke produced by smoldering fires than ionization type smoke alarms.
- In some full-scale fire tests, the difference in the time to alarm between ionization and photoelectric type smoke alarms has been found to be trivial. In other full-scale fire tests, the difference in response time has been found to be considerable.

Based upon the above, the USFA provides the following guidance to the public and to state and local legislative bodies that may be grappling with the issue of the proper type of smoke alarm to select for use in a residence:

- It cannot be stated categorically that one type of smoke alarm is better than any other type of smoke alarm in *every* fire situation that could possibly arise in a residence.
- Because both ionization and photoelectric smoke alarms are better at detecting distinctly different yet potentially fatal fires, and because no one can predict what type of fire might start in a home, the USFA recommends that every residence and place where people sleep be equipped with either (a) *both* ionization *and* photoelectric smoke alarms, or (b) dual sensor smoke alarms (which contain both ionization and photoelectric smoke sensors).
- The location of a smoke alarm within a home may be more important than the type of smoke alarm present, depending on the location of a fire. The USFA recommends that users follow the manufacturer's guidance on the recommended location of smoke alarms in a home.

Additional information on smoke alarms can be found on the USFA, CPSC, and NIST Web sites.

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