

Overview of the Changes to BS 5839-6 Fire detection and fire alarm systems for buildings

Code of practice for the design, installation,
commissioning and maintenance of fire detection
and fire alarm systems in domestic premises



BS 5839-6 2019 gives recommendations for the planning, design, installation, commissioning and maintenance of fire detection and fire alarm systems in domestic premises that are:


- a) Designed to accommodate a single family;
- b) Houses in multiple occupation comprising a number of self-contained units, each designed to accommodate a single person or family;
- c) Sheltered housing, including both the dwelling units and the common areas;
- d) Supported housing.

In the case of purpose-built flats, the degree of compartmentation between occupancies is normally sufficient to ensure that fire is contained in the dwelling of origin for a prolonged period. During this time, other occupants can remain in reasonable safety within their own dwellings. Accordingly, this part of BS 5839 does not provide recommendations for fire detection systems that incorporate detectors in the communal areas or ancillary accommodation (e.g. plant rooms) within purpose-built flats. Such systems are normally undesirable and can even lead to risk to occupants. Nevertheless, if the provision of a fire detection and fire alarm system in these areas can be justified, the recommendations in BS 9991 and BS 5839-1 can be followed

BS 5839-6 Grades

These grades relate to system technology, not to the level or Category of protection

- **Grade A.** System closely following BS 5839-1
- **Grade B.** Functionally similar to BS 5839-1
- **Grade C.** Detectors and sounders with central power supply and an element of central control
- **Grade D1:** Mains smoke alarm or more standby-powered detectors, each with a tamper indicator, standby supply consisting of a replaceable battery or batteries
- **Grade E.** Mains smoke alarms without standby supply
- **Grade F1:** Battery-powered smoke alarm or battery-powered detectors powered by a tamper-proof primary battery or batteries.



Siri
What is a
BS 5839-6
Grade C
Fire Alarm
System?

Social alarm systems

Intruder alarm system

Purpose built Grade C system

Smart Home system

New Annex B Control and indicating equipment for Grade C systems

- Indicators
 - There should be indicators for “Fire”, Fault” & “power supply”
- Controls
 - Manual controls should take the form of:
 - a control fulfilling the function of a biased/momentary switch; and/or
 - a control fulfilling the function of a secure switch.
 - There should be facilities for:
 - silencing the fire alarm devices;
 - resetting the fire condition (if the system does not automatically reset);
 - testing the system
- Fire condition and silencing
- Monitoring and connection of fire detectors and fire alarms
- Power supplies

Table 1 Minimum grade and category of fire detection and fire alarm system



Single-family dwellings and shared houses with
no floor greater than 200 m² in area

New or materially altered premises

Owner-occupied

- Bungalow
- Flat
- Two storey house
- Maisonette with no floors above 4.5m from ground level
- Three storey house

Grade D2

Category LD2

- Four or more storey house

Grade A

Category LD2

Table 1 Minimum grade and category of fire detection and fire alarm system

Single-family dwellings and shared houses with no floor greater than 200 m² in area

Existing premises



Owner-occupied

- Bungalow
- Two storey house
- Maisonette with no floors above 4.5m from ground level

Grade F2

Category LD3

- Three storey house

Grade D1

Category LD2

- Four or more storey house

Grade A

Category LD2

Table 1 Minimum grade and category of fire detection and fire alarm system

Single-family dwellings and shared houses with
no floor greater than 200 m² in area

New or materially altered premises

Rented

- Bungalow
- Flat
- Two storey house
- Maisonette with no floors above 4.5m from ground level
- Three storey house

Grade D1

Category LD2

- Maisonette with any floor above 4.5m from ground level
and no alternative means of escape

Grade D1

Category LD1

- Four or more storey house

Grade A

Category LD1



Table 1 Minimum grade and category of fire detection and fire alarm system

Single-family dwellings and shared houses with
no floor greater than 200 m² in area

Existing premises

Rented

- Bungalow
- Flat
- Two storey house
- Maisonette with no floors above 4.5m from ground level
- Three storey house

Grade D1

Category LD2

- Maisonette with any floor above 4.5m from ground level
and no alternative means of escape

Grade D1

Category LD1

- Four or more storey house

Grade A

Category LD1



Table 1 Minimum grade and category of fire detection and fire alarm system



Single-family dwellings and shared houses with one or more floors greater than 200 m² in area

New or materially altered premises

Owner-occupied

- Bungalow
- Flat
- Single story unit

Grade D2

Category LD2

- Two storey house
- Maisonette with no floors above 4.5m from ground level
- Three storey house
- Four or more storey house

Grade A

Category LD2

- Maisonette with any floor above 4.5m from ground level and no alternative means of escape

Grade A

Category LD1

Table 1 Minimum grade and category of fire detection and fire alarm system



Single-family dwellings and shared houses with one or more floors greater than 200 m² in area

Existing premises

Owner-occupied

- Bungalow
- Flat
- Single story unit

Grade D2

Category LD3

- Two storey house
- Maisonette with no floors above 4.5m from ground level
- Three storey house
- Four or more storey house

Grade A

Category LD3

- Maisonette with any floor above 4.5m from ground level and no alternative means of escape

Grade D1

Category LD1

Table 1 Minimum grade and category of fire detection and fire alarm system



Single-family dwellings and shared houses with one or more floors greater than 200 m² in area

New or materially altered premises

Rented

- Bungalow
- Flat
- Single story unit

Grade D1

Category LD2

- Two storey house
- Maisonette with no floors above 4.5m from ground level
- Three storey house

Grade A

Category LD2

- Four or more storey house
- Maisonette with any floor above 4.5m from ground level and no alternative means of escape

Grade A

Category LD1

Table 1 Minimum grade and category of fire detection and fire alarm system



Single-family dwellings and shared houses with one or more floors greater than 200 m² in area

Existing premises

Rented

- Bungalow
- Flat
- Single story unit
- Two storey house
- Maisonette with no floors above 4.5m from ground level
- Three storey house

Grade D1

Category LD2

- Four or more storey house

Grade A

Category LD1

- Maisonette with any floor above 4.5m from ground level and no alternative means of escape

Grade D1

Category LD1

Table 1 Minimum grade and category of fire detection and fire alarm system



Houses in multiple occupation

New or materially altered premises or existing premises

- HMOs of one or two storeys with no floor greater than 200m² in area

Grade D1

Category LD1

Other HMOs

- Individual dwelling units, within the HMO, comprising a single room, which **include cooking** facilities (bedsits)
- Individual dwelling units, within the HMO, comprising a single room, which **do not include cooking** facilities (bedsits)

Grade D1

Category LD2

- Individual dwelling units, within the HMO, comprising two or more rooms

Grade D1

Category LD2

- Communal areas of the HMO

Grade A

Category LD2, with detectors sited in accordance with the recommendations of BS 5839-1:2017 for a Category L2 system

Table 1 Minimum grade and category of fire detection and fire alarm system



New or materially altered premises or existing premises

Self-catering premises or premises with short-term paying guests

Grade D1

Category LD1

Sheltered housing

- Individual dwelling units

Grade D2

Category LD2

- Communal areas

Grade A in accordance with the recommendations of BS 5839-1:2017 for a Category L4 or L5 system

Supported housing

- Single-storey
- Two or more storeys and not more than four bedrooms

Grade D1

Category LD1

- Two or more storeys and more than four bedrooms

Grade A

Category LD1

Transmission of signals to an ARC

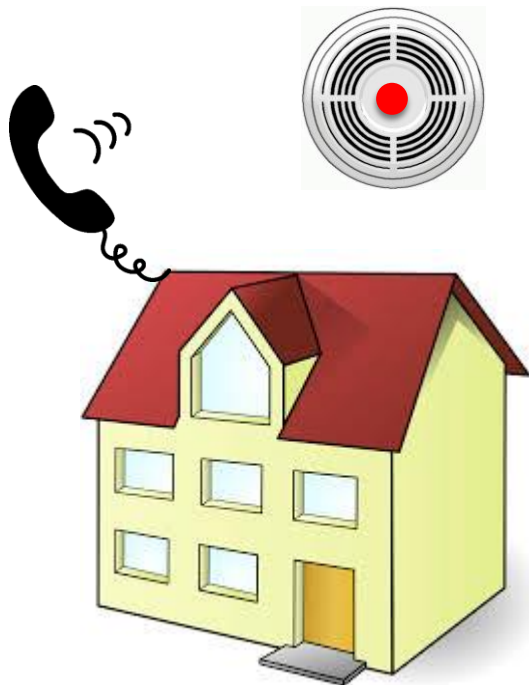


20.2 a) In Category LD systems, facilities for automatic transmission of fire alarm signals to the fire and rescue service should be provided under the following circumstances:

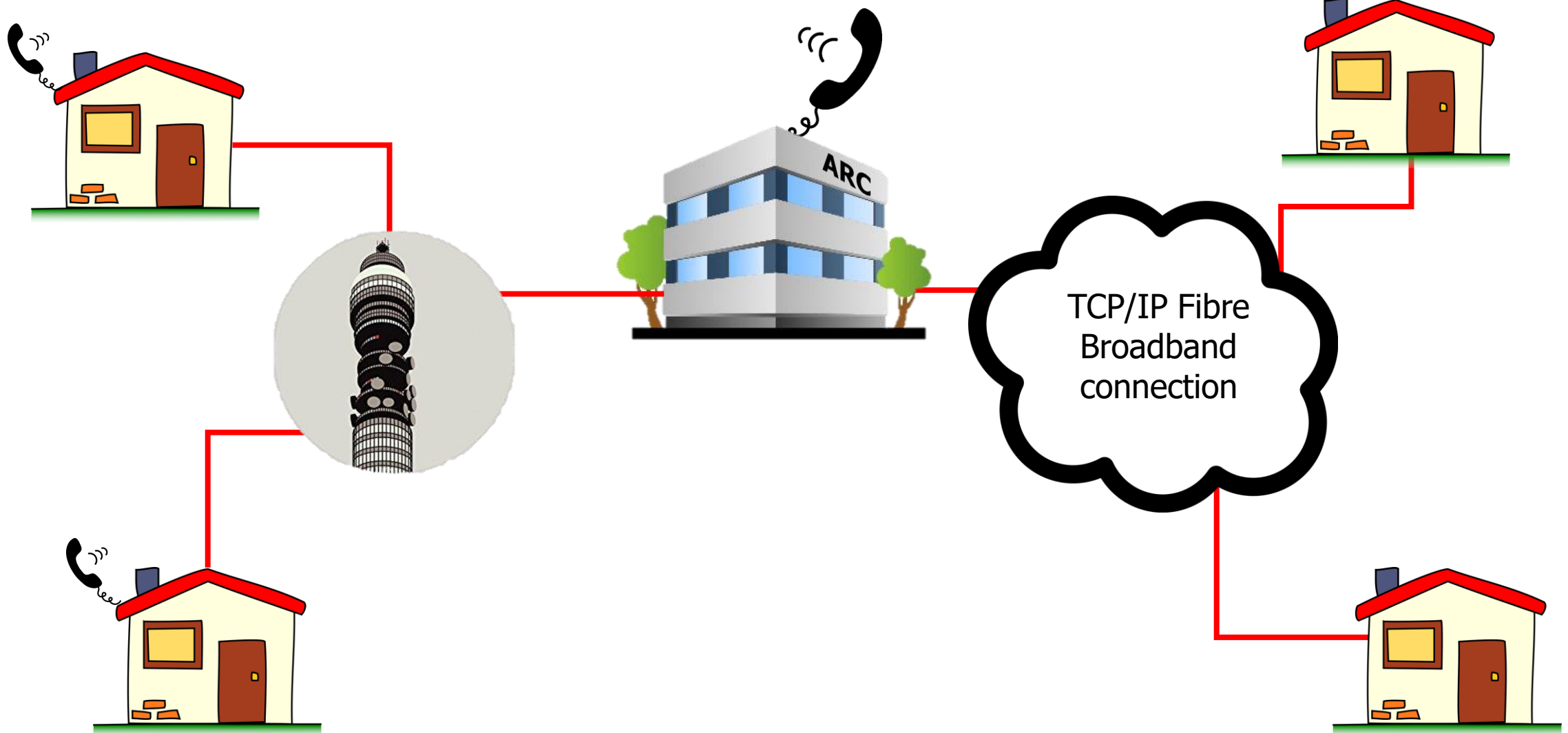
- 1) if the occupants have a mobility or sensory impairment that could impact on their evacuation in the event of fire;
- or
- 2) if the occupants have a speech or hearing impairment that would preclude communication by telephone with the fire and rescue service.

Transmission of signals to an ARC

new recommendation to prevent blocking or delaying of fire alarm signals transmitted via social alarm systems in sheltered housing to an alarm receiving centre



Dispersed social alarm (telecare) systems



New table on testing and servicing by grade

Grade of detection	Type of fire detection and fire alarm system	Frequency of test by user	Testing action to be taken by user	Frequency of service by competent person	Servicing procedure by competent person	Records held for property	Battery change recommendations
A	Systems of a type described in BS 5839-1	Weekly	As in BS 5839-1	6 months	As in BS 5839-1	As in BS 5839-1	As in BS 5839-1

New table on testing and servicing by grade

Grade of detection	Type of fire detection and fire alarm system	Frequency of test by user	Testing action to be taken by user	Frequency of service by competent person	Servicing procedure by competent person	Records held for property	Battery change recommendations
C	Fire detectors and fire alarms supplied with power from a common PSU, with central control Equipment	Monthly	Press test button on central control equipment (if a fire alarm system has no test button, assistance with testing should be sought from a fire service company)	In accordance with manufacturer's recommendations, but at intervals not exceeding 12 months	As per Annex I		If replaceable follow manufacturer's recommendations

New table on testing and servicing by grade

Grade of detection	Type of fire detection and fire alarm system	Frequency of test by user	Testing action to be taken by user	Frequency of service by competent person	Servicing procedure by competent person	Records held for property	Battery change recommendations
D	Mains-powered smoke alarms, with standby supplies	Monthly	Press test button	12 months for sheltered housing and dispersed social alarm (telecare) systems; otherwise not applicable	As per Annex I, if applicable		If replaceable – annual

New table 3 on testing and servicing by grade

Grade of detection	Type of fire detection and fire alarm system	Frequency of test by user	Testing action to be taken by user	Frequency of service by competent person	Servicing procedure by competent person	Records held for property	Battery change recommendations
F	Battery-powered smoke alarms,	Monthly	Press test button	12 months for sheltered housing and dispersed social alarm (telecare) systems; otherwise not applicable	As per Annex I, if applicable		If replaceable – annual

New Annex I

Servicing procedure by competent person



Servicing procedure by competent person

NOTE The following servicing procedures are only applicable to Grades C, D, or F systems when the risk and/or circumstances require a competent person (not a user) to assess the fire alarm equipment and its operation.

1. General

- Tested at intervals from table 3

- Manufactures instructions should be followed

2. Visual inspection

- 500m space around detectors

- Smoke or heat can enter the detection chamber

- Chances to the use or occupancy of the premises that could lead to false alarms

3. Cleaning

- cleaned periodically in accordance with the manufacturer's instructions

4. Functional testing

- The guidance of the manufacturer on the method by which the detector/alarm can be tested effectively should be followed.

- For linked fire alarms the link(s) should be tested to confirm that the signal can be successfully transmitted between devices

5. Records

- On completion of the work, any outstanding defects should be reported to the person responsible for the property. A record of the inspection and test should be made on the servicing certificate,

Annex F (informative)

Model guidance to occupiers and landlords

Model guidance to occupiers and landlords, regarding avoidance of false alarms in systems with facilities for automatic transmission of fire alarm signals to the fire and rescue service, via an alarm receiving centre,

Guidance to occupiers and landlords in properties with remote monitoring of fire alarm systems

IMPORTANT: You must read this guidance before your fire detection and fire alarm system is monitored at a remote location.

The company responsible for the fire detection and fire alarm system at your property has proposed that the system will be/continues to be *[delete as applicable]* monitored at an alarm receiving centre. **It is important that you read the guidance in this note carefully, before this service is provided.**

Remote monitoring of the system means that, when your fire detection and fire alarm system sounds the alarm, the system automatically causes the fire and rescue service to be called (by staff at an alarm receiving centre). This service is often valuable if the people who live in your property have a disability and so might not be able to call the fire and rescue service themselves or get out of the property safely. It might also be required by your fire insurers if you live in a very expensive house, such as a mansion or country house.

In other properties, the monitoring service might not be of much benefit to you, as people in your property can usually call the fire and rescue service themselves, provided they do so from a place of safety, such as a telephone on the ground floor, near the front or back doors, or at a neighbour's house. Unless you live in an isolated location, if your house catches fire when you are not there, often neighbours will call the fire and rescue service.

If your fire detection and fire alarm system is monitored, it is very important that you do everything possible to avoid the fire and rescue service being called to your property as a result of a false alarm.

Normally, the delay is applied by the alarm receiving centre, who will try to telephone you to check whether the signal they have received from your system is a false alarm. If you do not answer the telephone within 60 seconds, the alarm receiving centre will assume that there is a fire and call the fire and rescue service. If you are certain that it is a false alarm, you should answer the telephone as quickly as possible, so that the alarm receiving centre do not call the fire and rescue service. On the other hand, if there is a fire, you should not delay leaving the house to answer the telephone. You should get out right away and telephone the fire and rescue service yourself just in case the automatic transmission system has not worked properly.

In some sophisticated fire alarm systems, the delay is not applied at the alarm receiving centre. Instead, you will have a short period to check whether there is a fire. If there is no fire, you can stop the signal being sent to the alarm receiving centre by using a control on your fire alarm control panel. If you do not stop the signal, the fire and rescue service will be called without further delay as soon as it is sent. If you have this type of system, you should make sure that you understand how to use the "abort" control.

If you have any doubts about the way your system operates, whether you have, or should have, a delay period, or any other uncertainty, you should contact your fire alarm installer or maintenance company as soon as possible.

- 2) So that faults in your system do not cause false alarms, you must have it serviced at least every six months. You should check that you have a current contract for servicing and for call-out of an engineer if your system is faulty.
- 3) There might be a switch on your fire alarm panel that allows you to disable the automatic transmission facility at certain times (e.g. if you find that cooking is likely to cause false alarms). If there is not such a switch, there might be a facility to disable the fire detectors. However, you should ensure that the system is restored to normal operation as soon as the risk of false alarms exists.

Make sure that fumes from the kitchen do not reach a nearby smoke alarm (e.g. from a door). You should also make sure that steam (e.g. from a shower) does not reach a smoke alarm. You should also make sure that steam (e.g. from a shower) does not reach a smoke alarm. You should also make sure that steam (e.g. from a shower) does not reach a smoke alarm.

Service Certificate



New service certificate for all grades

**FIRE ALARM SERVICING CERTIFICATE FOR
BS5839- 6 GRADE C,D,E & F SYSTEMS**

As recommended in Clause 26
of British Standard 5839-6:2019

Reference No: _____

Certificate of servicing for the fire alarm system at:
Address: _____

I/We being the competent person(s) responsible (as indicated by my/our signatures below) for the servicing of the fire alarm system, particulars of which are set out below, CERTIFY that the said work for which I/we have been responsible complies to the best of my/our knowledge and belief with the recommendations of Clause 26 of BS 5839-6:2019, except for the variations, if any, stated in this certificate.

Name (in block letters): _____ Position: _____
Signature: _____ Date: _____
For and on behalf of: _____
Address: _____ Postcode: _____

The extent of liability of the signatory is limited to the system described below.
Extent of system covered by this certificate: _____

Variations from the recommendations of Clause 26 of BS 5839-6:2019 for periodic or annual inspection and test (as applicable): _____

☐ Grade of system. ☐ Category of system

The following work/action is considered necessary: _____

Responsible for enforcement of fire safety legislation, such as the building control authority or housing authority, may require this certificate as evidence of compliance with legislation. Liability could arise on the part of any person in ensuring its validity.

Method for calculating standby battery capacity for Grade A systems

$$C_{\min} = 1.25(T_1 I_1 + D I_2 / 2)$$

$$C_{\min} = 1.25(T_1 I_1 + D I_2 T_2)$$

C_{\min}	minimum capacity of the battery when new at the 20h discharge rate and at 20°C in ampere hours
T_1	total battery standby period in hours;
I_1	total battery standby load in amperes;
I_2	total battery alarm load in amperes;
D	a derating factor.
T_2	total battery alarm period in hours;

Thank you for your attention

Any questions?

