

## NHSScotland 'Firecode'

## Scottish Fire Practice Note 6 Version 3

The prevention and control of deliberate fireraising in NHSScotland healthcare premises



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> Guidance revised September 2007. All previous versions are superseded.



## About this publication

This Scottish Fire Practice Note (SFPN) is based on a document originally prepared with the assistance of the Arson Prevention Bureau. Reference to 'Chief Executives' means Chief Executives of Health Boards.

This SFPN 6, Version 3 replaces the guidance previously issued as SFPN 6 in NHSScotland Firecode Version 2.0, dated December 1999.

#### **Fire safety measures**

The effects of fire in any premises can be serious. However, in the case of hospitals and other healthcare premises, fires have even greater significance due to the presence of large numbers of sick and bed-ridden patients. The primary remit of healthcare bodies with regard to fire safety in all premises for which they are responsible, whether owned or occupied by them, is the safety of patients, visitors and health service staff in the premises. In attempting to prevent, control and detect deliberate fire-raising, healthcare bodies will need to select a combination of measures to produce an effective policy, taking into account:

- this Scottish Fire Practice Note (SFPN);
- other NHSScotland Firecode documents referred to in this SFPN;
- all statutes, regulations and guidance referred to in Firecode documents;
- the advice of the local fire and police authorities.

In Scotland, wilful fire-raising is a criminal offence defined in the common law. It should be noted that the term 'arson' may be encountered in common usage but is not a term recognised in Scotland to describe the offence of 'wilful fire-raising' and consequently is not used in this document.

For the purposes of this SFPN the term deliberate fire-raising is used generically to describe all acts of fire-raising.

## 1. Introduction and scope

#### **General application**

- 1.1 This Scottish Fire Practice Note (SFPN) provides guidance on the additional fire and other precautions that may be adopted to prevent, control and detect deliberate fire-raising in NHSScotland premises. Much of the guidance is intended to prevent life-threatening fires occurring in the clinical areas of hospitals. However, the principles apply equally to all parts of hospitals and other healthcare premises where the act of intentionally setting them or their contents on fire would pose serious threats to life, undermine their strategic importance and effectiveness, or incur significant financial loss.
- 1.2 The recommendations of this Note should be considered at an early stage during the planning and design of new hospitals and healthcare premises or major extensions to existing premises. In all existing premises, consideration of the potential for deliberate fire-raising and its consequences should be a component of the fire risk assessment conducted in pursuit of compliance with the terms of the Fire (Scotland) Act 2005. Locations identified in the assessment as vulnerable should receive prompt attention in accordance with the guidance in this Note, especially where the outcome of a fire is likely to have a significant impact on the safety of a patient care area. Advice should be sought from local fire and police authorities and, where appointed, the hospital security adviser, on how best to take account of the threat of deliberate fire-raising when considering the design of new premises or the refurbishment of existing premises.

#### **Purpose of this Note**

- 1.3 This Note provides sufficient general information and technical and management guidance to ensure that when new, extended or altered healthcare premises are being designed; appropriate measures are incorporated to reduce the potential for deliberate fire-raising.
- 1.4 The recommendations of this Note cannot take account of all the circumstances that may be found in any particular hospital or healthcare premises. They are intended to highlight only those circumstances that will normally need to be considered. Any measures adopted will necessarily have to reflect the specific circumstances prevailing in the premises, whether structural, organisational or managerial.

#### Management

1.5 Section 3 of this Note refers to the managerial and organisational arrangements necessary to ensure that the potential for deliberate fire-raising is taken into account in new schemes. The guidance should also be used to improve



- 1.6 standards in existing premises and when developing the overall fire safety strategy for hospitals and other healthcare premises. These measures, when applied in association with the guidance in other NHSScotland Firecode documents, will reduce the potential for deliberate fire-raising attack.
- 1.6 Simple 'good housekeeping' measures and the improved management of security arrangements may be implemented quickly and easily and these measures themselves may have a significant impact on the potential for deliberate fire raising e.g. Waste material should not be allowed to accumulate anywhere in the premises and metal waste bins with metal lids should be located in safe areas. Waste should be collected regularly and should be placed in metal skips outside the building, prior to its disposal. A high percentage of waste consists of materials that are easily ignited, and skips should be covered and kept locked, sited away from any other building that may be an 'exposure' hazard and where possible should be in areas with good surveillance.

The disposal of all waste should be subject to a waste management policy and good, well managed, storage and handling protocols. Measures needing more complex consideration, technological resolution and/or the allocation of significant resources should be prioritized and incorporated in the annual business plan.

- 1.7 The prevention, control and detection of deliberate fire-raising should form a routine part of the training given to staff in accordance with the training requirements of the 'Fire Safety Policy' and Scottish Health Technical Memorandum (SHTM) 83: 'Fire safety in healthcare premises: General fire precautions' (see Section 5).
- 1.8 Other NHSScotland Firecode documents, listed in Section 5, make provision for securing means of escape in case of fire from healthcare premises. It is emphasised that any arrangements for improving the security of premises must not, at any time, subvert the availability of escape routes and the use of final exits in an emergency.



# 2. The extent of the problem and the motivation for deliberate fire-raising

## The increasing problem of deliberate fire-raising in all healthcare premises

- 2.1 Deliberate fire-raising is a significant cause of fire in all types of premises, including hospitals and other healthcare premises. It is a cause for concern to those who are required to meet the costs of such fires, including government departments, fire authorities, the owners and occupiers of premises, insurers, and especially Health Boards because of the inherent life risk in most of the premises they occupy, and the impact fire damage may have on the wider provision of healthcare.
- 2.2 Many fires in healthcare premises occur in parts of the building where the materials or commodities stored provide a ready source of fuel. Premises of this type, where fewer people may be encountered, present an attractive target because they allow the deliberate fire-raiser to set a fire undisturbed, undetected and with an available route of escape. However, fires due to deliberate fire-raising in hospitals may only occasionally be planned events. A deliberate fire-raiser is in many cases likely to start a fire whenever they are presented with a casual opportunity. These are circumstances where there is an ample supply of fuel (e.g. waste bags awaiting disposal in a corridor), they have an ignition source (e.g. matches or cigarette lighter) and they feel they are unlikely to be discovered (e.g. no visible surveillance, no-one is around and there is an escape route available).
- 2.3 Fires started by deliberate fire-raisers may involve the use of a flammable liquid as an accelerant, or merely the combustible materials available at the location. Multiple points of origin, either locally or in various vulnerable parts of the building, provides an indicator that a fire may have been started deliberately.
- 2.4 Home Office fire statistics for hospitals and healthcare premises providing sleeping accommodation show that some 29% of fires attended by Fire and Rescue services are started deliberately. This broadly reflects the widely reported national growth pattern for this offence. The Appendix shows the proportion of fires in hospital premises officially recorded as being caused by deliberate action. These figures indicate that nearly 1 in 3 fires are of deliberate origin, yet they probably understate the problem, as anecdotal evidence suggests that many small outbreaks of fire are quickly extinguished by hospital staff, using first aid fire-fighting equipment, who do not then summon the assistance of the fire and rescue service.
- 2.5 Staff awareness of the problem, achieved through training, is essential in hospitals, and any increase in the number of maliciously started fires indicates a possible lapse of effective security measures, or failure of staff



to recognise a potential problem. This is largely a consequence of the 'opendoor' nature of the premises and the 'open' culture inherent in the provision of healthcare.

Nevertheless, it is essential that the security arrangements relating to public access are examined in detail, and open access restricted, so far as possible, to those areas where it is essential for treatment or care. Access to other areas should be limited and supervised, and staff should be trained to challenge those who have no visible ID, are in a restricted area or who appear to be unfamiliar with the premises, or otherwise exhibit suspicious behaviour.

#### Factors that may provide the motivation for deliberate fireraising

2.6 A number of factors, taken individually or collectively, may provide the drive for a person or group to undertake an act of deliberate fire-raising. The most common of these are reviewed. However, it should be recognised that a person pre-disposed to set fires deliberately in an occupied healthcare premises, will, if challenged, most likely provide a legitimate reason for being in the premises and is unlikely to be easily identified.

#### Mental instability

2.7 Deliberate fire-raising associated with mental ill health is a relatively frequent occurrence in hospital units accommodating people with mental illness. A significant number of motivating factors can be identified, including pyromania.

Pyromania is often motivated by the spectacle of a large fire, from the thrill of seeing it develop. It may be defined as *'an uncontrollable impulse to set things on fire,'* and persons affected by it will often remain at the scene of the incident, and even attempt to take part in fire fighting because of the pleasure and the feeling of fulfilment it gives them.

It is important to note that the impulse to set fires deliberately could also be as a consequence of physical head injury, as a side effect of medication or due to dementia/confusion.

#### Grievances

- 2.8 Deliberate fire-raising stimulated by a grievance can take several forms. By its nature it may be common across a wide range of premises. Workplace-related factors may include:
  - dismissal, fear of unemployment or job relocation;



- revenge against a colleague, superior or employer, perhaps due to personality conflicts, or as a response to public humiliation, or to jealousy;
- lack of advancement or appreciation of effort, and failure to achieve promotion or better pay.

#### Economic or political objectives

- 2.9 The targets for these deliberate fire-raising attacks may be selected to demonstrate the reasons for the form of protest, for example:
  - pressure-group action (animal rights, nationalist causes, terrorist acts);
  - strikes or industrial sabotage.

#### **Related criminal activities**

- 2.10 Deliberate fire-raising may be associated with other criminal acts, for example:
  - to conceal a burglary or fraudulent activities;
  - to disguise sabotage;
  - as part of an attempt at blackmail;
  - vandalism (often associated with alcohol or drugs).

#### Deliberate fire-raising by children

2.11 Children are often able to gain entry to all types of premises by exploiting lapses in security arrangements, and may start fires, sometimes to conceal theft or simply as a result of boredom.

#### Fraud

2.12 Deliberate fire-raising is commonly used as a means to destroy the evidence of internal fraud or stock discrepancies.



# 3. The responsibilities of management in preventing and controlling deliberate fire-raising

#### **Firecode responsibilities**

3.1 The 'Fire Safety Policy for NHSScotland' identifies that the overall responsibility for ensuring its mandatory requirements are complied with, rests with *"all Chief Executives with operational responsibility for the delivery of healthcare"*. They must have, for each of their premises, an ongoing programme for assessing fire risk, introducing and maintaining an adequate level of fire precautions, including fire alarm and detection systems, and for training staff in first aid fire-fighting and evacuation procedures. Other NHSScotland Firecode documents provide detailed guidance in support of these responsibilities, and these are listed in Section 5.

#### Management strategy

- 3.2 Deliberate fire-raising must be a component of the overall management strategy for dealing with the range of fire safety risks. Deliberate fire-raising, from whatever quarter or motive, should be viewed as preventable at least to such a degree that its possible effect is reduced to the lowest practicable level, taking into account all the circumstances. Prior attention to the threat presented by deliberate fire-raisers should limit the fire raiser's ability to dislocate services, damage property and waste scarce resources.
- 3.3 A management plan to combat deliberate fire-raising should address the following topics:
  - managing the risk;
  - the security arrangements;
  - practical measures to mitigate the risk;
  - fire alarm and detection systems;
  - fire containment and extinguishment;
  - fire safety policies and precautions.

Clear guidance in respect of the last three of these topics is given within the NHSScotland Firecode documents listed in Section 5, in particular Scottish Health Technical Memoranda (SHTMs): 81, 82, 83, 85 and 87. SHTM 86, also listed, provides the means to assess and record the fire risk.

Security arrangements are not covered by Firecode guidance. Nevertheless, adequate security measures are an important measure in



protecting premises against deliberate fire-raising. Some guidance on security is given in paragraphs 3.8 to 3.14. Improved security arrangements are therefore likely to form an important component of any measures adopted to limit the potential for deliberate fire-raising (see Section 5).

#### Risk management

- 3.4 Healthcare premises are vulnerable to deliberate fire-raising by intruders, patients with disturbed patterns of behaviour, employees and others who may enter sites, including contractors and even casual passers by. Stores, including those with pharmaceuticals, may be targets for theft and consequently fires to conceal the theft.
- 3.5 Isolated or disused premises and premises situated in run down or socially deprived areas, or those in areas where large crowds congregate at night or disturbances occur, may be particularly vulnerable. Where the area has a history of criminal activity or meets any of the other criteria identified in this paragraph, it should be reflected, and recorded in the risk assessment, together with appropriate measures to mitigate the risk.
- 3.6 Healthcare premises, especially hospitals, may be attractive to the deliberate fire-raiser because:
  - sites are often accessible 24;
  - many sites comprise a widely dispersed range of buildings with poor or limited external lighting;
  - many buildings have a high number of points of access and egress;
  - once entered, buildings often provide unrestricted access to all floors, including services tunnels, plant rooms, underground walkways and a range of departments;
  - the transient nature of the hospital population ensures their presence will go largely un-noticed and unchallenged by patients, other visitors and staff;
  - there are easy opportunities for theft and pilfering;
  - bad 'housekeeping' measures ensure ready access to combustible materials.
- 3.7 The security of premises with regard to fire safety should be assessed, taking account of these circumstances. Premises accommodating vehicles such as ambulances, animals and medical research facilities or laboratories, etc are known targets for deliberate fire-raisers and protest groups. Where such premises are identified as particularly vulnerable, security arrangements must be carefully considered in consultation with the police and any other relevant parties.



Central distribution facilities incorporating large warehouses bring together strategic resources, and their loss or contamination through deliberate fireraising may have a serious effect on the delivery of healthcare over a nationally significant geographical area. The strategic importance of these premises, the high value of the building contents and the potential impact of their loss must be taken into account when assessing the fire protection measures. The installation of an automatic fire suppression system (sprinklers) should be actively considered. Whilst this may not reduce the potential for deliberate fire raising, it will provide the highest possible level of fire protection and will reduce very significantly the effects of fire.

#### Security arrangements

- 3.8 Attention to security arrangements will make a very positive contribution to the prevention of deliberate fire-raising. NHSScotland Health Boards who insure their premises in the insurance market should be aware that their security arrangements will be of importance when their premises are assessed for that purpose. Generally, security can be much improved by:
  - keeping unauthorised persons out of vulnerable locations; •
  - quickly detecting intruders who may gain access to these locations;
  - training staff on the need to challenge unauthorised visitors, particularly in • isolated, infrequently visited or vulnerable locations.

#### Limitation of access

- 3.9 This procedure involves a variety of measures, such as:
  - physical security, that is, creating zones that are secure and strictly 'off limits' to all but a few authorised personnel;
  - a graded system of access control to limit access only to those who require • it for specific zones or areas;
  - the security badging of legitimate visitors such as business visitors with appointments, contractors and servicing personnel; and control of their access to, and egress from, designated zones.

However, it will not generally be possible to control access in this way for the wider general public, out-patients etc.

**Note:** Authorised persons who are cleared for access to designated zones may need further special permission to work on particular plant or equipment by means of 'permits to work', etc. Work practices involving the use of concentrated heat or naked flames should be subject to a specific system of control e.g. a 'hot' work permit system that includes pre and post work inspections and in the most hazardous case, direct supervision.



#### **Security controls**

3.10 An effective security system must include strictly controlled accountability for all keys, swipecards, codes, identification passes, etc. As part of normal closedown procedures for each day or other specified period, a nominated person should be responsible for a security register, which may be manually or electronically managed. The purpose of the register is to identify non-returned keys or passes at the end of each work period. Security control systems are only as effective as the quality of their administration and it is important that lapses in security, failure to return keys on time, failure to return passes etc are followed up and appropriate temporary measures adopted to ensure security is not compromised.

#### **Detection of intruders**

3.11 Intrusion detection equipment will detect the presence of deliberate fire-raisers and other intruders, and may be essential for vulnerable parts of premises that are unattended, or have reduced surveillance for long periods (overnight, weekends, etc). Equipment should be sited in order to ensure optimum protection against sabotage, and monitored to ensure its continuing effectiveness. Technical guidance about suitable equipment is not given in this Note.

> Camera surveillance of vulnerable areas is only as effective as the monitoring and staff response procedure associated with it, should a criminal activity be detected, including deliberate fire-raising. Such equipment will have a deterrent effect as deliberate fire-raisers have no wish to be identified, however, if no supporting staff response system is in place the value and impact of the system is greatly reduced.

#### **Security patrols**

3.12 Frequent but irregularly timed visits by security staff both during and outside normal hours to vulnerable parts of premises will help to deter deliberate fireraising and may even lead to the discovery of preparations for an attack. Indicators of such preparations may include a number of doors being wedged open (so fire will spread quickly), small kindling placed at various locations (to start simultaneous fires), an accumulation of combustible material (fuel) where it would not normally be expected to be found, external windows open when they are normally closed (to provide oxygen), signs of disturbance or unusual practices such as electrical equipment left on when it is not normally, strange or unusual equipment or materials present, not consistent with the normal use of the area etc. Patrols are particularly important at the onset of 'silent hours', at close of work or overtime working, especially by contractors, etc.



#### Precautions with personnel

3.13 All staff should be encouraged during fire safety training to report the presence of strangers particularly in isolated, infrequently visited, strategically important or vulnerable locations. A knowledgeable, informed and observant staff is perhaps the most effective defence against deliberate fire-raising.

#### **Staff selection**

3.14 Deliberate fire-raising is often undertaken by persons who are, or have been, members of staff. Consequently, staff selection processes should include formal enquiry into the past history of staff, possibly using the Scottish Criminal Records Office (SCRO) system where this is felt appropriate, for those who will work without supervision for long periods, at night or in other similarly vulnerable circumstances. So far as is practicable, new employees, temporary staff, cleaners and contractors should be closely supervised and should not be left to work in isolation for long periods.

#### **Reporting of fires and reporting procedures**

3.15 The 'Fire Safety Policy' for NHSScotland, HDL (2005) 53 Annex A, paragraph 6 requires Chief Executives to ensure that specified types of fire are reported to the Scottish Executive Health Department in a prescribed manner and timescale. This includes fires occurring in suspicious circumstances. Immediately following a fire started in suspicious circumstances, or one suspected as deliberate fire-raising, or is seen being deliberately started, line managers should ensure that material evidence in any form is protected from interference, removal or destruction, and that the person discovering the outbreak is available for interview by the Fire and Rescue Service and Police. The natural desire to clean up after the fire and return to normal as quickly as possible should be strongly resisted until after investigations by Police and the Fire and Rescue Service are completed.

In such cases, it would be helpful if the results of any police investigations into the fire could be forwarded to the Scottish Executive Health Department, Directorate of Performance Management and Finance, as detailed in the Fire Safety Policy for NHSScotland.

#### Attendance of security personnel at a fire

3.16 Where a 24-hour security service exists, security personnel should normally arrive quickly at the scene of a fire. Their training as observers should enable them to identify and preserve any evidence for further evaluation when deliberate fire-raising is suspected. In premises having a fire response team, consideration should be given to including a member of the security staff within the fire team.



# 4. Technical details of security equipment and other measures to combat the arsonist

#### Security of access

- 4.1 The selection and installation of particular security measures and the technical details of equipment capable of providing high levels of security against intruders and deliberate fire-raisers are beyond the scope of this Note. The NHS Security Manual contains detailed information, including the following topics:
  - the components of a security system;
  - the components of closed circuit television systems (CCTV);
  - systems for controlling access;
  - identification badges and security passes.

#### Security of automatic fire alarm and extinguishment systems

#### Automatic fire detection

4.2 SHTM 82 (see Section 5) recommends the use of analogue addressable automatic fire detection and alarm systems for new hospital installations, and the upgrading existing systems. The use of such systems will improve the reliability, speed and accuracy of discovery of fire, particularly in those parts of hospitals that may be infrequently visited or are unoccupied at night. This more precise information can then be passed to the Fire and Rescue Service when it is called to attend.

#### Automatic fire extinguishment

4.3 Automatically operated sprinkler installations are recommended (see SHTM 81, 82: Supplement A and SHTM 85 in Section 5) for certain high risk areas in hospitals, such as underground car parks, certain stores and other locations needing this form of protection. The introduction of SHTM 82: Supplement A in 2003 extended the recommendations for the use of automatic fire control systems in high dependency patient areas. It is not general policy at this time to install sprinkler systems in all patient care areas of hospitals. However, in a small number of cases, fast response sprinklers have been used in these areas for purposes of life, rather than property protection.



## The potential for sabotage of automatic fire alarm and extinguishment systems by deliberate fire-raisers

4.4 There are two main possibilities in the event of a deliberately raised fire.

In the first case, where the deliberate fire-raiser has made no attempt to sabotage the fire protection equipment it would be expected to perform as it should during an accidental fire. However, if an accelerant has been used to start fires in several places simultaneously or in quick succession, without the benefit of an automatic sprinkler installation, a serious and widespread fire is more likely to occur. A multi-seated fire is also more likely to threaten the effectiveness of the evacuation strategy by reducing the opportunity for using alternative escape routes.

- 4.5 The installation of fire alarm and detection systems that are self-monitoring is encouraged, as they routinely indicate any detector or system failures. This type of system is consistent with the recommendations of SHTM 82. Central control and indicating panels for fire alarm systems are normally accommodated in telephone switchrooms with their attendant security arrangements, and are therefore subject to constant surveillance. However, in the case of remotely monitored systems, steps must be taken to ensure that the locations housing equipment, cabling, etc are inaccessible to unauthorised persons.
- 4.5 The second possibility is that the fire-raiser may have sabotaged fire protection equipment in some way, either partly or wholly.

Consideration here is given only to the case of premises with automatically operated sprinkler systems, where parts of the system may be vulnerable to unwanted interference. Such systems do not normally have any intrinsic protection or monitoring capability. Therefore, security arrangements against intrusion must be applied to give mechanical or structural protection to the whole of the system. This will include the water supply system, internal and external control valves, and the entire pumping system, including the main and standby electrical supplies, and their controlling equipment. The operating positions of all control switches and valves should be legibly and durably marked and, whenever possible, switches and valves should be locked in their operational modes. Remote monitoring of the control positions of important installations and the means of access to such installations should be considered.

## 5. Further references

#### Other 'Firecode' publications

#### **NHSScotland Firecode comprises:**

#### Scottish Health Technical Memoranda (SHTM)

- SHTM 81: Fire precautions in new hospitals
- SHTM 82: Alarm and detection systems.
- SHTM 82: Supplement A: Automatic fire control and voice alarm systems
- SHTM 83: Fire safety in healthcare premises: General fire precautions
- SHTM 84: Fire safety in residential care premises
- SHTM 85: Fire precautions in existing hospitals
- SHTM 86: Fire risk assessment in existing hospitals (Parts 1 and 2)
- SHTM 87: Textiles and furniture

#### Scottish Fire Practice Notes

- SFPN 3: Escape bed lifts
- SFPN 4: Hospital main kitchens
- SFPN 5: Commercial enterprises on hospital premises
- SFPN 6: The prevention and control of deliberate fire-raising in NHSScotland healthcare premises
- SFPN 7: Fire precautions in patient hotels
- SFPN 10: Laboratories on hospital premises
- SFPN 11: Reducing unwanted fire signals in healthcare premises

#### Documents included with NHSScotland Firecode

Scottish Executive Health Department – Fire Safety Policy, HDL (2005) 53

Fire Safety Documentation Reference Guide

NHSScotland 'A Model Management Structure for Fire Safety'

NHS National Services



### Fire Protection Association (FPA)

Fire Protection Association publications are available from the Fire Protection Association; London Rd; Moreton-in-Marsh; Gloucestershire; GL56 0RH, Tel 01608 812 500.

#### General guidance

LPC; Library of Fire Safety: Volume 6, **The Prevention and Control of Arson** (FSB40).

### **Arson Prevention Bureau (APB)**

Arson Prevention Bureau publications are available from the Arson Prevention Bureau, 51 Gresham Street, London EC2V 7HQ Tel 0207 216 7474.

**Prevention and control of arson in industrial premises.** Arson Prevention Bureau (APB)



## **Appendix: Fires in hospitals**

