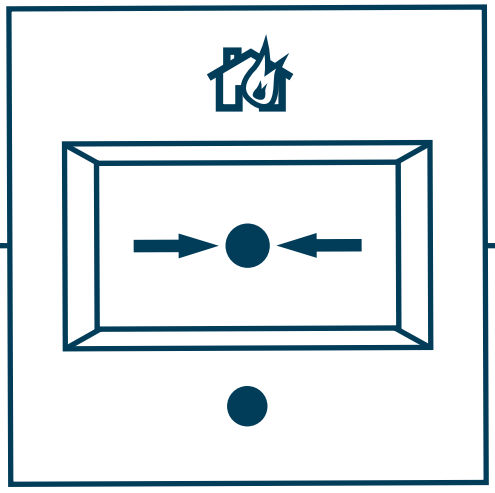
Guidance Note

Fire Industry Association



FIA Guidance on Manual Call Point - Protection - False Alarm Mitigation

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False Alarm Mitigation

1. INTRODUCTION

In conjunction with other partners, FIA conducted a research program with the Scottish Fire and Rescue Service into false alarms.

The report published in 2016 highlighted a number of sources of false alarm. Activation of a manual call point was shown as the cause of a false alarm for 12% of all false alarms in the survey. This was due to either physical impact on the call point or accidental or malicious activation.

The report concluded that by fitting of a protective cover on the call point it could reduce the level of false alarms by 16%.

As a result of the Scottish False Alarm Report (SFAR), it was decided to incorporate compensatory measures into the re-write of BS 5839 Part 1 (to be BS 5839 Part 1: 2017).

This guidance documents looks at the benefits of call point protection and where and how they should be fitted in line with recommendations in British Standards.

2. BS 5839-1 RECOMMENDATIONS

In the 2013 version of BS 5839-1, the fitting of protective covers was considered to be a variation to the recommendation to use Type A call points. This was because it was thought that by fitting a cover to a call point it was no longer a Type A call point but a Type B call point because it was considered as two actions to activate.

However, on reviewing the requirements of EN 54-11 (Annex A), moving a protective cover has not yet broken the frangible element and so the call point remains a type 'A' and is not therefore a type 'B' and so NO variation to BS 5839 Part 1 Clause 20 is required.

As a result BS 5839-1: 2017 Clause 20 (see annex B) has been amended as follows:

0.1 Recommendations

The following recommendations are applicable.

a) The method of operation of all manual call points in a system should be that of type A as specified in BS EN 54-11. All call points should be identical unless there is a special reason for differentiation.

NOTE 1 The Type A manual call point is defined in BS EN 54-11 as follows. "Type A Direct operation. A manual call point in which the change to the alarm condition is automatic (i.e. without the need for further manual action) when the frangible element is broken or displaced."

NOTE 2 The fitting of a protective ~~hinged~~ cover to the type A manual call point is not deemed to conflict with 20.2a).

b) ~~Other than in premises occupied predominantly by trained staff~~, **All** manual call points should be fitted with a **protective** ~~hinged~~ cover, which is ~~lifted~~ **moved** to gain access to the frangible element.

As a Code of Practice is not retrospective, there is no requirement to fit protective covers to existing installations. It would be prudent however, to suggest to the end user that protective covers be fitted to any call point that has evidence of initiating, or has the potential to initiate a false alarm.

3. TYPES OF PROTECTION

The recommendations from the SFAR suggested that all manual call points should be fitted with a protective cover to help reduce incidents of accidental activation of the call point due to breaking the 'glass'. Also, the recommendations included, in certain vulnerable areas, side impact protection for the call points to prevent inadvertent operation due to impact from trolleys and other such objects.

3.1 Activation protection

There are three basic categories of false activation requiring protection:

I. Accidental - misunderstanding of unit, ie fumbling for light switch, confused with door release

II. Opportunist - passing nuisance, ie school prank/drunken fun

III. Malicious - Deliberate attempt to operate, ie casual vandal

Examples:

- Manufacturers' own simple transparent hinged cover.
- Hinged cover supplemented by area covered by Video Protection System and well signed.
- Manufacturers' own simple transparent hinged cover complete with (polypropylene) breakable seal.
- Third party designed cover-all transparent spring loaded hinged cover.
- Third party designed cover-all transparent spring loaded hinged cover complete with built in local alarm which sounds prior to full access to the frangible element.

Figure 1 Hinged cover

Figure 2 Spring loaded hinged cover complete with built in local alarm

3.2 Impact protection

There are three basic categories of false activation requiring protection:

I. Pressure on frangible element – clumsy, ie shoulder bag swinging

II. Object striking the MCP – accidental, ie football in gym/stock item falling

III. Vehicular contact - ranging from push-along trolley to forklift truck

Examples:

- Manufacturers' own simple transparent hinged cover.
- Third party designed cover-all transparent spring loaded hinged cover.

- Purpose designed and installed local protection, ie wedge shaped picture frame
- Purpose designed and installed floor or wall deflector, ie bollard, barrier or dado rail
- Purpose designed heavy duty open fronted enclosure. (be mindful of standards)

Figure 3 Wall deflector

Figure 4 Local protection

4. PROTECTION REQUIREMENTS

4.1 General

Manual call points need to be prominently sited and visually distinguishable. Even in situations where they have been flush-mounted in locations where they will be seen, this can still result in accidental or malicious damage.

Although the recommendations in BS 5839-1 for siting manual call points in relation to false alarms (35.2.2) states they should not be located where they are likely to be exposed to accidental damage, in reality this is not always feasible.

Potential hazards include impact by, but not limited to:

- Trolleys
- Fork Lifts
- Trucks/dollys
- People traffic
- Hospital Beds
- Cleaning operations

Protection should be selected appropriate to the source of false alarms and taking into account the application. Items to consider when selecting the type of protection are given in 4.2 below.

4.2 Selection of protection

There is a need to keep a clear space around all fire detectors and call points, protection should be appropriately selected taking the following into account:

Ability to test the call point: Where the protection completely surrounds the call point, care should be taken to ensure that any test/reset key can be easily fitted without inhibition.

Ability to see any indication: Where the protection completely encloses the call point should not inhibit any indication that the call point has been activated.

Ability to operate/maintain: Consideration should be taken so that the protection can be fully opened without obstruction. For example, a cover that strikes a shelf or wall and does not open fully would not be suitable.

Ability to replace seals: Where anti-tamper seals are fitted to the protection it should only be replaced by a seal that requires a similar force to break.

Ability to transmit/receive radio signals (radio fire alarm systems only): Consideration needs to be taken into account so that the protective cover does not impede or inhibit the radio signal of a radio fire alarm systems. Advice should be sought from the manufacturer.

ANNEX A EN 54-11:2001 DEFINITIONS

EN 54-11: 2001 Definitions

3. Terms and definitions

3.4.1

Type A: direct operation

a manual call point in which the change to the alarm condition is automatic, (ie without the need for further manual action) **when the frangible element is broken or displaced**.

3.4.2

type B: indirect operation

a manual call point in which the change to the alarm condition requires a separate manual operation of the operating element by the user **after the frangible element is broken or displaced**.

Annex B BS 5839-1: 2017 Clause 20

BS 5839-1: 2017 Clause 20 is reproduced below.

1 Manual call points

1.1 Commentary

Manual call points (MCPs) need to be prominently sited, readily distinguishable from non-fire alarm call points and need to be distributed such that, from any point in the building, it is impossible to leave the storey or the building without passing a manual call point.

Sufficient call points need to be provided to minimize, to a reasonable extent, the delay between discovery of a fire and the sounding of the alarm. Where the fire hazard level is high and rapid fire development is anticipated, this delay needs to be commensurately shorter.

Manual call points can, if present in unsupervised areas, be subject to malicious operation. For this reason, they are not normally provided in, for example, public common areas of shopping complexes and certain public houses. In public car parks within a building, use of an emergency voice communication system could be considered instead of manual call points.

In the event of an evacuation signal, people evacuate the building via an exit that leads to a place of ultimate safety, that is, a place in which there is no immediate or future danger from fire.

To conform to BS 5839-1, MCPs are sited adjacent to all storey exits and exits to open air that lead to a place of ultimate safety.

Therefore, if, for example, a door leads to an enclosed courtyard that is in the open air but has no exit to a place of ultimate safety, this door would not need to be provided with an MCP as the provision of an MCP at this point could infer that the door leads to a place of safety. Moreover, to escape, people would need to re-enter the building and would therefore be afforded an opportunity to operate the fire alarm system on their route to a suitable exit. Similarly, the same would apply to a door leading to a flat roofed area from which there is no suitable means of escape (eg external escape stairway).

Where roller shutter doors lead to open air, consideration needs to be given as to whether a MCP needs to be provided at each shutter. There are two scenarios to consider.

a) If the roller shutter or similar exit can be used as a means of safe egress from the premises to a place of ultimate safety, an MCP is provided adjacent to the roller shutter because in the event of a fire, people in the vicinity of the roller shutter are more likely to leave the premises via the roller shutter rather than a designated fire exit or normal egress door; this is not necessary if there is a MCP in close proximity to the door (eg adjacent to a nearby pedestrian exit door or other roller shutter).

b) If the roller shutter cannot be used as a means of safe egress from the premises to a place of ultimate safety, MCPs might not need to be provided.

1.2 Recommendations

The following recommendations are applicable.

c) The method of operation of all manual call points in a system should be that of type A as specified in BS EN 54-11. All call points should be identical unless there is a special reason for differentiation.

NOTE 1 The Type A manual call point is defined in BS EN 54-11 as follows. "Type A Direct operation. A manual call point in which the change to the alarm condition is automatic (ie without the need for further manual action) when the frangible element is broken or displaced."

NOTE 2 The fitting of a hinged cover to the type A manual call point is not deemed to conflict with 20.2a).

d) All manual call points should be fitted with a protective cover, which is moved to gain access to the frangible element.

e) The delay between operation of a manual call point and the giving of an 'Evacuate' signal in, at least, the alarm zone within which the call point is located should not exceed three seconds.

NOTE 3 BS EN 54-2 permits a delay of up to 10s, in the response of control equipment; accordingly, a delay of 10s may be acceptable, subject to the agreement of the relevant enforcing authority and the recording of the delay as a variation on the completion certificate.

f) Manual call points should be located on escape routes and, in particular, at all storey exits and all exits to open air that lead to an ultimate place of safety (whether or not the exits are specifically designated as fire exits).

Those located at storey exits may be sited within the accommodation or on the landing of a stairway to which the storey exit gives access. In multistorey buildings with phased evacuation, in which only a limited number of floors are evacuated at one time, only the former option applies; under these circumstances, manual call points should not be located on stairway landings, as persons travelling down the stairway might operate a manual call point several floors below that on which a fire is located, resulting in evacuation of inappropriate areas.

g) Distribution of manual call points should be such that no one need travel more than 45 m [except where **20.2f**) applies] to reach the nearest manual call point, measured along the route that a person would actually follow taking into account the layout of walls, partitions and fittings. If, at the design stage, the final layout of the premises is unknown, the maximum straight line distance between any point in the building and the nearest manual call point should not exceed 30 m [except where **20.2f**) applies]; after final fit out of the premises, the limit of 45 m should still then apply.

NOTE 4 These distances are arbitrary, but reflect the maximum acceptable distances between any point and the nearest storey exit commonly applied to many premises.

h) The figures of 45m and 30m quoted in d) should be reduced to 25m and 16m respectively in the following circumstances:

1) where a significant proportion of occupants have limited mobility and it can reasonably be anticipated that one of these occupants will be the appropriate person to first operate the fire alarm system in the event of fire; or

2) where processes in the area result in the likelihood of rapid fire development (eg where there is use, or processing, of highly flammable liquids or flammable gases).

i) Where specific equipment or activities result in a high fire hazard level (eg kitchens or cellulose paint spraying), a manual call point should be sited in close proximity.

NOTE 5 In both examples given above other considerations also apply. Kitchens or food preparation areas might require the use of a non-glass frangible element to avoid the possibility of food contamination with glass fragments. The spraying area might require the use of equipment certified for use in potentially explosive atmospheres (see Clause 10).

j) In buildings with phased evacuation, additional manual call points are necessary to ensure that a manual call point is located at every designated exit from an alarm zone.

k) Manual call points should be fixed at a height of 1.4m above finished floor level, at easily accessible, well-illuminated and conspicuous positions free from potential obstruction. They should be sited against a contrasting background to assist in easy recognition. A lower mounting height is acceptable in circumstances where there is a high likelihood that the first person to raise an alarm of fire will be a wheelchair user.

NOTE 6 The measurement ought to be made between the finished floor level and the centre point of the frangible element.

NOTE 7 The figure of 1.4m is arbitrary, but reflects long established custom and practice. A minor difference (e.g. less than 300 mm) in mounting height (eg to align with the mounting height of light switches) need not be regarded as significant, nor need it be recorded as a variation.

NOTE 8 Guidance in support of national building regulations (e. in England and Wales, Approved Document M [5] under the Building Regulations 2010 [2]) recommends that switches and controls be mounted no higher than 1.2m above floor level, so that they are accessible for disabled people.

l) Manual call points may be flush-mounted in locations where they will be seen readily but, where they will be viewed from the side (eg corridors), they should be surface mounted or only semi-recessed with the front face proud of the mounting surface by no less than 15 mm.

m) In public car parks, any use of an emergency voice communication system in lieu of manual call points should be subject to approval by the relevant enforcing authority, and the system should conform to BS 5839-9. All outstations should be Type B outstations as defined in BS 5839-9. The master station should be sited in a permanently manned location, such as a control room.

DISCLAIMER
The information set out in this document is believed to be correct in the light of information currently available but it is not guaranteed and neither the Fire Industry Association nor its officers can accept any responsibility in respect of the contents or any events arising from use of the information contained within this document.

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