

## Fire detectors in new or materially altered domestic premises: Grade D, Category LD2

This Guide gives guidance for the installation of fire detectors\* in new or materially altered single-family dwellings to meet the relevant recommendations for a Grade D, Category LD2 system given in *BS 5839-6: 2013 Fire detection and fire alarm systems for buildings – Part 6: Code of practice for the design, installation, commissioning and maintenance of fire detection and fire alarm systems in domestic premises*.

A Grade D, Category LD2 system is the minimum standard for protection of life against fire recommended by clause 9 (*Choice of system*) of *BS 5839-6* for single-family dwellings of three-storey or less with no floor greater than 200 m<sup>2</sup> in area, or of single-storey where the floor area may exceed 200 m<sup>2</sup>, such as a bungalow.

For single-family dwellings of a different nature, for example, two or more storey dwellings with any floors greater than 200 m<sup>2</sup> in area, Table 1 of *BS 5839-6* should be consulted and an appropriate Grade and Category of system selected.

*BS 5839-6* recommends that the design of a fire detection and fire alarm system for a particular dwelling should be based on fire risk assessment and clause 9, with alarm types appropriately selected for a room or area to provide the earliest warning signal in the event of fire, whilst limiting false alarms.

### Information on alarm types generally applicable to Grade D, Category LD2 systems

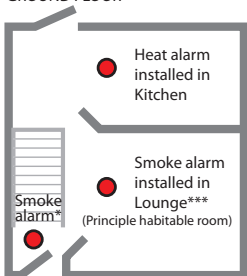
- Smoke alarms are generally of two types: optical smoke alarms (OSAs) and ionization smoke alarms (ISAs). Either may be used in any room or area, other than kitchen, bath or shower rooms. However:
  - OSAs are less likely than ISAs to respond to fumes from cooking. Thus, OSAs are more suitable in rooms or areas into which kitchen cooking fumes may discharge.
  - ISAs are less likely than OSAs to respond to tobacco smoke. Thus, ISAs are more suitable in rooms or areas where smoking is likely.
- Heat alarms respond slower to fire than smoke alarms and are therefore generally recommended for use in kitchens to provide fire detection, whilst limiting false alarms. They may be used in other rooms, for example, where the speed of fire detection is not imperative. They should not be used in circulation areas, such as hallways, corridors or staircase landings, (clause 10 (*Types of fire detector and their selection*) of *BS 5839-6* refers).
- Carbon monoxide fire detectors may be installed as an alternative to smoke detectors in the principal habitable room\*\*, provided the applicable parts of *BS 5839-6*, such as clause 10.2 are met. They may also be used as alternatives in other rooms and areas (except kitchens).



## Grade D, Category LD2

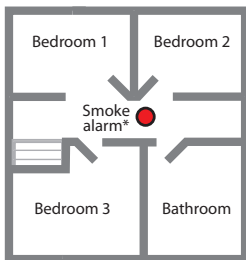
The following recommendations, given in clause 11 (*Location and siting of fire detectors*) of BS 5839-6, are the minimum for a Grade D, Category LD2 system in new or materially altered single-family dwellings:

GROUND FLOOR



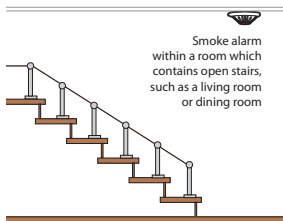
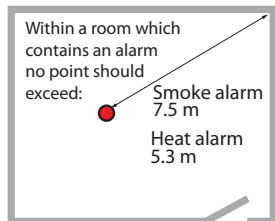
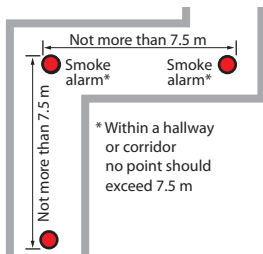
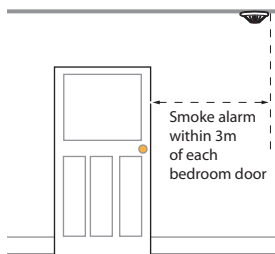
\* One smoke alarm installed in each hallway or corridor

UPPER FLOOR



\* One smoke alarm installed on each main landing of every staircase

However, additional alarms may be required to satisfy fire risk assessment and/or the relevant recommendations for a Grade D, Category LD2 system given in BS 5839-6 as follows:



Further information regarding the recommendations of BS 5839-6 are given in Pocket Guide 10.

- \* Where detectors for smoke, heat and carbon monoxide are referred to in this Guide, it is taken that they are devices which incorporate within one housing the components to, detect their relevant characteristics for fire, and give an audible alarm.
- \*\* Principal habitable room – normally the most frequently used room for general daytime living (excluding a kitchen, utility room, bathroom, dressing room or toilet).
- \*\*\* Alternatively a carbon monoxide fire detector may be used.