

# Firecode – fire safety in the NHS Health Technical Memorandum 05-03: Operational provisions

*Part H: Reducing false alarms in healthcare premises*



*Second edition*

# **Firecode – Fire safety in the NHS**

## **Health Technical Memorandum**

### **05-03: Operational provisions**

**Part H: Reducing false alarms in healthcare premises**

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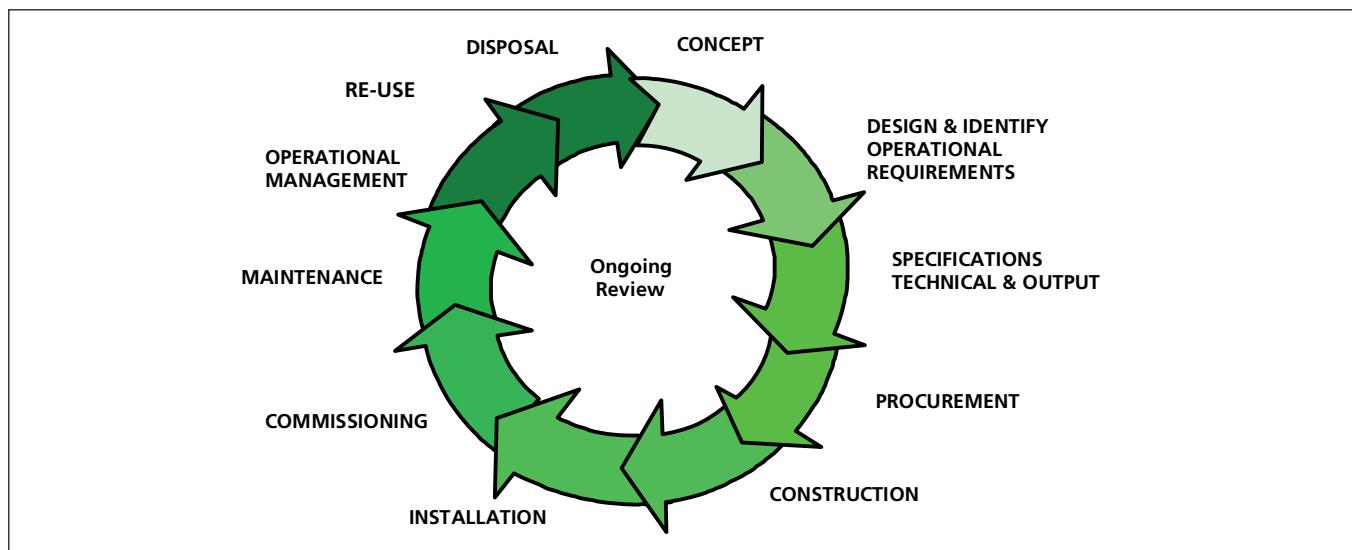
# Preface

## About Health Technical Memoranda

Health Technical Memoranda (HTMs) give comprehensive advice and guidance on the design, installation and operation of specialised building and engineering technology used in the delivery of healthcare.

The focus of Health Technical Memorandum guidance remains on healthcare-specific elements of standards, policies and up-to-date established best practice. They are applicable to new and existing sites, and are for use at various stages during the whole building lifecycle.

Figure 1 Healthcare building life-cycle



Healthcare providers have a duty of care to ensure that appropriate governance arrangements are in place and are managed effectively. The Health Technical Memorandum series provides best practice engineering standards and policy to enable management of this duty of care.

It is not the intention within this suite of documents to unnecessarily repeat international or European standards, industry standards or UK Government legislation. Where appropriate, these will be referenced.

Healthcare-specific technical engineering guidance is a vital tool in the safe and efficient operation of healthcare facilities. Health Technical Memorandum guidance is the

main source of specific healthcare-related guidance for estates and facilities professionals.

The core suite of nine subject areas provides access to guidance which:

- is more streamlined and accessible;
- encapsulates the latest standards and best practice in healthcare engineering, technology and sustainability;
- provides a structured reference for healthcare engineering.

## Structure of the Health Technical Memorandum suite

The series contains a suite of nine core subjects:

Health Technical Memorandum 00

Policies and principles (applicable to all Health Technical Memoranda in this series)

Health Technical Memorandum 01  
Decontamination

Health Technical Memorandum 02  
Medical gases

Health Technical Memorandum 03  
Heating and ventilation systems

Health Technical Memorandum 04  
Water systems

Health Technical Memorandum 05  
Fire safety

Health Technical Memorandum 06  
Electrical services

Health Technical Memorandum 07  
Environment and sustainability

Health Technical Memorandum 08  
Specialist services

Some subject areas may be further developed into topics shown as -01, -02 etc and further referenced into Parts A, B etc.

Example: Health Technical Memorandum 06-02 represents:

Electrical Services – Electrical safety guidance for low voltage systems

In a similar way Health Technical Memorandum 07-02 represents:

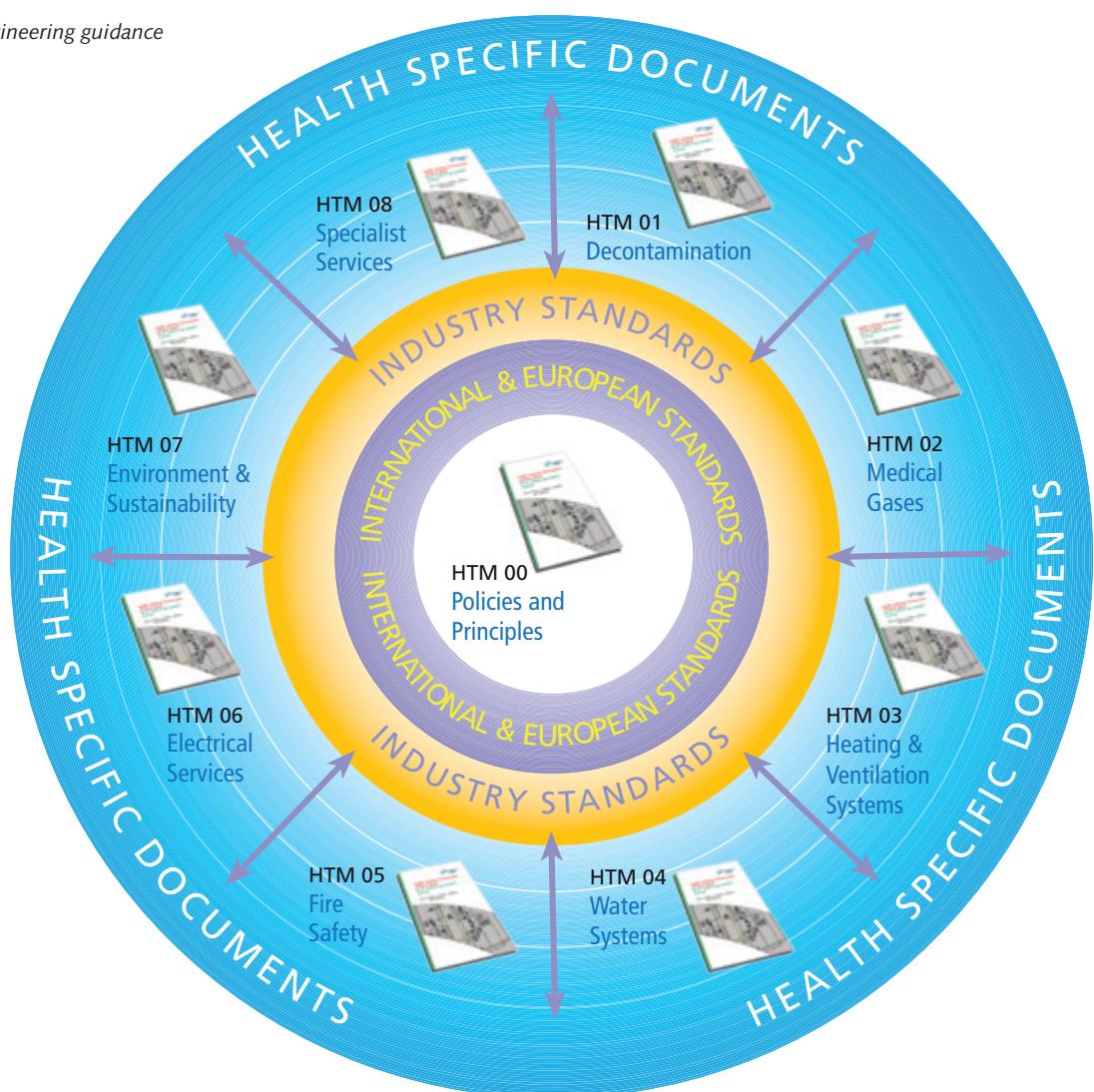
Environment and Sustainability – EnCO<sub>2</sub>de.

All Health Technical Memoranda are supported by the initial document Health Technical Memorandum 00 which embraces the management and operational policies from previous documents and explores risk management issues.

Some variation in style and structure is reflected by the topic and approach of the different review working groups.

DH Estates and Facilities Division wishes to acknowledge the contribution made by professional bodies, engineering consultants, healthcare specialists and NHS staff who have contributed to the production of this guidance.

Figure 2 Engineering guidance



# Executive summary

This Health Technical Memorandum sets out recommendations and guidance for the reduction of unwanted fire signals (UwFS; see [paragraph 1.6](#)) generated by automatic fire detection and alarm systems within healthcare premises.

It is intended for use throughout healthcare premises, including the acute and primary care sectors.

As part of the fire safety management of healthcare premises, the number of unwanted fire signals should be minimised. Instances of unwanted fire signals impact upon the treatment and care of patients and can result in the loss of appointments, disruption to care and treatment regimes, and can significantly affect staff morale.

This document has been produced as part of the national Government campaign led by HM Fire Service Inspectorate and the Home Office to reduce false alarms generated by automatic fire detection systems.

It has been prepared in consultation with the National Fire Policy Advisory Group, which is chaired by the Department of Health's Estates and Facilities Division and includes representatives from:

- the Department for Communities and Local Government;
- the Chief and Assistant Chief Fire Officers Association;
- the Royal Institute of Chartered Surveyors;
- the Building Research Establishment (BRE);
- the National Association of Hospital Fire Officers;
- the NHS.

Her Majesty's Fire Service Inspectorate will distribute this Health Technical Memorandum to all Chief Fire Officers. It should form the basis of discussions and liaison with local fire services.



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# 1 Introduction and scope

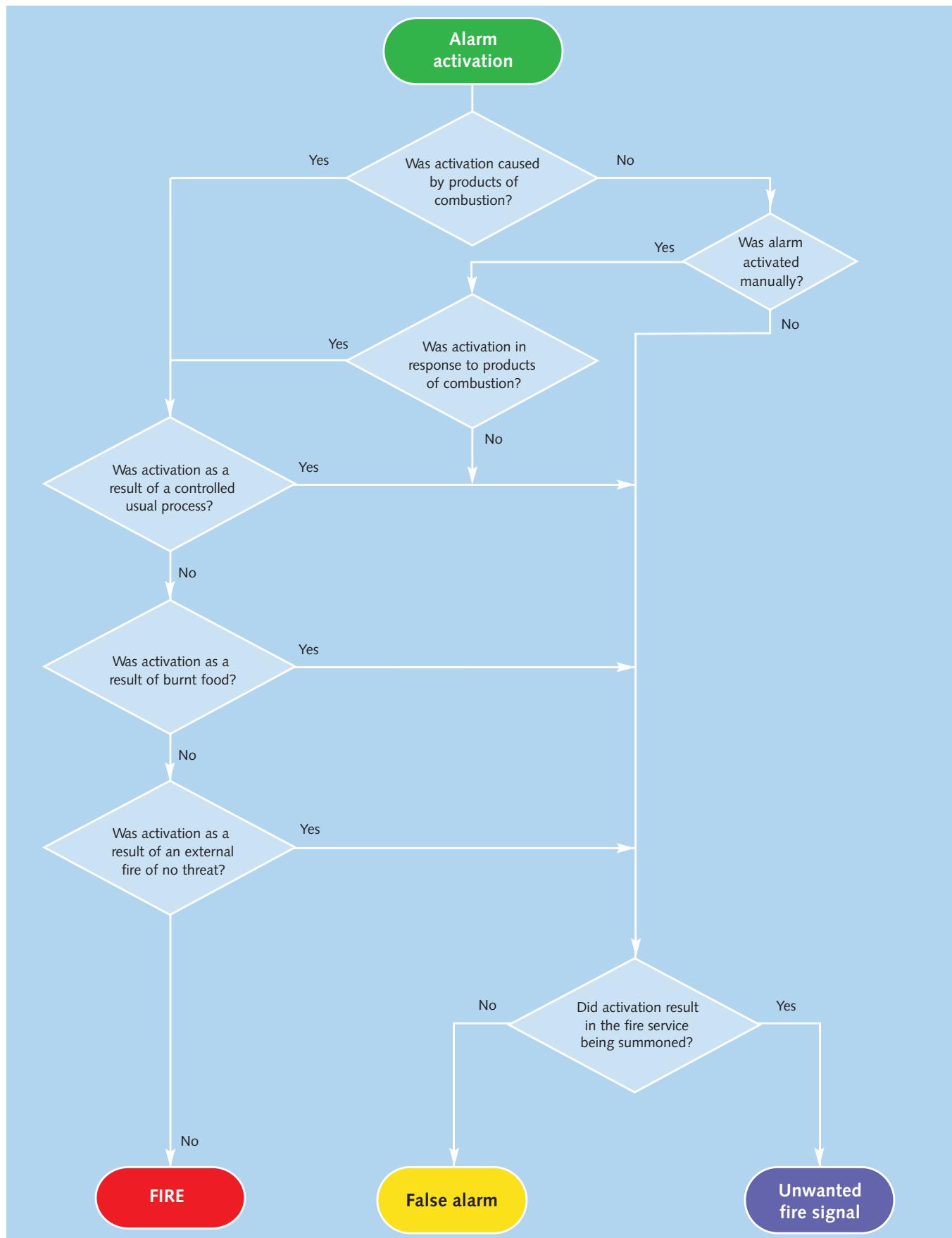
## General application

- 1.1 Health Technical Memorandum 05-03 Part H – ‘Reducing false alarms in healthcare premises’ provides guidance in respect of the measures necessary to identify, control and reduce false alarms in healthcare premises. The guidance is intended to reduce the burden placed on NHS organisations and fire services by avoidable, unnecessary fire calls (false alarms and unwanted fire signals).
  - 1.2 The Health Technical Memorandum includes guidance on the causes of false alarms and practical guidance for reducing their occurrence. In addition, guidance is included in respect of the management of false alarms and reasonable levels of false-alarm activation based upon the number of automatic devices included in the system installation.
  - 1.3 It has been updated from previous revisions to reflect the introduction of a policy by the Chief Fire Officers Association (CFOA) for the reduction of false alarms and unwanted fire signals.
  - 1.4 The recommendations of this Health Technical Memorandum should be read in conjunction with Health Technical Memorandum 05-03 Operational provisions Part B – ‘Fire detection and alarm systems’ and BS 5839-1.
  - 1.5 The recommendations cannot take account of all situations. It is therefore incumbent upon the organisation’s management to ensure that full consideration has been given to any problem and its resolution.
- **Fire** – a fire can be regarded as an incident resulting in the uncontrolled emission of heat and/or smoke;
- **False alarm** – activation of the fire detection and alarm system resulting from a cause other than fire.
- 1.8 In accordance with the CFOA policy, a false alarm becomes an unwanted fire signal at the point the fire-and-rescue service is requested to attend.
  - 1.9 The ‘incident classification decision tree’ on [page 2](#) may assist in identifying the type of incident that has occurred for recording and reporting purposes.
  - 1.10 False alarms may be subdivided into four categories as defined in BS 5839-1:
- unwanted alarms, in which a system has responded, either as designed or as the technology may reasonably be expected to respond, to any of the following:
    - (i) a fire-like phenomenon or environmental influence (for example smoke from a nearby bonfire, dust or insects, processes that produce smoke or flame, or environmental effects that can render certain types of detector unstable, such as rapid airflow);
    - (ii) accidental damage;
    - (iii) inappropriate human action (for example operation of the system for test or maintenance purposes without prior warning to building occupants and/or an alarm receiving centre);
  - equipment false alarms, in which the false alarm has resulted from a fault in the system;
  - malicious false alarms, in which a person operates a manual call point or causes a fire detector to initiate a fire signal, whilst knowing that there is no fire;
  - false alarms with good intent, in which a person operates a manual call point or otherwise initiates a fire signal in the belief that there is a fire, when no fire actually exists.

## Definitions

- 1.6 In order to identify incidents of false alarms correctly, it is necessary to define the sources of fire detection and alarm system activation.
- 1.7 The causes of fire detection and alarm system activation can be broadly classed as one of two incident types: fire; or false alarm. These incidents can be defined as follows:

Figure 1 Incident classification decision tree



## Note

The definition of “false alarm with good intent” used by the NHS differs from that detailed within the CFOA policy. Activation of a manual call point, even in the belief that there is a fire, will result in a call to the fire service reporting that the fire-alarm system has been activated, since it is unlikely that an operator making the call would be aware of the exact nature of the incident raising the alarm. If no fire is discovered, the fire service is likely to record the incident as a false alarm resulting from activation of the automatic fire-alarm system.

- 1.11 False alarms should be categorised in order to identify their causes, record and report their occurrence, and allow appropriate actions to be decided on for their reduction. See [Chapter 5, ‘Categories of false alarm’](#).
- 1.12 Following any false alarm, an investigation should take place to identify the cause. The ‘Categories of false alarm’ should be used to ascertain the class of cause of the incident. These categories should be used in all false alarm recording and reporting.

## Reasonable level of false alarms

- 1.13 The occurrence of a false alarm is detrimental to the operation of any healthcare facility. Such instances lead to disruption of service and impact upon patient care, increased costs, and unnecessary risk to those required to respond to the alarm raised.
- 1.14 While all reasonable means of minimising false alarms should be employed, it is recognised that the complete elimination of false alarms is impossible. It is therefore necessary to determine a reasonable level of false alarms so that an organisation can measure its performance and respond accordingly to its false-alarm rate.
- 1.15 An organisation’s false-alarm rate will be influenced by a variety of factors, including the building size and the number of detectors/call-points associated with a fire detection system, the activities carried out within the building, the building location, and its management.
- 1.16 The main influence on the rate of false alarms generated by a system is likely to be the number of automatic detectors connected to that system. However, with large complex sites, it is possible that more than one system may be installed. Also, many sites are operated by more than one

organisation (management entity). It is therefore appropriate to determine a reasonable ratio of false alarms to the number of automatic detectors installed per unit, regardless of the number of systems utilised. For the purposes of this Health Technical Memorandum, a unit refers to a site (or part thereof) controlled by a single management entity.

- 1.17 A unit’s performance in managing false alarms should be calculated and graded in order to ascertain its current performance levels and to determine appropriate goals for annual continuous improvement. The unit’s performance should be calculated using the following formula:

$$x = D \div A$$

where:

$x$  = performance;

$D$  = number of automatic detectors and manual call points utilised by the unit;

$A$  = number of false alarms generated by the unit in the last 12 months.

- 1.18 A unit generating 64 false alarms from a system comprising 2500 automatic detectors and manual call points will achieve a performance of 39 detector years.
- 1.19 A reference chart enabling organisations to assess their grading is provided in [Chapter 6, ‘Performance-level grading charts’](#). In the above example, the unit’s performance would be grade C, and measures should be taken to reduce the incidence of false alarms by at least 40% in the following 12-month period.
- 1.20 All healthcare providers should put measures in place to minimise their false alarms. Each unit should identify their current level of false alarms and set the corresponding continuous improvement goal as a key performance indicator within their management controls.
- 1.21 Since unwanted fire signals involve the summoning of the local fire-and-rescue service, they impact on the activity and availability of resources to deal with emergencies. For this reason, the CFOA policy introduces performance criteria in respect of unwanted fire signals.
- 1.22 The performance criteria set out in the CFOA policy are based upon three levels of performance with values broadly corresponding to those above

<b>Grading</b>	<b>Unit's performance</b>	<b>Annual continuous improvement goal</b>
A	$\geq 100$	Performance should be maintained
B	$100 > x < 50$	10% reduction in false alarms
C	$< 50$	40% reduction in false alarms

(albeit that the CFOA policy refers to unwanted fire signals as opposed to false alarms).

- 1.23 Guidance contained within the CFOA policy suggests that, where the number of unwanted fire signals generated by a system is other than performance level 1, the fire-and-rescue service may seek to reduce their attendance levels in response to calls of an automatic fire alarm system activation following a process of consultation.
- 1.24 The CFOA policy sets out three levels of attendance as follows:
- a. Attendance level one is an immediate emergency response, resulting in an initial attendance based on a risk assessment of the fire-fighting requirements that will be not less than one fire appliance.
  - b. Attendance level two – in the absence of a confirmation call via the 999 system, the fire-and-rescue service will make an attendance based on a risk assessment of the fire-fighting

requirements. The attendance may be made under non-emergency conditions, thereby maintaining the availability of the resources for confirmed emergencies and protecting the public from the risk that arises from fire engines responding under emergency conditions.

- c. Attendance level three – no emergency response until a confirmation of fire is received from the premises via the 999 system or from some other acceptable source. Such confirmation will result in a full or enhanced emergency response depending on the information received.
- 1.25 Any reduction in fire-service attendance is undesirable, and a detailed assessment of the risk of such a reduction in fire service response should be undertaken and reflected in the fire risk assessments and emergency action plans for the premises. In any case, such action should be reported to the Responsible Person as defined by the Regulatory Reform (Fire Safety) Order 2005.

## 2 Management and responsibilities

- 2.1 All NHS organisations are required to discharge their responsibilities under the Regulatory Reform (Fire Safety) Order 2005 (the FSO) and to ensure that risks due to fire have been adequately mitigated.
- 2.2 The issue of false alarms is a subset of fire safety. A detection and alarm system that exhibits a significant level of false alarms will lead to a reduction over time in efficacy of response to an alarm condition.
- 2.3 Research has shown that many of the causes of false alarms are the result of usual processes not being adequately controlled, for example cooking fumes or smoke from hot-works activating smoke detection. Failure to adequately control such processes could result in the process becoming the cause of a fire incident. Therefore the process control required to prevent false alarms is also likely to be required to prevent fire.
- 2.4 A high level of false alarms is symptomatic of failings in adequately managing fire safety issues within the organisation.
- 2.5 The CFOA policy recognises that a high level of unwanted fire signals may be an indicator of inadequate fire safety management. It recommends that fire-and-rescue services should make use of the FSO on any occasion that false alarms have a detrimental impact on the fire safety of any relevant person, in order to bring about improvement in fire safety management – including a reduction in false alarms. Such an approach may ultimately lead to enforcement action under the FSO.
- 2.6 Fire safety management needs to reflect the need to minimise unwanted fire signals.
- 2.7 Notwithstanding the need to minimise false alarms and unwanted fire signals, it is essential that measures put in place to meet this aim do not detract from the level of fire safety afforded to patients.

### Roles and responsibilities

- 2.8 A framework for the management of fire safety is established in Health Technical Memorandum 05-01 – ‘Managing healthcare fire safety’. This document sets out specific responsibilities in respect of fire safety, including the minimisation of false alarms, for those working in healthcare.
- 2.9 The Board should set in place the policies necessary to minimise false alarms.
- 2.10 All staff within an organisation have a responsibility to minimise false alarms. It is incumbent on all staff to reduce false alarms wherever possible, by controlling their environment, processes and actions to avoid unnecessary activation of the fire detection and alarm system.
- 2.11 To this end, the fire safety training curriculum that is developed should include instruction in the causes of false alarms, means of minimising their occurrence, and actions to be taken to avoid unnecessary disruption. Further instruction should be provided in incident recording, reporting and remedial action.
- 2.12 The Fire Safety Manager has responsibility for all aspects of fire safety, including the monitoring and mitigation of false alarms.
- 2.13 The Fire Safety Manager should co-ordinate sufficient site engineering resources to ensure availability throughout the hours of the unit’s operation, with an on-call response at other times.
- 2.14 The organisation should have in place necessary arrangements to ensure prompt attendance in the event of a fire alarm or reported fault. Information should be recorded in the fire detection and alarm system logbook following any actuation of the system.

### Incident recording and reporting

- 2.15 All incidents of false alarms should be reported to the Fire Safety Manager as soon as practicable following the incident and, in any case, within 24 hours of the incident’s occurring.

- 2.16 It is generally accepted that up to 80% of the details surrounding an incident are lost within 48 hours of it happening. It is therefore important that details surrounding all false-alarm incidents are accurately recorded as soon as possible following the incident.
- 2.17 Information recorded and/or displayed by the fire detection and alarm system is vital in positively determining the cause of alarm activation, and in some cases is the only means of establishing the sequence of events. It is important that such information is preserved. Once all relevant information has been recorded, the duty engineer should reset the fire detection and alarm system followed by, where appropriate, consultation with the fire service officer attending the incident. A subsequent incident in the location of the activated detection device might not sound a further alarm until the system is reset. Following activation and prior to the system being reset it is imperative that a constant watch is maintained throughout the area in which a device has activated.
- 2.18 Wherever possible, agreement should be reached with the fire service officer attending the incident as to the probable cause. The categories shown in **Chapter 5, ‘Categories of false alarm’** should be used to identify the cause of the incident. The completed briefing should be submitted to the Fire Safety Manager for recording and further action.
- 2.22 In order for the organisation to adequately address the issue, accurate records of all false alarms should be maintained. The organisation should set in place a mechanism to review the organisation’s false-alarm performance, and arrangements to mitigate such incidents.
- 2.23 In tackling the issue of false alarms it is important to involve the appropriate stakeholders. These may include:
- Fire Safety Manager;
  - Fire Safety Advisor (where appointed);
  - staff representative;
  - fire detection and alarm system maintainer;
  - fire detection and alarm system manufacturer;
  - local fire service representative;
  - Estates Manager;
  - staff residences representative;
  - Planning Department officer;
  - contractors (as appropriate).
- 2.24 This list is not exhaustive; other stakeholders may be required depending on the nature of false alarms experienced and their causes. For example, it may be necessary to include the local authority pest control officer if a number of false alarms are attributable to insect infestations. It is not expected that all stakeholders will attend every meeting, as the attendance at each meeting should be tailored to the main reported causes of false alarms in the organisation.

## Investigation and review

- 2.19 The Fire Safety Manager should investigate the circumstances surrounding every false-alarm incident in order to positively identify its cause, and to record the cause using the categories shown in **Chapter 4, ‘Categories of false alarm’**. Details of false alarms should be presented to the Board on a regular basis.
- 2.20 The Fire Safety Manager should investigate the circumstances surrounding every false-alarm incident in order to positively identify its cause, and to record the cause using the categories shown in ‘Categories of false alarm’. Details of false alarms should be presented to the Board on a regular basis.
- 2.21 All false alarms (including unwanted fire signals) should be reported annually as part of Estates Return Information Collection (ERIC) returns. For local management arrangements, **Chapter 8, ‘Incident briefing information’** and **Chapter 9, ‘Fire incident report’** may be helpful.
- 2.25 Many fire-and-rescue services have personnel dedicated to the reduction of false alarms and unwanted fire signals. Close liaison with the fire service regarding false alarm performance and determining the appropriate measures to be taken to reduce their levels is essential to fostering joint understanding and avoiding undue burden to either party.
- 2.26 The purpose of this liaison with the fire-and-rescue service is to review the organisation’s performance, the main causes of false alarms and unwanted fire signals in that organisation, and the steps necessary to reduce their occurrence.
- 2.27 The organisation should devise a strategy to reduce the number and frequency of false alarms and unwanted fire signals generated by the organisation. The strategy should be submitted to the Board for

- prioritisation against other risks. Full consideration should be given to the means of false-alarm reduction described in [Chapter 4, ‘Limiting false alarms’](#).
- 2.28 Once a strategy has been agreed, the group should meet to monitor progress and review the false-alarm performance improvements achieved.
- 2.29 Details of false-alarm performance and of any improvements made should be included in the annual fire safety report to the Board.

## 3 Causes of false alarms

- 3.1** This chapter provides an illustration of the data recorded on the efm-information system and the previous research carried out to identify the causes of false alarms in healthcare premises. While the information presented is representative of the scope of data available from each source, it is recommended that data is collated and presented in a similar format for each organisation to allow specific false alarm and unwanted fire signal reduction measures to be developed.

### Note

The efm-information system provides a secure facility to enable efficient data collection and analysis. The system is for use by estates and facilities departments in NHS trusts and primary care trusts (PCTs) within England and Wales.

that the major cause of unwanted activation of the fire detection and alarm system (22%) is recorded in the “environmental – other” category. This category is used to record false-alarm incidents involving steam, dust, electrical and other environmental influences. While most false-alarm incidents have been recorded in this category, the proportion of false alarms likely to have been caused by the subcategories of steam, dust etc is thought to be much lower than other individual causes.

### Analysis of data

- 3.2** A breakdown of the reported false-alarm causes in healthcare is given in the figure below. This shows

- 3.3** Fumes from cooking are seen as a major cause of false-alarm activation and at 18% represent a significant issue that needs to be addressed.
- 3.4** As significant as false alarms originating from cooking fumes are those arising from system faults and system-design issues such as inappropriate detection for the activities undertaken in that area.
- 3.5** A further breakdown of the reported causes of false alarms is given in the figure below, which indicates the types of room/area in which a false alarm is

Figure 2 Reported causes of false alarms in healthcare premises

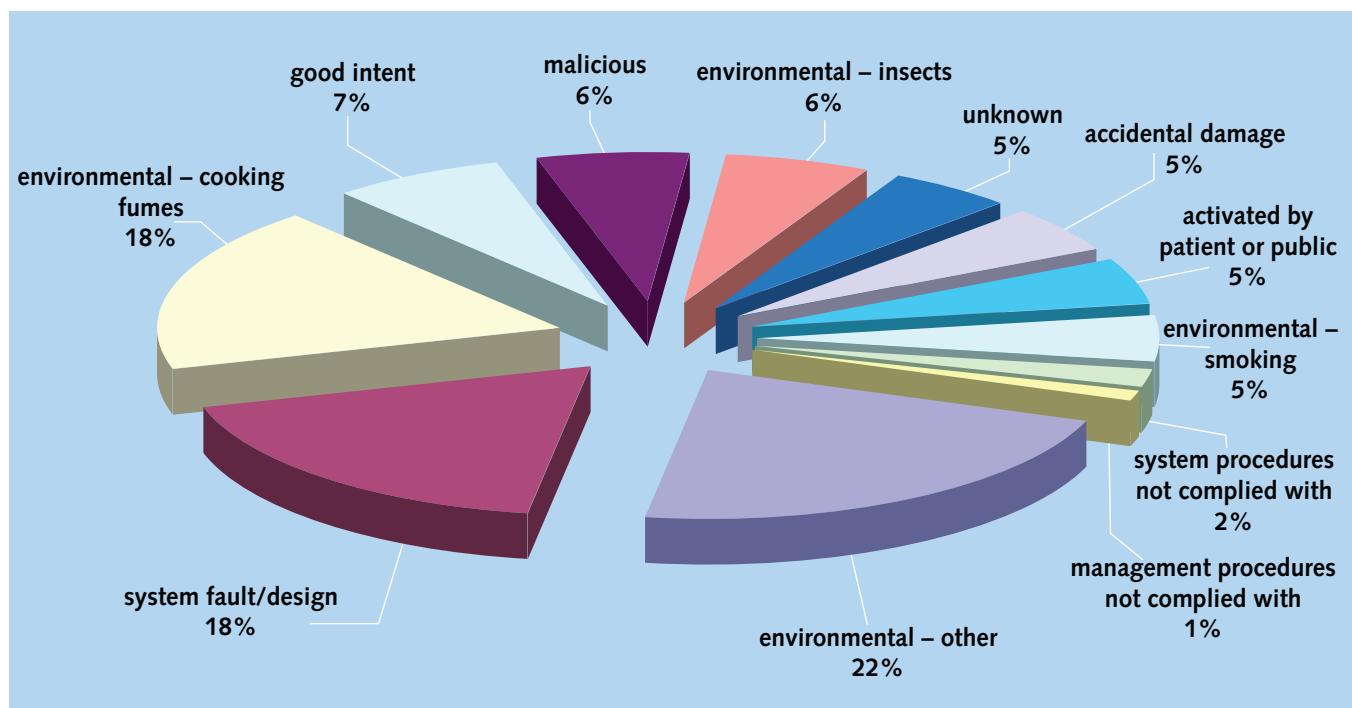
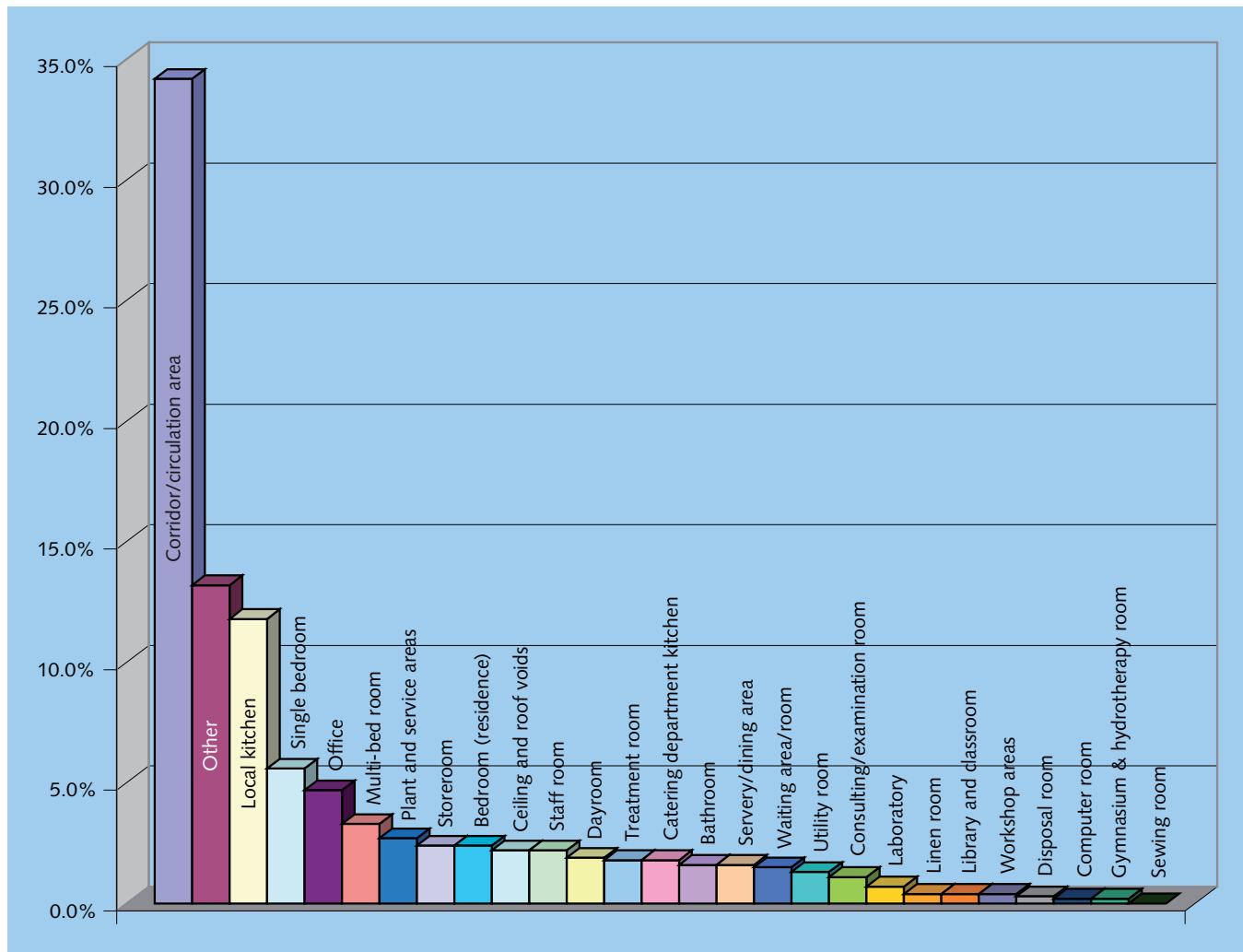


Figure 3 Types of room/area in which a false alarm is most likely to occur



most likely to occur. This shows that most false-alarm activations (34%) occur within corridors and circulation areas. It is thought that this reflects the activation of the fire detection and alarm system by means of manual call points, which includes:

- incidents of malicious activation;
- activation by patients or the public;
- accidental damage; and
- alarms of good intent.

- 3.6 It was previously identified that a significant number of false alarms were initiated within corridors and circulation areas as a result of cooking fumes permeating beyond the kitchen via an open door into the corridor. Therefore, kitchen doors leading to corridors should not be held open. Where this is unavoidable, smoke detectors should not be sited in the immediate vicinity of the kitchen door.

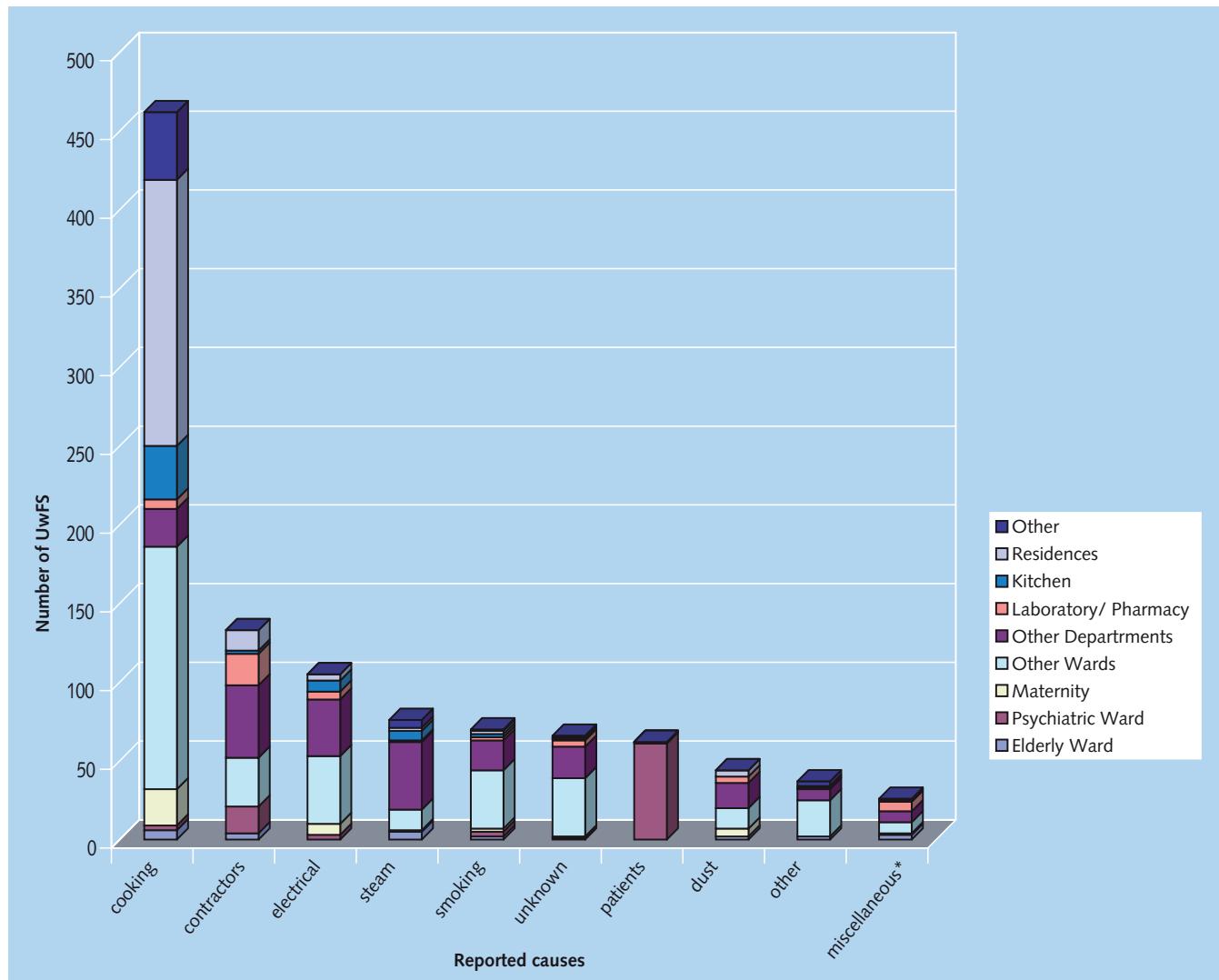
3.7 Reports of “other” room locations accounting for 13% of reported false alarms do not allow specific analysis, since the exact location is not known. Such incidents are thought to have started within rooms not specifically identified in the reporting system.

3.8 A significant number of false alarms are reported to have started in local kitchens. It is thought that most of these false alarms are as a result of inappropriate detection being provided to the kitchen area.

## Research findings for false alarms in acute healthcare premises

- 3.9 Previous research into the causes of false alarms provided a comparison between the main causes of false alarms and the areas in which those incidents were likely to take place. While the data from the efm-information system currently does not allow

Figure 4 Causes of false alarms and their locations



such a detailed analysis, information obtained from the system indicates that the findings of previous research are still valid. These findings are presented in the following paragraphs (see also the figure above).

- 3.10 The main reported cause of false alarms, that is, cooking, is predominantly exhibited in residences and ward areas. Whilst the numbers of instances of cooking-related false alarms in wards and residences appear similar, ward areas represent a larger proportion of the hospital area and population than residences.
- 3.11 The response to an alarm in a ward area is likely to directly involve staff who would otherwise be caring for or treating patients, and therefore represents a significant potential for disruption to patient care.
- 3.12 The false-alarm incidents involving contractor activity are reported across the majority of hospital

areas, with no significance to the variation between areas when their relative sizes are considered.

- 3.13 Similarly, instances of electrical causes of false alarms and those caused by steam are reported across the majority of hospital areas, with variations due mainly to the size of respective areas or the use of the particular services.
- 3.14 Smoking-related false alarms are seen predominantly in ward and other departments (circulation areas). These incidents are of particular importance since many acute hospitals operated a blanket “No Smoking” policy at the time the research was undertaken. Therefore, the smoking activity identified is likely to be illicit and in areas not under frequent observation; such incidents have the potential to pose a significant fire risk, since carelessly or hastily discarded smoking material may result in a fire.

- 3.15 As a significant number of false alarms are reported as cause unknown, it is not possible to directly reduce these incidents without determining their cause. It is important, therefore, to thoroughly investigate all false alarms to determine their cause and potential solution.
- 3.16 Incidents involving patients falsely actuating fire detection and alarm systems are reported predominantly in psychiatric wards. It has been reported that psychiatric patients have in some cases deliberately activated manual call points or used cigarette lighters and other smoking material to activate automatic detection. The majority of these instances are not reported as malicious, since it is often the case that the patient is unaware of the full consequences of their actions.

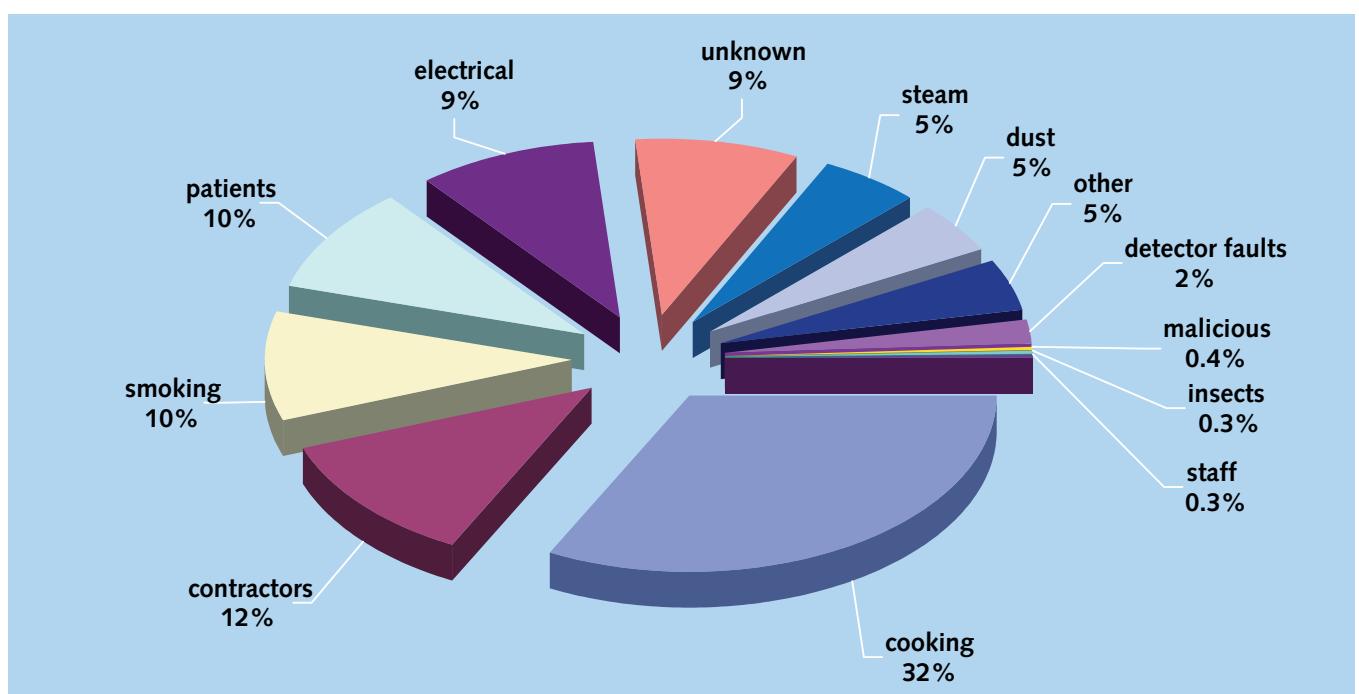
### Research findings – main causes of false alarms in areas accessed by patients

- 3.17 A breakdown of the reported main causes of false alarms in areas accessed by patients is given in the figure below. For the purpose of this Health Technical Memorandum, areas accessed by patients include all ward areas, operating departments, A&E, out-patients, clinics, imaging, and circulation spaces.
- 3.18 Any activation of the fire detection and alarm system in these areas is likely to directly impact on

the provision of treatment and care. Many staff who are directly involved in caring for patients may be required to respond initially to the activation of the alarm system. Such response will be necessary whether the alarm is genuine or not, so the potential for disruption to service is significant.

- 3.19 In areas accessed by patients, the main cause of false alarms has been identified as ad hoc cooking activities. This is predominantly the result of providing patients with toast or other snacks, particularly between the main catering service meal times. The use of toasters in inappropriate areas, incorrect toaster settings, the failure of automatic toasters to “pop up”, and the lack of cleaning resulting in a build-up of breadcrumbs, have been identified as significant causes of false alarms.
- 3.20 The second most frequent cause of false alarms in areas accessed by patients is reported to be contractor activity. From the data reported it is not possible to ascertain the proportion of incidents resulting from hot-works or other activity; therefore no comparison between the relatively high number of false alarms caused by contractors and potential fire risks can be made.
- 3.21 Smoking presents particular issues. Since smoking is usually prohibited or at least tightly restricted, most smoking resulting in false alarms is illicit. It has been reported that patients have been discovered smoking beneath bedding and whilst

Figure 5 Causes of false alarms in areas accessed by patients



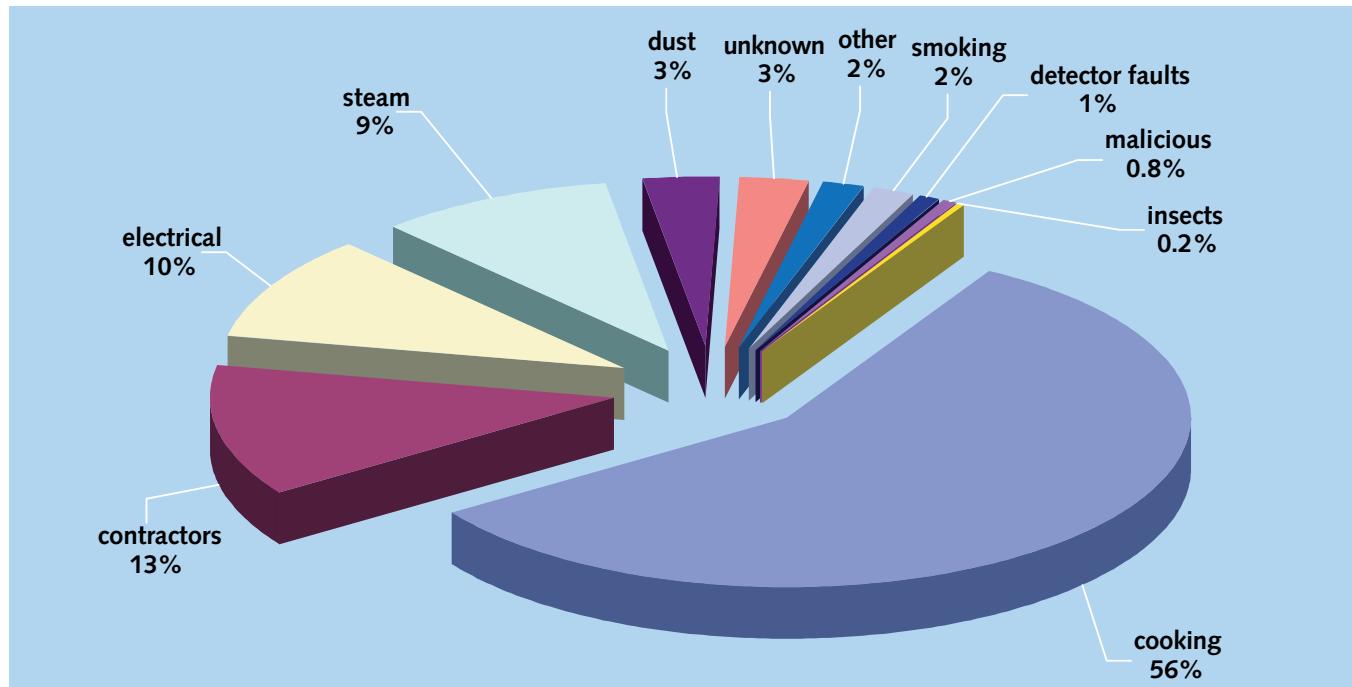
receiving piped oxygen. Such practices present a high risk of fire with serious potential consequences.

- 3.22 Incidents of false alarms caused by patients include actuations by psychiatric patients who may be unaware of the full consequences of their actions. Instances have also been reported of false alarms resulting from other patient activity, for example excessive use of aerosol sprays, or deliberate interference with detection equipment.

## Research findings – main causes of false alarms in areas not accessed by patients

- 3.23 A breakdown of the reported main causes of false alarms in areas not accessed by patients is given in the figure below.
- 3.24 Whilst an activation of the fire detection and alarm system in these areas is not likely to directly impact on the provision of treatment and care, patient care can be indirectly affected. For example, in some plant areas, activation of the fire detection and alarm system may cause the interruption of fuel supplies used for heating or steam generation. Similarly, disruption to the operation of pathology or medical records may have a significant impact on the delivery of patient services. The effects of frequent alarm activation in staff residences can disrupt staff sleeping which, when continued over time, could lead to a loss of staff performance and morale.

Figure 6 Causes of false alarms in areas not accessed by patients



- 3.25 It is often the case that an alarm activation from these areas invokes the same level of response from fire response teams and external agencies as that for areas where patients are accommodated and which therefore represent a significantly greater life risk. This occurs since these areas are often connected to the main site fire detection and alarm system, with no provision for discriminating between patient and non-patient areas and communicating this distinction to the attending fire service.
- 3.26 The main cause (over 50%) of false alarms in areas not accessed by patients is related to cooking activity. The main source (66%) of false alarms caused by cooking activity is reported to be staff residences, whereas only 13% of cooking-related false alarms are attributed to main kitchens.
- 3.27 The second most frequent cause of false alarms is the activities of contractors. As with areas accessed by patients, it is not possible to determine the proportion caused as a result of hot-works.
- 3.28 The relatively large number of false alarms reported due to electrical causes tends to indicate that such incidents may result from the influences of plant and equipment rather than the electrical circuits of the fire detection and alarm system.
- 3.29 The instances of false alarms caused by escaping steam are relatively frequent, due in part to the generation and use of steam predominantly in areas not accessed by patients. In particular, false alarms caused by steam are most often generated within boilerhouses and plantrooms.

# 4 Limiting false alarms

## System design issues

- 4.1 All designers should be aware of their responsibilities under the Construction (Design and Management) Regulations 2007 and BS 5839-1.
- 4.2 From the initial design stages of a project, all efforts should be made to minimise false alarms. This consideration should not be limited to the design of the fire detection and alarm system, but should extend to all design issues that may directly or indirectly contribute to the incidence of false alarms. For example, care should be taken when designing kitchen areas to ensure sufficient extraction of cooking fumes, thus avoiding fumes spilling into adjacent areas and activating nearby automatic detection.
- 4.3 However, the design of the fire detection and alarm system will provide the greatest influence in minimising false alarms. Fire detection and alarm systems should be designed in accordance with Health Technical Memorandum 05-03 Part B – ‘Fire detection and alarm systems’ and BS 5839-1.
- 4.4 Particular attention should be paid to the change of use of a room; in all cases involving a change of occupancy and/or activity, the method of fire detection within the room should be reviewed.
- 4.5 The advice provided below is not exhaustive, nor is it considered appropriate in all cases. Any proposal for reducing false alarms should be considered by the relevant stakeholders, and a risk assessment should be carried out where appropriate prior to the introduction of measures.
- 4.7 Detectors installed in areas adjacent to kitchens that may be subjected to cooking fumes from the kitchen should not be of the ionisation chamber type.
- 4.8 Doors to kitchen areas should not be wedged or otherwise held open, since this may permit cooking fumes to permeate beyond the kitchen and activate nearby automatic smoke detection. In addition, this practice may increase the fire risk to occupants and contravene fire safety legislation.
- 4.9 In circumstances where it is not desirable or practical to keep kitchen doors closed, alternative measures need to be considered. In residential kitchen areas or ward kitchens, these may include the provision of local mains-powered, self-contained smoke detectors in addition to the main detection system, located either in or immediately outside the kitchen. These self-contained detectors are intended to warn local occupants of the presence of smoke prior to the main fire detection and alarm system being activated. This arrangement should be designed to allow nearby occupants to close kitchen doors and ventilate the kitchen in order to avert a false alarm being generated in the main system. Where such methods are employed it will be necessary to provide staff training to highlight the distinction between the self-contained and main building alarms, and the actions to be taken in the event of either being activated.
- 4.10 In circumstances such as communal kitchens in staff residences, consideration may be given to devices that automatically turn on a kitchen extractor when any cooking appliances are used. Where such devices are used, the kitchen extractor should continue to run for a pre-set time period after all the cooking appliances have been turned off.

## Minimising false alarms due to cooking activity

- 4.6 It is important to ensure that cooking activity is only ever carried out in designated areas in which appropriate automatic detection such as heat detectors, and appropriate ventilation measures, have been installed.
- 4.11 The proliferation of automatic toasters in ward areas should be controlled. Organisations should set a policy regarding the type(s) of toaster to be permitted and their use. Toasters should only be used in designated areas with appropriate detection

measures. Consideration should be given to wiring toasters directly to the mains supply via fused outlet connection to prevent them being moved to inappropriate locations. Alternatively, a non-standard mains plug should be fitted to the toaster, and associated power sockets should be provided only in designated areas.

- 4.12 Consideration should be given to specifying the use of conveyor-type toasters only, since these have been shown to reduce instances of burnt toast and resultant false alarms.

## Minimising false alarms due to contractor activity

- 4.13 All tender and contract documents should identify the extent, nature and location of all automatic detection and manual call points located within the vicinity of the works area and any area that may be indirectly affected by the works.
- 4.14 The contract documents should make it the responsibility of the contractor to ensure that all their personnel are informed of the presence, nature and location of all relevant automatic detection and manual call points.
- 4.15 All contract documents should clearly identify the contractor as being responsible for taking all necessary precautions to avoid incidents of false alarm.
- 4.16 The activities of contractors should always be controlled in accordance with appropriate permit-to-work policies. The area and nature of work should be clearly defined and notified to the Fire Safety Manager, who will liaise with the responsible person to ensure the appropriate isolation of the fire detection and alarm system.
- 4.17 A detailed schedule of work to be carried out should be prepared and submitted by the contractor prior to the commencement of works. This schedule should detail the precise measures the contractor proposes to reduce potential false alarms as a result of the works.
- 4.18 Particular attention should be paid to works that involve significant amounts of dust. Although isolation of the detection in the area of works will reduce the potential for false alarms whilst the work is being carried out, dust deposited in the detectors during works may cause false alarms when the detection and alarm system is brought back into service or at some point later. Detectors that may

be subjected to dust from contractors' works should be covered and sealed from dust prior to the commencement of works, and a full check should be made on completion of works to ensure that all detectors have been uncovered prior to reinstatement of the detection system. It may be necessary to remove covers from automatic detection at the end of each working period to ensure adequate fire detection outside the contractors' operating hours.

- 4.19 Contractor activity involving hot-works should be subject to a detailed risk assessment including the likelihood of false alarms. A particular issue has been reported where hot-works involving the welding of pipes and ducts have resulted in the transfer of smoke along the pipe or duct to areas remote from the works.
- 4.20 Care should be taken to ensure that smoke from hot working is appropriately extracted to avoid false alarms. As extracting smoke from hot working may prevent the products of combustion from an associated fire being discovered quickly, consideration should be given to additional safeguards that may be necessary.
- 4.21 Management controls should be put in place to review a contractor's performance in terms of false-alarm generation. Consideration may be given to introducing penalty clauses into works contracts regarding unnecessary alarm actuations by contractors as a result of their activities. A contractor's record of causing false alarms should be taken into account before placing further work with that contractor.

## Minimising false alarms due to electrical influences

- 4.22 Instances of electrical influences causing false alarms are particularly difficult to identify unless system wiring faults or coincidental effects in other electrical systems are observed.
- 4.23 System wiring faults giving rise to false alarms are relatively small in number, since modern fire detection and alarm systems should discriminate between faults and fire signals from detection devices. However, some instances do occur, and fire detection and alarm system cabling should be properly installed, protected against mechanical damage where necessary and readily identifiable to minimise damage and inappropriate modification.

- 4.24 Electrical causes of false alarms are largely due to electro-magnetic interference affecting either the alarm and detection system field wiring or power supplies, or the system devices themselves. Reference should be made to the guidance regarding potential interference in BS 5839-1, Health Technical Memorandum 05-03 Part B and Health Technical Memorandum 06-01 – ‘Electrical services supply and distribution’.
- 4.25 Radio-based detection and alarm systems should be compliant with the Radio Equipment and Telecommunication Terminal Equipment Regulations 2000 (as amended).
- 4.26 All system cabling should be installed using appropriately-specified cables and installation practices in accordance with BS 5839-1, BS 7671, Health Technical Memorandum 05-03 Part B and Health Technical Memorandum 06-01. Power supplies should be dedicated to the fire detection and alarm system and provide in accordance with BS 5839-1.
- 4.27 When designing the fire detection and alarm system, detailed consideration should be given to the potential sources of electromagnetic interference, likely field strengths and frequencies. The system designer should carefully consider the effects of interference on the devices proposed, and should ensure that selected equipment is appropriate for use and will not result in false alarms. The system designer should take due regard of the system manufacturers’ instructions and guidance to reduce electromagnetic interference.

### **Minimising false alarms due to steam**

- 4.28 The majority of steam-related false alarms occur in boilerhouses and plantrooms where steam is generated, used and distributed.
- 4.29 Steam vents should always vent directly to the outside and in any case should not vent in the direct vicinity of smoke or heat detection.
- 4.30 Care should be taken to ensure that provisions for steam extraction are made wherever steam is used or produced and there is a possibility of water vapour escape.
- 4.31 The appropriate detection method should be used, and detectors should be appropriately sited in relation to steam production equipment or equipment which uses steam such as water heaters and autoclaves.

- 4.32 There has been an increase in the reported number of false alarms caused by steam from kettles in areas such as offices. It is necessary to ensure that beverage facilities are located away from smoke detection. Where false alarms have occurred, beverage facilities should be relocated in specific areas designed for such purpose and with appropriate detection.

### **Minimising false alarms due to smoking**

- 4.33 Restriction of smoking by patients, visitors and staff can lead to illicit smoking. Often this occurs in areas where automatic detection is installed, and this leads to false alarms being generated. Where such behaviour occurs, it should be controlled in accordance with local management procedures.

### **Minimising false alarms due to patients or members of the public**

- 4.34 The instances of patient-activated false alarms occur predominantly in mental health wards. The majority of these are reported to be attempts by patients to gain attention or, where electronic door locks are linked to the alarm system, to abscond.
- 4.35 The provision of automatic detection should not be reduced in order to minimise false alarms, since such action is likely to detract from the overall level of patient safety – particularly in the case of mental health patients, who may present an increased fire risk through inadvertent or deliberate fire-setting.
- 4.36 The level of staff supervision in mental health units will minimise instances of patients interfering with the automatic detection.
- 4.37 Activation of break-glass manual call points is more difficult to control, since the movements needed to activate a call point are less visible and hence more difficult for staff to prevent.
- 4.38 Where activation of call points by patients gives rise to false alarms, consideration should be given to providing measures such as lift flaps that prevent call point activation unless the flap is lifted. Further measures may utilise devices that activate a localised audible warning when a flap is lifted prior to call point activation. If such measures prove insufficient, a risk assessment should be undertaken to determine the impact of changing vulnerable break-glass call points to key-operated units that can be activated only by staff keyholders.

- 4.39 In many instances, false alarms have been generated as a result of confusion regarding the release of electronic security devices. Doors secured by electronic locking mechanisms are usually provided with a push-button to permit exit from the department or area and with an emergency override break-glass in accordance with BS 7273-4. Since department exits usually coincide with the fire-alarm zone boundaries, it is established practice to provide manual call-points at these locations.
- 4.40 The number of such controls in a single location has been reported to have given rise to confusion on the part of those seeking to exit the department or area, and has resulted in the inadvertent activation of the fire alarm manual call-point in an attempt to release the electronic locking mechanism.
- 4.41 Consideration should be given to locating the various controls in such a way as to reduce the potential for inadvertent activation of the manual call-point.
- 4.42 Clearly visible signs should be provided to readily identify the location of push-button controls for everyday use and to clearly distinguish the fire detection and alarm system manual call-point.

## Minimising unwanted fire signals

- 4.43 The CFOA policy provides guidance on call filtering processes intended to prevent continual evacuation of people or the summoning of the fire service. In most cases, the filtering of alarm calls is inappropriate considering the potential life-risk associated with healthcare premises and the arrangements in place for summoning the fire service.
- 4.44 Since (in most cases) a fire alarm signal is passed to a main switchboard – either on that site or on an associated site – from where a call is made via the public-emergency “999” system, call filtering cannot be applied by alarm-receiving centres or telecare service providers.
- 4.45 In most cases, call filtering by fire-and-rescue service control operators is not appropriate, since most of the emergency calls raised will derive from switchboard operators who are remote from the incident location and unlikely to be able to provide sufficient detail to confirm the cause of the alarm being raised.
- 4.46 The mobilisation of the fire-and-rescue service is disruptive, involves a degree of risk and potentially detracts from the ability of the fire service to respond to a real emergency. Measures should be taken to ensure that mobilisation of such resources does not occur unnecessarily; however, this should be balanced against the potential impact on the continued operation of the facility that may arise from a delay in summoning the fire service should a fire occur.
- 4.47 In particular, consideration should be given to the need to immediately call on such resources when the incident giving rise to the alarm involves no threat to patients.
- 4.48 Provided that non-patient access areas, particularly staff residences, are remote, and fire there would pose no threat to patient safety, an alarm activation in such areas is unlikely to require the same level of fire service response as required for an alarm activated in an area accommodating patients.
- 4.49 On the basis of an assessment of risk in line with the requirements of the FSO and Health Technical Memorandum 05-03 Part K – ‘Guidance on fire risk assessments in complex healthcare premises’, consideration should be given to delaying a call to the fire service for a short period of time to allow investigation and/or confirmation that fire service is required. Such an approach should always be used in conjunction with a “double-knock” system such that the activation of a second detector or manual call point overrides the delay and results in an immediate call to the fire service. The activation of a call point should not initiate a delay, but should result in an immediate call to the fire service.
- 4.50 Where a delayed call to the fire service is to be employed, a robust protocol must be established and disseminated to all staff concerned, to ensure that the appropriate procedures are followed for each alarm signal generated. Such a protocol should ensure that a delay in calling the fire service only occurs for alarms generated in areas that pose no threat to patients, and that appropriate actions are taken to mitigate risks.
- 4.51 Any proposed delay to a call to the fire service must first be discussed with the local fire service. The extent of any delay should be determined following due consideration of the fire risk assessment and operational factors.
- 4.52 Where a delayed call to a fire service is employed, alarms within the building where the activation occurs should be sounded immediately. Occupants of the building should evacuate the building and ensure that the fire service is summoned, if

appropriate, in accordance with their local fire procedures.

- 4.53 On activation of an alarm, the fire response team should be sent to investigate the incident without compromising their safety. Those staff sent to investigate must be appropriately trained and have sufficient means of readily contacting the central point from which the incident is being controlled. On arrival at the area where the alarm activation occurred, attending staff should communicate the status of the incident immediately to the central control point. This allows the fire service to be summoned at the earliest opportunity, or the alarm to be cancelled and a call to the fire service avoided as appropriate.
- 4.54 Where attending staff cannot be certain as to the status of the alarm, a call should be made to the fire service at the earliest opportunity.
- 4.55 Occupants of residences should be instructed to call the central control point if they are certain that

a false alarm has been generated. Nominated staff should still attend to confirm the false alarm incident, and should take on the role of the line manager in gathering information and briefing the Fire Safety Manager.

- 4.56 In a large number of organisations, tenancy agreements for staff residences include penalty clauses for those tenants that generate false alarms. Such penalties are usually financial penalties and/or ultimately eviction. Whilst these measures have shown some success in reducing false alarms, their use may be counter-productive where a delay to allow investigation is employed. Tenants responsible for generating a false alarm will not be inclined to contact the central control point regarding the incident if they are likely to face a fine or eviction. Hence penalties for generating false alarms should be reduced or in some cases waived where a tenant acts promptly to avoid an unnecessary call to the fire service.

## 5 Categories of false alarm

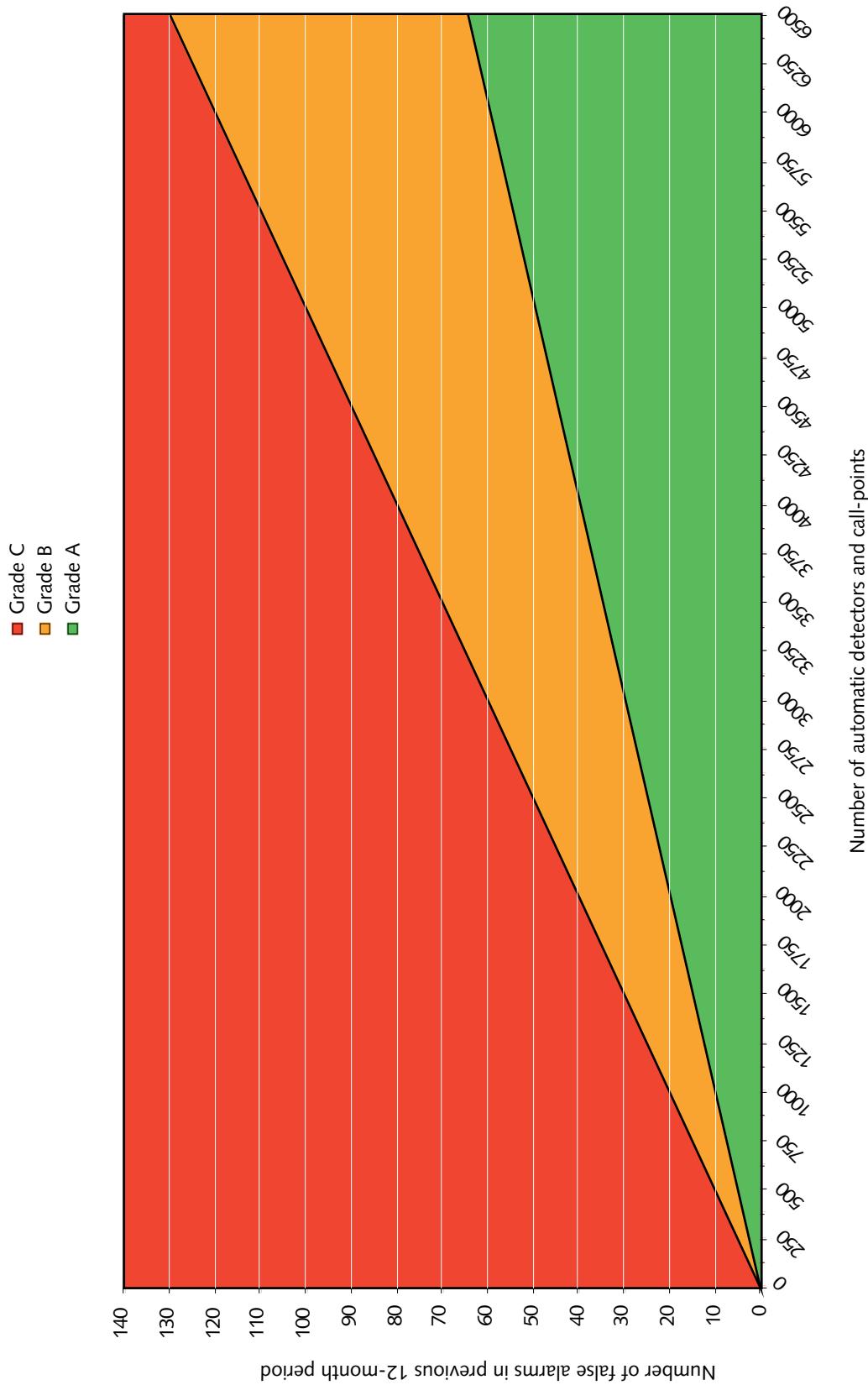
CLASS	TASK FORCE DEFINITION	EXAMPLES
1. Malicious	Incident in which the fire alarm system has been activated as the result of the actions of a person who is aware that there is no fire	Operation of a manual call point or tampering with an automatic detector with the intention of raising a fire alarm signal, knowing that there is no fire
2. Good intent	Incident in which the fire alarm system has been activated by a person in the belief that there is a fire, when no fire actually exists	Operation of a manual call point or an evacuation control at the control panel, in the erroneous belief that there is a fire
3. Accidental damage	Incident in which the fire alarm system has been activated as a result of accidental mechanical damage	Accidental mechanical damage to an automatic detector, manual call point, extinguishing system component, wiring or control equipment; ingress of water to equipment
4. Alarm activated by patient or public	Incident in which the fire alarm system has been activated as a result of the actions of a person who is not a member of staff when there is no fire	Fire alarm break glass point or detector activated where the person has not intended to act maliciously
5. Environmental effect Cooking fumes	Incident in which the system has responded to a fire-like phenomenon or environmental influence  (Other than those in 6 to 8)	Unwanted alarm as a result of detection of cooking
6. Environmental effect Smoking	Incident in which the system has responded to a fire-like phenomenon or environmental influence  (Other than those in 5, 7 and 8)	Unwanted alarm as a result of detection of smoke from smoking material
7. Environmental effect Insects	Incident in which the system has responded to a fire-like phenomenon or environmental influence  (Other than those in 5, 6 and 8)	Unwanted alarm as a result of detection of insects
8. Environmental effect Other	Incident in which the system has responded to a fire-like phenomenon or environmental influence  (Other than those in 5 to 7)	Unwanted alarm as a result of detection of environmental influences, other than those included in 5 to 7  This would include a fire outside the building, such as controlled burning which has activated a smoke detector
9. System fault/design	Incident in which the system has produced a fire alarm signal as a result of an identifiable, diagnosed fault	Circuit fault Faulty detector Unsuitable equipment or positioning

CLASS	TASK FORCE DEFINITION	EXAMPLES
10.	System procedures not complied with  (Other than malicious action or accidental damage to the system and/or those in 7)	Test of system without prior notification of an alarm-receiving centre  Not closing off detectors when undertaking construction, etc  Not using permit-to-work, eg hot working under detection
11.	Management procedures not complied with/ building not used correctly	Incorrect building management such as leaving fire doors to kitchens wedged open, actuating adjacent smoke detectors
12.	Bomb alerts	Fire alarm activated by building manager following receipt of a bomb alert in order to evacuate the building quickly. The fire alarm should not be used for this purpose  The attendance at the building of the fire service would put fire-fighters unnecessarily at risk
13.	Sprinkler alarm – water pressure	Increase in pressure of a town's main, pressure surge on start of sprinkler pumps, or loss of pressure in system
14.	Sprinkler alarm – other known causes	There will be very few such incidents
15.	Unknown	Unwanted alarm as a result of detection for reasons others than those included above

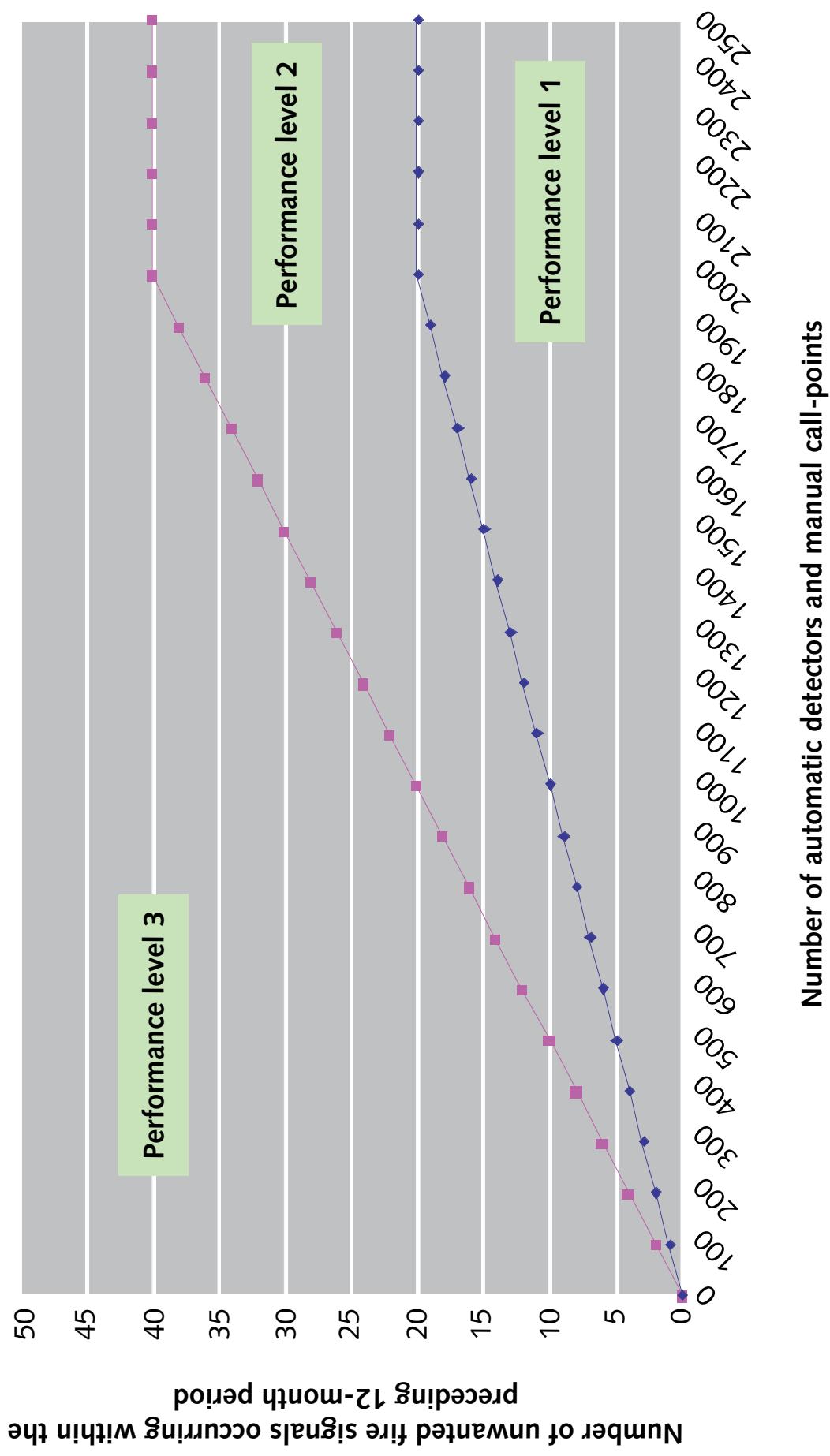
**Note:** The “Unknown” category should only be used for incidents when it is not possible to identify the exact cause of the alarm activation. Further investigation, particularly if repeat activation occurs, should re-categorise the unknown incidents to their true cause

## 6 Performance-level grading charts

Performance grading chart for false alarms



Performance grading chart for unwanted fire signals



## 7 Location details

**Table 1 – Premises types**

List 1 Site		List 2 Affected parts	
1	Hospital/Clinic	1	Factory
2	Sheltered Housing	2	Office
3	Health/Residential Care	3	Shop
4	Hotel/Boarding Houses	4	Residential Staff
5	Industrial	5	Residential Public
6	Commercial	6	Residential Patient
7	Recreational	7	Sports
8	Educational	8	Entertainment (incl. liquor, cinema, theatre etc)
9	Dispersed Housing	9	Clinical area
10	HIMO (houses in multiple occupation)	10	Communal areas
11	Dwelling	11	Storage area
12	Prison/Police/Fire/Ambulance premises	12	Teaching area
13	Airport	13	Food preparation area
14	Crown/Diplomatic Immunity	14	Concealed areas (voids etc)
15	Defence Establishments	15	Other Healthcare Area
16	Emergency services		

**Table 2 – Area types**

Patient-accessed areas		Non-patient-accessed areas	
P1	General Medical Ward	S1	Catering
P2	General Surgical Ward	S2	Boilerhouse
P3	Mental Health Ward	S3	Plantroom
P4	Orthopaedic Ward	S4	Administration
P5	Paediatric Medical Ward	S5	Residences
P6	Paediatric Surgical Ward	S6	Laundry
P7	Paediatric Intensive Care	S7	Estates Department
P8	Intensive/Critical Care	S8	Medical Records
P9	Out-patient Department	S9	Occupational Health
P10	Accident & Emergency	S10	Main Stores
P11	Other Ward	S11	Mortuary
P12	Radiology	S12	Switchboard
P13	Pathology	S13	HSDU (hospital sterilizing and disinfecting unit) or central sterile services department
P14	Pharmacy	S14	IT Department
P15	Operating theatre	S15	Education
P16	Retail area	S16	Residence
P17	Restaurant	S17	Garage

**Table 3 – Rooms**

R1	Single bedroom	R20	Utility room
R2	Multi-bed room	R21	Disposal room
R3	Dayroom	R22	Linen room
R4	Bathroom	R23	Staff room
R5	Consulting/examination room	R24	Classroom
R6	Treatment room	R25	Electrical cupboard
R7	Waiting room/area	R26	Joiners' workshop
R8	Computer room	R27	Plumbers' workshop
R9	Sewing room	R28	Engineers' workshop
R10	Gymnasium	R29	EBME (electro-biomedical engineering) workshop
R11	Hydrotherapy pool	R30	Calorifier room
R12	Library	R31	Lift plantroom
R13	Corridor/circulation area	R32	Duct
R14	Dining area	R33	Ceiling void
R15	Local kitchen	R34	Roof space
R16	Catering department kitchen	R35	Service void
R17	Servery	R36	Laboratory
R18	Office	R37	Bedroom (residence)
R19	Storeroom	R38	Other (state)

## 8 Incident briefing information

FALSE ALARM BRIEFING							
Time:	Date:						
Location:	Incident duration:						
<b>Location of alarm signal:</b> <i>(select codes from Appendix C)</i>	Table 1 List 1 <input type="text"/>	Table 1 List 2 <input type="text"/>	Table 2 <input type="text"/>	Table 3 <input type="text"/>			
<b>Cause of alarm signal:</b> <i>(select class from Appendix A)</i>	<input type="text"/>						
<b>Fire Service attendance:</b>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	<b>Fire response team attendance:</b>	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
<b>Fire Service classification (If different from above):</b> <input type="text"/>							
<b>Fire Detection System Information:</b>							
Panel Indicators: <i>(Tick all those applicable)</i>	Fire <input type="checkbox"/>	Fault <input type="checkbox"/>	Pre-Alarm <input type="checkbox"/>	Warning <input type="checkbox"/>	Disabled <input type="checkbox"/>	Power <input type="checkbox"/>	Zone (Number) <input type="checkbox"/> Other (Specify) <input type="checkbox"/>
Panel Text Display: <i>(enter text as displayed on System Panel and append System Printout)</i>							
Detector Indication:	Is an indicator visible on the initiating detector? Yes <input type="checkbox"/> No <input type="checkbox"/>						
<b>Description of event:</b>							
Completed by:							
Signature:	Contact telephone:			Position:			
<i>Forward promptly to Fire Safety Co-ordinator</i>							

## 9 Fire incident report

<i>Tick appropriate box</i>	<input type="checkbox"/> <b>Fire</b>	<input type="checkbox"/> <b>False alarm</b>	
1. Hospital/site			
2. Trust/organisation			
3. Age of building			
4. Date of incident			
5. Time of incident			
6. Time of call to fire service:			
7. Time fire service arrived:			
8. Duration of incident:			
9. Estimated cost of damage/disruption:			
<b>10. Incident response:</b>			
Fire service attendance	<input type="checkbox"/> YES	No. of appliances initially attended: <input type="text"/>	
	<input type="checkbox"/> NO	Total no. of appliances attended: <input type="text"/>	
Fire response team attendance	<input type="checkbox"/> YES	Number in team: <input type="text"/>	
	<input type="checkbox"/> NO	Duration of involvement: <input type="text"/>	
<b>11. Location details:</b>			
Location of alarm ( <i>select codes from Appendix C</i> )			
Table 1 List 1 <input type="text"/>	Table 1 List 2 <input type="text"/>	Table 2 <input type="text"/>	Table 3 <input type="text"/>
<b>Fire Incident Details</b> Answer questions 12 to 19 by ticking one or more of the options provided			
<b>12. Fire discovered by:</b> ( <i>to be completed for fire incident</i> )			
<input type="checkbox"/> Employee	<input type="checkbox"/> Visitor/passer-by	<input type="checkbox"/> Smoke detector	<input type="checkbox"/> Other (please specify)
<input type="checkbox"/> Patient	<input type="checkbox"/> Sprinkler	<input type="checkbox"/> Heat detector	
<b>13. Method of extinguishment:</b> ( <i>to be completed for fire incident</i> )			
<input type="checkbox"/> None	<input type="checkbox"/> Fire hose	<input type="checkbox"/> Smothering	<input type="checkbox"/> CO <sub>2</sub> , inert gas etc
<input type="checkbox"/> Self-extinguished	<input type="checkbox"/> Dousing with water	<input type="checkbox"/> Removal	<input type="checkbox"/> Fire service
<input type="checkbox"/> Portable extinguisher	<input type="checkbox"/> Equipment isolated	<input type="checkbox"/> Sprinkler	<input type="checkbox"/> Other (please specify)
<b>14. Material first ignited:</b> ( <i>to be completed for fire incident</i> )			
<input type="checkbox"/> Raw materials	<input type="checkbox"/> Bedding, mattress	<input type="checkbox"/> Fittings	<input type="checkbox"/> Decoration, soft toys
<input type="checkbox"/> Vegetation	<input type="checkbox"/> Upholstery	<input type="checkbox"/> Food	<input type="checkbox"/> Cleaning materials
<input type="checkbox"/> Clothing on person	<input type="checkbox"/> Other furnishings	<input type="checkbox"/> Electrical insulation	<input type="checkbox"/> Waste
<input type="checkbox"/> Other textiles	<input type="checkbox"/> Structure	<input type="checkbox"/> Lagging	<input type="checkbox"/> Unknown
			<input type="checkbox"/> Other (please specify)
<b>15. Spread of fire within room of origin:</b> ( <i>to be completed for fire incident</i> )			
<input type="checkbox"/> Not applicable	<input type="checkbox"/> Stored material	<input type="checkbox"/> Furnishings - linings	<input type="checkbox"/> Other (please specify)
<input type="checkbox"/> Confined to item	<input type="checkbox"/> Furnishings - fittings	<input type="checkbox"/> Equipment	
<b>16. Cause of fire:</b> ( <i>to be completed for fire incident</i> )			
<input type="checkbox"/> Deliberate	<input type="checkbox"/> Water heating	<input type="checkbox"/> Equipment failure (elec)	<input type="checkbox"/> Smoking
<input type="checkbox"/> Cooking appliances	<input type="checkbox"/> Hot work	<input type="checkbox"/> Equipment failure (mech)	<input type="checkbox"/> Unknown
<input type="checkbox"/> Space heating	<input type="checkbox"/> Lighting	<input type="checkbox"/> Wire & cable (fixed)	<input type="checkbox"/> Other (please specify)
<input type="checkbox"/> Central heating	<input type="checkbox"/> Naked lights	<input type="checkbox"/> Wire & cable (leads)	
<b>17. Spread of smoke beyond room of origin:</b> ( <i>to be completed for fire incident</i> )			
<input type="checkbox"/> Not applicable	<input type="checkbox"/> Adjacent room(s)	<input type="checkbox"/> Stairway(s)	<input type="checkbox"/> Adjacent buildings
<input type="checkbox"/> Confined to room	<input type="checkbox"/> Street/main corridor	<input type="checkbox"/> Other floor(s)	<input type="checkbox"/> Other (please specify)
<input type="checkbox"/> Corridor(s)	<input type="checkbox"/> Adjacent department(s)	<input type="checkbox"/> Roof void(s)	
<b>18. Spread of burning beyond room of origin:</b> ( <i>to be completed for fire incident</i> )			
<input type="checkbox"/> Not applicable	<input type="checkbox"/> Adjacent room(s)	<input type="checkbox"/> Stairway(s)	<input type="checkbox"/> Adjacent buildings
<input type="checkbox"/> Confined to room	<input type="checkbox"/> Street/main corridor	<input type="checkbox"/> Other floor(s)	<input type="checkbox"/> Other (please specify)
<input type="checkbox"/> Corridor(s)	<input type="checkbox"/> Adjacent department(s)	<input type="checkbox"/> Roof void(s)	
<b>19. Route of fire spread:</b> ( <i>to be completed for fire incident</i> )			
<input type="checkbox"/> Not applicable	<input type="checkbox"/> Spaces/voids	<input type="checkbox"/> Open fire doors	<input type="checkbox"/> External
<input type="checkbox"/> Ducts	<input type="checkbox"/> Defective fire-stopping	<input type="checkbox"/> Stairways/lifts	<input type="checkbox"/> Other (please specify)

## Effects on persons involved

**20. Extent of evacuation:**

- |   |   |   |   |
|---|---|---|---|
| <input type="checkbox"/> Unnecessary      | <input type="checkbox"/> Department             | <input type="checkbox"/> Floor          | <input type="checkbox"/> Adjacent building(s)   |
| <input type="checkbox"/> Room only        | <input type="checkbox"/> Street/main corridor   | <input type="checkbox"/> Other floor(s) | <input type="checkbox"/> Other (please specify) |
| <input type="checkbox"/> Adjacent room(s) | <input type="checkbox"/> Adjacent department(s) | <input type="checkbox"/> Whole building |   |

Answer the following by indicating numbers of persons involved; boxes should be left blank if the answer is "none".

<b>21. Number of people in room of origin:</b>	Patients		Staff		Visitors	
<b>22. Number of people evacuated from room:</b>	Patients		Staff		Visitors	
<b>23. Number of people evacuated from apartment:</b>	Patients		Staff		Visitors	
<b>24. Number of people evacuated from floor/building:</b>	Patients		Staff		Visitors	

<b>25. Injuries to persons</b>	<b>Patients</b>			<b>Staff</b>		<b>Visitors</b>	
	Killed	Injured	Condition aggravated	Killed	Injured	Killed	Injured
Burns							
Smoke inhalation							
Evacuation							

## "Near miss" information

The following set of information considers the possible implications had the fire spread further. Answer the following by ticking one or more of the options provided.

**26. Area to be next affected: (to be completed for fire incident)**

- |   |  |   |   |
|---|--|---|---|
| <input type="checkbox"/> Not applicable       | <input type="checkbox"/> Out-patients    | <input type="checkbox"/> Boilerhouse          | <input type="checkbox"/> Laundry                |
| <input type="checkbox"/> Mental health ward   | <input type="checkbox"/> A&E             | <input type="checkbox"/> Street/main corridor | <input type="checkbox"/> Estates department     |
| <input type="checkbox"/> Elderly ward         | <input type="checkbox"/> X-ray           | <input type="checkbox"/> Lab/pharmacy         | <input type="checkbox"/> Adjacent building      |
| <input type="checkbox"/> ITU/SCBU             | <input type="checkbox"/> Main kitchen    | <input type="checkbox"/> Admin/offices        | <input type="checkbox"/> Other (please specify) |
| <input type="checkbox"/> Other ward           | <input type="checkbox"/> Main plantroom  | <input type="checkbox"/> Main stores          |   |
| <input type="checkbox"/> Operating department | <input type="checkbox"/> Medical records | <input type="checkbox"/> Education            |   |

**27. Estimate of time that would elapse before the next area was evacuated:**

**28. Estimate of how long it would take to evacuate the next area:**

**29. Additional comments include sequence of events and a brief description of the building construction (where relevant). Provide sketches if necessary and use additional sheets if required.**

Return to:

Completed by

Name:

Position:

Signature:

Date:

# 10 References

## Acts and Regulations

Radio Equipment and Telecommunications Terminal Equipment Regulations 2000. SI 2000 No 730.

Radio Equipment and Telecommunications Terminal Equipment (Amendment) Regulations 2003. SI 2003 No 1903.

Construction (Design and Management) Regulations 2007.

## British Standards

**BS 5839-1:2002.** Fire detection and fire alarm systems for buildings. Code of practice for system design, installation, commissioning and maintenance, 2002. British Standards Institution, 2002.

**BS 7671:2001.** Requirements for electrical installations. IEE Wiring Regulations. Sixteenth edition. Institution of Electrical Engineers, 2001.

## Department of Health publications

Health Technical Memorandum 05-01 – ‘Managing healthcare fire safety’.

Health Technical Memorandum 05-03 Part K – ‘Guidance on fire risk assessments in complex healthcare premises’.

**Health Technical Memorandum 05-03: Operational provisions, Part B – Fire detection and alarm systems.** The Stationery Office, 2006.

**Health Technical Memorandum 06-01 – Electrical services supply and distribution.** The Stationery Office, 2006.

Chief Fire Officers Association (CFOA) policy for the reduction of false alarms and unwanted fire signals.

Regulatory Reform (Fire Safety) Order 2005.  
efm-information system.