

No BS Fact Sheet No. 13

Fire detection and alarm systems



It is a requirement under Article 13 and 17 of the Fire Safety Order that the person responsible for a premises ensures an adequate fire alarm system has been installed and maintained in working order.

The theory of fire

Fire is a chemical reaction between heat, oxygen and fuel. Together, they make up the fire triangle and these three elements are necessary for any fire to survive. If any one is removed, the fire will be extinguished.

Fire detection and warning systems

In some simple, open-plan, single-storey factories and warehouses, a fire may be obvious to everyone as soon as it starts. In these cases, where the number and position of exits and the travel distance to them is adequate, a simple shout of "FIRE" or a manually operated device, such as a gong, whistle or air horn that can be heard by everybody when operated from a single point within the building may be all that is needed. Where a simple shout or manually operated device is not adequate, it is likely that an electrical fire warning system will be required.

In more complex premises, particularly those with more than one floor, where an alarm given from any single point is unlikely to be heard throughout the building, an electrical system incorporating sounders and manually operated call points (Break Glass boxes) is likely to be required.

This type of system is likely to be acceptable where all parts of the building are occupied at the same time and it is unlikely that a fire could start without somebody noticing it quickly.

However, where there are unoccupied areas, or common corridors and circulation spaces in multi-occupied premises where a fire could develop to the extent that escape routes could be affected before the fire is discovered, automatic fire detection may be necessary.

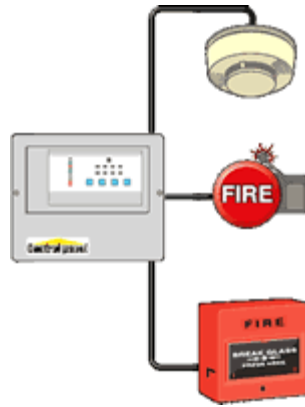


Fig. 1 Fire detection and warning system

An automatic fire detection and alarm system is normally considered necessary in the following buildings/situations:

- Buildings in which people sleep
- Covered shopping complexes and large or complex places of assembly
- Buildings with phased evacuation
- In compensation for a reduction in standards of certain other fire protection measures (e.g. extended travel distance or reduction in the fire resistance of construction protecting the escape route)
- In lieu of vision between an inner room and its associated access room
- As a means of automatically operating other fire protection measures such as closing fire doors, the release of electronically locked doors or initiation of smoke control systems

An appropriate FD&A system will warn everyone in the building at the earliest opportunity so that they can exit the building or follow other instructions that are issued, and to also alert the Fire Brigade to allow early intervention.

The FD&A system may be connected to other systems or equipment for the automatic control of fire protection measures, e.g. fire dampers or fixed extinguishing systems.

Manual call points

Manual call points, often known as "Break Glass" call points, enable a person who discovers a fire to immediately raise the alarm and warn other people in the premises of the danger.

People leaving a building because of a fire will normally leave by the way they entered. Consequently, manual call points are normally positioned at exits and storey exits that people may reasonably be expected to use, in case of fire, not just those designated as fire exits. However, it is not necessary in every case to provide call points at every exit.

Manual call points should normally be positioned so that, after all fixtures and fittings, machinery and stock are in place, no-one should have to travel more than 45m to the nearest alarm point. They should be conspicuous (red), fitted at a height of about 1.4m and not in an area likely to be obstructed.

Testing and maintenance

Your fire warning and/or detection system should be supervised by a named responsible person, who has been given enough authority and training to manage all aspects of the routing testing and scrutiny of the system.

Weekly fire alarm testing

The control and indicating equipment should be checked at least every 24 hours to ensure there are no specific faults. All types of fire warning systems should be tested once a week. For electrical systems, a manual call point should be activated (using a different call point for each successive test), usually by inserting a dedicated test key (see Figure 2.). This will check that the control equipment is capable of receiving a signal and in turn, activating the warning alarms. Manual call points may be numbered to ensure they are sequentially tested.

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Weekly fire alarm testing

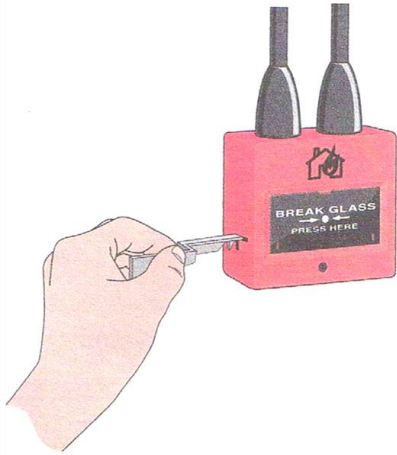


Fig. 2 Fire detection and warning system

It is good practice to test the alarm at the same time each week, but additional tests may be required to ensure that staff or people present outside normal working hours are given the opportunity to hear the alarm.

Maintenance

It is essential that fire detection and alarm systems are subject to periodic inspection and servicing, so that potential faults are identified and preventive measures can be taken to ensure the automated reliability of the system.

Periodic inspection of the fire alarm and detection system needs to be carried out by a competent person with specialist knowledge of fire detection and alarm systems.

The recommended period between successive inspection and servicing visits should not exceed six months. If a risk assessment shows a recommendation for more frequent inspection and servicing visits, then all interested parties should agree the appropriate inspection and servicing schedule.

Checklist

- Can the existing means of detection ensure a fire is discovered quickly enough for the alarm to be raised in time for all occupants to escape to a total place of safety?
- Are the detectors of the right type and in the appropriate locations?
- Can the means of warning be clearly heard and understood by everyone throughout the whole building when initiated from a single point? Are there provisions for people or locations where the alarm cannot be heard?
- If the fire detection and warning system is electrically powered, does it have a back-up power supply?



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