

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

*Part D: Commercial enterprises on healthcare
premises*



Second edition

Firecode – Fire safety in the NHS

Health Technical Memorandum

05-03: Operational provisions

Part D: Commercial enterprises on 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.

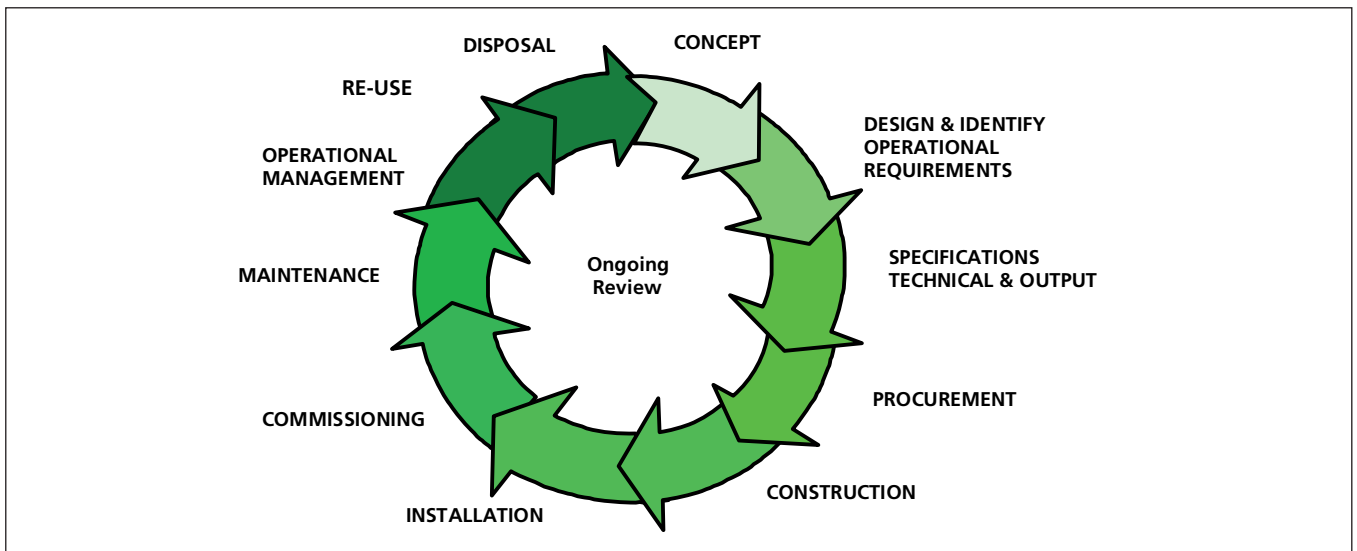
The focus of Health Technical Memorandum guidance remains on healthcare-specific elements of standards, policies and up-to-date established best practice. They are applicable to new and existing sites, and are for use at various stages during the whole building lifecycle.

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.

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

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:

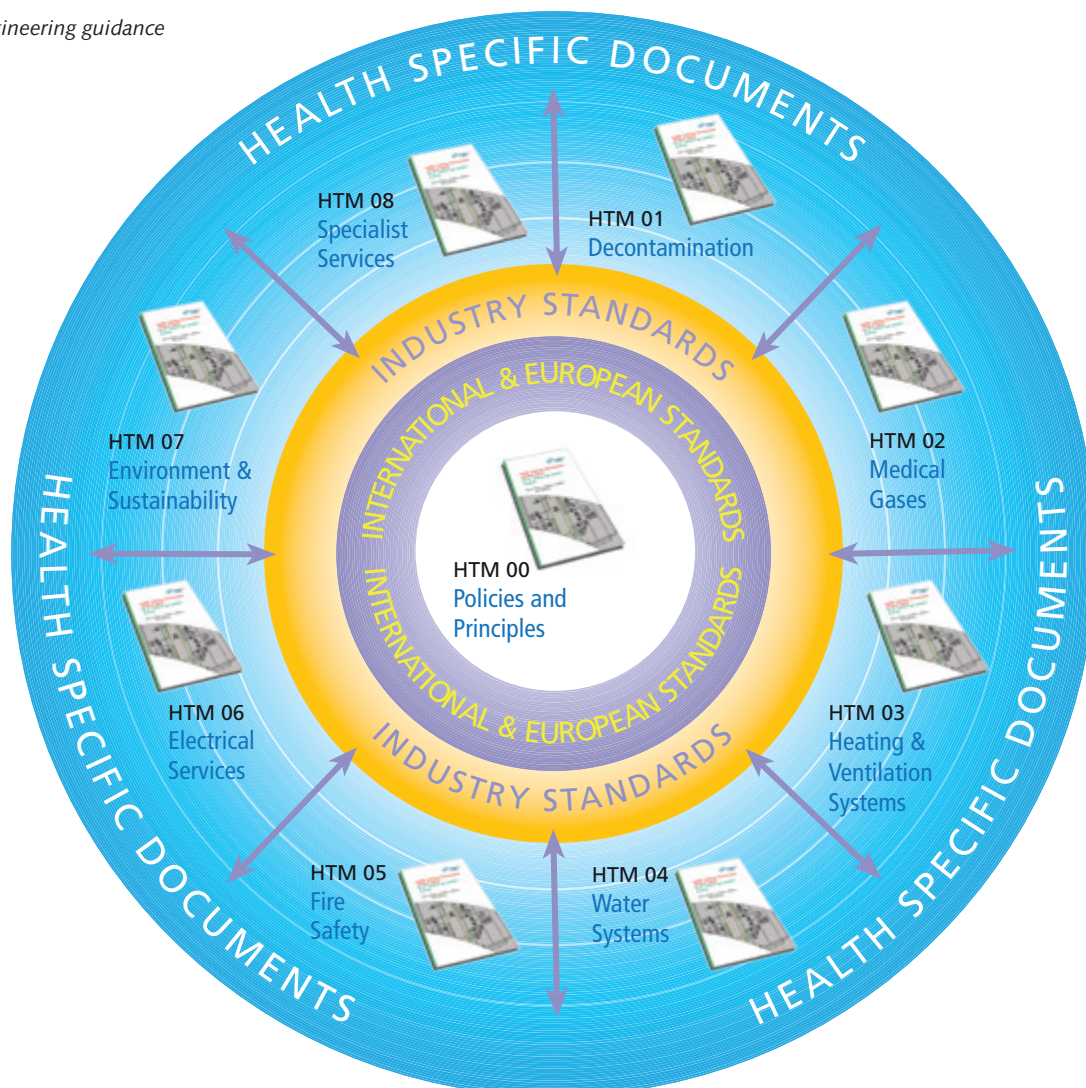
Environment and Sustainability – EnCO₂de.

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

Fire safety measures for the whole hospital

The primary remit of healthcare organisations with regard to fire safety is the safety of patients, visitors and health service staff. For each particular scheme, healthcare organisations will need to select a combination of measures to produce a fire safe design, taking the following into account:

- this Health Technical Memorandum;
- all statutes and guidance relevant to the scheme as a whole; the References section gives a short list of statutes and guidance to consult when formulating fire precautions schemes;
- the advice of the local fire and rescue authority and the local authority (building control);
- the advice of staff working for the healthcare organisation (estates staff, fire prevention officers, building control advisers etc)

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1 Introduction and scope

General application

- 1.1 This Health Technical Memorandum provides general technical guidance relating to the additional fire safety precautions which may become necessary when commercial enterprises are about to be, or have been, established on hospital premises.
- 1.2 It is intended that the recommendations of this Health Technical Memorandum should be applied to commercial enterprise areas formed by the conversion, extension, adaptation, modernisation or refurbishment of existing locations within, or closely adjacent to, healthcare buildings. In the case of new hospitals the recommendations should be considered at the initial planning stage.
- 1.3 The recommendations cannot take account of all the circumstances which may be found in any particular healthcare building, but are intended to highlight the health service aspects which need to be considered.

Exclusions

- 1.4 This manual makes no exclusion on the type of healthcare premises where commercial enterprises may be established.

Purpose of this manual

- 1.5 This Health Technical Memorandum provides technical and managerial guidance to ensure that when commercial enterprises or complexes are planned or designed they will not subvert the fire safety precautions already agreed for adjacent healthcare areas.

Management

- 1.6 This Health Technical Memorandum indicates the managerial and organisational arrangements necessary to ensure that any extra risks arising from commercial enterprises are taken fully into account at the onset of new schemes and upgradings. It recommends that healthcare organisations adopt a

holistic approach to setting fire safety strategies for hospital premises (see Health Technical Memorandum 05-01 – ‘Managing healthcare fire safety’). Fire separation requirements between commercial fire risk areas and hospital life risk areas are also covered.

- 1.7 There are a large number and wide variety of well-established income generation schemes currently operating in the NHS (see the Department of Health’s (2006) ‘National Health Service income generation. Revised guidance on income generation in the NHS’). Clearly it is not possible in this Health Technical Memorandum to recommend fire safety precautions suitable for every scheme in all situations and circumstances. The necessity for fire precautions, and their extent, should therefore be considered in respect of each scheme individually, using expert advice as appropriate.
- 1.8 When judging the merits of a scheme in terms of fire precautions, it should be borne in mind that the installation of any commercial enterprise will, in general, increase the fire risk.
- 1.9 This Health Technical Memorandum needs to be applied in such a way that the increased fire risk with respect to any part of the patient care areas of the premises is kept to the minimum possible and is reasonable in the circumstances.

Additional fire facilities

- 1.10 This Health Technical Memorandum requires consideration, inter alia, of the need for additional fire detection, alarm and extinguishing systems and smoke control systems beyond those normally provided for hospital premises. **Where such facilities are to be provided by parties other than the healthcare organisation, it is recommended that the extent of each party’s responsibilities is clearly defined in writing or by specification.** Careful attention is recommended for ensuring proper co-ordination, interfacing and commissioning of the various fire precaution measures.

Wardens

- 1.11 This Health Technical Memorandum also recommends that the Responsible Person (as defined in the Regulatory Reform (Fire Safety) Order 2005) designates persons with special responsibilities, known as fire wardens. Not only will they be responsible for the maintenance of fire safety precautions in commercial areas, but they will also take control of those areas in a fire emergency, to supervise and assist the evacuation of customers and staff. Such wardens should have regular contact and training with the healthcare organisation's specialist fire staff.
- 1.12 Training in fire precautions should also apply to staff of commercial enterprises. Such training should take account of the risk factors created by young or disabled persons who may work within the enterprise. Their staff representatives should attend fire meetings called by the wardens.

Some special conditions affecting shopping complexes established on hospital premises

- 1.13 In the course of planning and building certification procedures, healthcare organisations and local building control/fire and rescue authorities (and

others involved in the agreed levels of fire safety precautions) need to carefully consider the differences between shopping complexes established on hospital premises and complexes found elsewhere. The main characteristics of the former are:

- a. the population within shops on hospital premises is significantly different from that in other indoor shopping complexes;
 - b. at least half the patients in a hospital at any one time may be sufficiently mobile to visit the commercial area (principally shops) within the hospital;
 - c. patients visiting the shops will have varying degrees of mobility and alertness; many will be slow moving, some may have limbs in plaster, be using walking aids or require assistance in wheelchairs.
- 1.14 The effect of the scale of a shopping complex, together with the expected mix of non-ambulant and semi-ambulant patients with the other shoppers, will have a bearing on the fire safety of everyone within that shopping complex (including those at work in the shops) at a time of fire emergency evacuation.

2 Definitions

2.1 Similar terms used in Health Technical Memorandum 05-02 – ‘Guidance to support functional provisions for healthcare premises’, in this Health Technical Memorandum, or in associated British Standard Codes of Practice have the same meaning:

Cavity barrier: A construction provided to close a concealed space against penetration of smoke or flame, or provided to restrict the movement of smoke or flame within such a space.

Commercial enterprise: Any undertaking established on a site or within a building forming healthcare premises to which persons, including members of the public, may resort for the purposes of trading or business, whether such transactions are for gain or not, and whether the undertaking forms the whole or part of a private venture or a healthcare organisation’s activity. Examples (the list is not exhaustive) of commercial enterprises might include:

- retail units;
- League of Friends shops;
- WRVS shops;
- charity shops;
- restaurants;
- pharmacies.

Compartment floor: A fire resisting floor used in the separation of one fire compartment from another.

Compartment wall: A fire resisting wall used in the separation of one fire compartment from another.

Dependent fire zone: In the case of fire, the fire compartment(s) of commercial enterprise areas coming under the control of the nominated wardens.

Fire compartment: A building or part of a building, comprising one or more rooms, spaces or storeys, constructed to prevent the spread of fire to

or from another part of the same building, or an adjoining building.

Fire door: A door or shutter provided for the passage of persons, air or objects which, together with its frame and furniture as installed in a building, is intended when closed, to resist the passage of fire and/or gaseous products of combustion and is capable of meeting specified performance criteria to those ends.

Fire load: Calorific energy, expressed in SI units, of the whole contents in a space, including the facings of the walls, partitions, floors and ceilings.

Fire resistance: Ability of an element of building construction, component or structure to fulfil, for a stated period of time, the required stability, fire integrity and/or thermal insulation and/or other expected duty in a standard fire resistance test.

Fire Safety Manager: The person with the responsibilities described in Health Technical Memorandum 05-01 – ‘Managing healthcare fire safety’.

Fire stop: A seal provided to close an imperfection of fit or design tolerance between elements or components to restrict or prevent the passage of fire and smoke.

High fire load areas: Those rooms or areas of hospitals which contain large amounts of combustible materials and thereby constitute a fire load in excess of that normally found within parts of such buildings.

High fire risk areas: Areas which due to their function and/or content are more than usually susceptible to an outbreak of fire or rapid spread of smoke or fire. See also [Chapter 4, ‘Technical recommendations’](#).

High life risk areas:

- Areas in which patients may be receiving treatment or care and where they are dependent on staff for assistance with evacuation; or

- undivided areas in which more than 50 people normally congregate.

Material alteration of a building: As defined in the Building Regulations 2000.

Non-combustible: As defined in Approved Document B.

Purpose group: A classification of buildings according to the purpose to which it is intended to be put – as defined in Approved Document B.

Service duct: An enclosure for the accommodation of building services.

Separated part of a building: A form of compartmentation in which a part of a building is separated from another part of the same building by a compartment wall. The wall runs full height of the part and is in one vertical plane – as defined in Approved Document B.

Unprotected areas: In relation to a side or external wall of a building – as defined in Approved Document B.

Very high dependency areas: Areas where patients' clinical treatment and/or condition creates a high dependency on staff. This will include those in critical care areas, operating theatres, coronary care etc and those for whom evacuation would prove potentially life-threatening.

Warden: A person appointed by and responsible to the Fire Safety Managers who will undertake prescribed duties leading to the effective and orderly evacuation of a dependent fire zone at a time of fire. (See also 'Organisation and management of fire precautions'.) In the case of a commercial enterprise, this is likely to be a person nominated by the Responsible Person (as defined in the Regulatory Reform (Fire Safety) Order 2005) for the relevant undertaking.

3 The organisation and management of fire precautions

Firecode

3.1 Health Technical Memorandum 05-01 'Managing healthcare fire safety' states that the overall responsibility for fire precautions rests with the chief executive of the healthcare organisation, or it may devolve on whomever has overall management responsibility for the healthcare premises. The document also states that healthcare organisations need to nominate a Fire Safety Manager to take the lead on all fire safety activities. Each healthcare organisation must have for each of its premises a programme for installing and maintaining an adequate level of physical fire precautions designed to prevent the occurrence, ensure detection and warning and stop the spread of fires. Fire precautions policies and programmes must not remain static; they need to be regularly reviewed and updated to take account of changes in structure of buildings, their functions and contents, and any other matters which may have a bearing on fire safety. In addition, all premises must have in place fire-risk assessments to comply with the Regulatory Reform (Fire Safety) Order 2005.

Policy decision to incorporate commercial enterprises

3.2 Before making the fundamental policy decision to incorporate a commercial enterprise (other than a staff restaurant or a pharmacy) into the healthcare premises, healthcare organisations should consider all the potential implications. Where a healthcare organisation adopts a policy of incorporating commercial enterprises, the development is likely to introduce a change of function and content into that part of the premises whose primary purpose is that of healthcare. Such changes will have a bearing on the general fire safety of the premises as a whole.

3.3 This Health Technical Memorandum, largely directed at the safety of patients and hospital staff, gives guidance and provides recommendations for fire safety. The healthcare organisation should have already considered, in accordance with Firecode,

the fire safety implications of a decision to introduce commercial enterprises within the premises, or in such a position as may affect the fire safety of the premises.

Wardens

3.4 In keeping with the "high fire risk" category of a commercial enterprise area (see [paragraph 4.8, 'Classification of fire risk'](#)) it will be necessary to ensure:

- that any fire in the area is extinguished with speed; and
- that an effective and orderly evacuation of all units within the dependent fire zone can be concluded speedily if the need arises.

3.5 These objectives will be achieved by the designation of fire wardens, who should be alert and instantly responsive to the circumstances of the local situation. The persons selected will need to be located within the commercial enterprises and therefore should be employees appointed from the commercial units. The task of selecting, supervising, training and co-ordinating the activities of wardens will be the responsibility of the employer. Details of the name, training etc of fire wardens should be shared with the healthcare organisation through the Fire Safety Manager.

3.6 It may be that the designation of wardens can only be justified in the larger and/or more complex commercial enterprise schemes. This is a matter for the employer to decide, depending on the merits of each particular scheme and having regard to the requirements of the healthcare organisation.

3.7 It is apparent that the variety of enterprises which may be encountered within the commercial areas of hospitals may be limited only by the ingenuity of those seeking to generate new sources of income. It is therefore not possible within the scope of this Health Technical Memorandum to visualise in advance all criteria which must be addressed by wardens in the course of their duties. The Fire

Safety Managers should take all necessary steps to ensure that the arrangements, procedures and duties that are agreed with wardens will be adequate to deal with foreseeable local requirements following an outbreak of fire. The fire precautions policies for commercial enterprise areas must form an element of the requirements set by Health Technical Memorandum 05-01 'Managing healthcare fire safety'.

- 3.8 As a guide, it is expected that the principal tasks of wardens will involve:
- ensuring the day-to-day maintenance of agreed fire safety precautions within the commercial area for which they are responsible and reporting any unresolved issues to the Fire Safety Manager for prompt attention;
 - in a fire emergency, co-ordinating and directing the speedy and safe evacuation of the occupants of all units falling within the dependent fire zone, or if so directed, for a fire in any adjacent zone; and
 - attending local meetings on fire precautions matters affecting commercial areas and participating regularly in training and fire drills.
- 3.9 Fire Safety Managers should ensure that one or more acknowledged deputies to the permanent warden are designated to provide adequate availability at all times. Deputies must be fully conversant with their responsibilities and able to deputise at short notice.

Consultations with the fire and building control authorities

- 3.10 Consultation should take place with enforcing authorities at the planning stage. Commercial enterprises should not be brought into use until agreement has been reached with the enforcing authorities on the suitability of proposed fire safety provisions. (See also paragraph 3.22, 'Statutory duties'.)

Commercialisation of existing hospital services

- 3.11 If, solely, commercialisation of an existing hospital service occurs (for example a hospital-staffed laundry or restaurant becomes a commercially-run laundry or restaurant), this should not result in increased risk, provided the management

arrangements in this Health Technical Memorandum are observed together with Firecode.

Exchange of information

Responsibility for design to ensure the adequacy of fire safety precautions

- 3.12 Before work on commercial enterprise areas is started, a **suitably qualified representative** from the healthcare organisation should be designated to co-ordinate the design and construction of the commercial project.

Consultation and co-ordination

- 3.13 Absence of sufficient advance planning of commercial enterprise areas may result in wasteful delays and lead to expensive alterations at a later date. Consequently it is essential that proper consultation procedures to ensure co-ordination of work are established as soon as possible. The possibility of further development of commercial enterprises within or adjacent to the current project should be considered carefully.
- 3.14 It is recommended that particular attention should be paid to:
- the briefs from the commercial clients and the healthcare organisation. Where the healthcare organisation alone is making speculative provision for commercial enterprises, appropriate professional advice should be sought;
 - the programme for the project;
 - the procedures for consultation with the planning/building control authority, the local fire and rescue authority and the healthcare organisation's Fire Safety Manager/Adviser;
 - consultations with suppliers of special services such as fixed fire-fighting equipment, fire/smoke control equipment and automatic fire detection and alarm systems;
 - a system for spatial co-ordination and for ensuring that plans, drawings and specifications reach those who need them in good time;
 - a system for defining areas of responsibility for the correct interfacing of new building services and fire precautions arrangements with existing hospital services;

- g. the proper commissioning of new services with assignment of responsibilities and provisions for their continued and effective operation and maintenance;
- h. the preparation of fire drawings, using the guidance in Appendix G of Health Technical Memorandum 05-02.

Supervision of progress during the development of commercial enterprise areas

Project supervision

- 3.15 For purposes of observing the establishment and preservation of fire safety precautions as required by this Health Technical Memorandum, the person designated to co-ordinate the design and construction of the commercial project should ensure that as each commercial project progresses, the agreed designs, recommendations and advice from the planning/building control authority and the local fire and rescue authority are being implemented. It may be necessary to designate local advisers with specialist experience in building services engineering and structural fire precautions to adequately fulfil this commitment.
- 3.16 In particular, it should be established that the criteria set by Health Technical Memorandum 05-02 for ensuring the safety of the occupants in the high life risk areas of the hospital, are not being subverted by the development of the commercial enterprises.

Fire hazards during building operations

- 3.17 Buildings undergoing alteration or construction are particularly vulnerable to fire, mainly from lapses in safety precautions and carelessness by contractors undertaking processes involving naked flames.
- 3.18 Building and installation work should only be undertaken after specific arrangements have been made with the healthcare organisation's Fire Safety Adviser.
- 3.19 In occupied hospitals, heads of departments should be advised that construction or alteration work is being undertaken and that, for the duration of the

work, there may be a higher than usual fire or security risk.

- 3.20 Additional supervision should be provided during the alteration or construction work period. The Fire Safety Manager should arrange for visits to the site after work has finished each day to ensure that the contractors have left the site safe and that there are no smouldering materials.
- 3.21 For a more extensive treatment of this subject, reference should be made to Health Technical Memorandum 05-03 Part A – 'General fire safety'.

Statutory duties

- 3.22 Reference should be made to [Chapter 5, 'The Building Regulations 2000'](#) and [Chapter 6, 'Checklist of technical fire precautions design factors to be considered when establishing commercial enterprises on hospital premises'](#) in this Health Technical Memorandum for certain statutory duties in relation to fire and building regulations. Because the variety of possible commercial enterprise schemes is considerable, fire precautions requirements in respect of schemes may not be limited to the statutes and guidance in the sections mentioned in the previous paragraph. Therefore the fire precautions requirements of the appropriate enforcing authority must be ascertained. Guidance on town and country planning is given in Health Building Note 00-08 – 'Estatecode'.

Fire risk and public liability

- 3.23 The Department of Health's 'National Health Service income generation. Revised guidance on income generation in the NHS', Annex E, lists various points for consideration, one of these being "indemnity against public liability, fire etc". As part of the overall risk assessment relating to the introduction and running of commercial enterprises on hospital premises, healthcare organisation should take account of any increase in fire risk. Any increased risk should be taken into account when considering possible losses or claims, and commercial insurance of the risk should be obtained for income generation activities if and where appropriate.

4 Technical recommendations

General

- 4.1 This chapter is concerned with the relationship of commercial enterprises to healthcare premises and additional health service safeguards which may be necessary to ensure patient safety. It does not cover the safe use of the commercial enterprise itself – see Fire Practice Note 5 – ‘Some special conditions affecting shopping complexes established on hospital premises’, and [Chapters 5, ‘The Building Regulations 2000’](#) and [6, ‘Checklist of technical fire precautions design factors to be considered when establishing commercial enterprises on hospital premises’](#) of this Health Technical Memorandum.
- 4.2 Healthcare premises, and hospitals in particular, have a vulnerable population whose safety should not be endangered on account of the assumed importance of a commercial enterprise in terms of income generation or service to the occupiers of the hospital.
- 4.3 The introduction of commercial enterprises and their effect on the healthcare facility will need to be assessed for each project. It should be noted that the effect of the scale of a project is an important aspect of this assessment; in practice, the range of commercial enterprises will vary considerably, from small-scale enterprises to large schemes (such as the shopping complexes discussed in Fire Practice Note 5 – ‘Some special conditions affecting shopping complexes established on hospital premises’).

Classification of fire risk

- 4.4 When implementing this Health Technical Memorandum in conjunction with Firecode, commercial enterprises in general are to be classified as high fire risk areas, **and therefore should be enclosed in one-hour fire-resisting construction unless the fire risk can be shown to be very low, where half-hour fire resistance may be acceptable.**

- 4.5 Thus, the use to which an individual commercial enterprise may be put can change from time to time. While this should not necessitate additional fire safety measures, a suitable and sufficient fire risk assessment should be undertaken to determine any potential impact.

Relationship and separation of risks

- 4.6 To reduce life risk, one of the most important fire precaution measures is to separate the high life risk areas, both vertically and horizontally, from high fire risk areas.
- 4.7 In hospitals the relationship between very high dependency areas and high fire risk areas is of fundamental importance, and must be a prime factor in determining the location of commercial enterprises. This may be at odds with the commercial needs where, in the case of shops, a high-profile location may be considered essential. Nevertheless, the safety of patients must take precedence, and to this end, commercial enterprises should not be directly related to nursing sections, nor should they be located directly off hospital streets or main communication routes (see [paragraph 4.26, ‘Hospital streets’](#)).
- 4.8 The main objective of the separation (called for above) is that if any fire occurs in a commercial enterprise, it should not necessitate the evacuation of high life risk departments. The separation should also enable the fire and rescue service to contain and extinguish the fire.
- 4.9 Separation is best achieved by leaving space, both vertically and horizontally, between the life risk areas and the commercial enterprises. Approved Document B gives guidance on horizontal space separation, and Health Technical Memorandum 05-02 on vertical separation.
- 4.10 Where this is not possible, compartmentation is necessary to separate the high life risk areas from the commercial enterprises.

- 4.11 Commercial enterprises should not be located adjacent to very high dependency areas.
- 4.12 Ideally, commercial enterprises should be grouped together in one area, which should be separated from adjacent areas and not directly relating to main circulation routes or the main entrance of the hospital (see paragraph 4.30, 'Commercial enterprises within the main entrance').
- 4.13 A group of commercial enterprises should be collected into a fire compartment having a minimum of one-hour fire resistance, with any openings in the fire compartment kept to the minimum possible. The group of commercial enterprises should be established as a department/compartment, thus integrating the fire design with the management arrangements as recommended by Health Technical Memorandum 05-02.
- 4.14 Where, for healthcare reasons, the nature of a commercial enterprise makes a close horizontal relationship necessary, as in the case of a pharmacy, additional active/ passive fire precautions may be necessary.
- 4.15 In addition to Building Regulation requirements, Health Technical Memorandum 05-02 recommends that a calculated proportion of the roof(s) which may be situated below the level of adjoining and connected life risk areas should be designed to compartment floor standards.
- 4.16 Also, where opposite elevations of courtyards, lightwells and wings of the same building are wholly or partly in different compartments, the guidance in Approved Document B on space separation (that is, unprotected areas) should be applied.
- 4.17 In existing accommodation the standard of existing compartment floors and walls will need to be carefully checked to ensure that the current standards of fire-stopping, fire damper control of services etc exist and that subsequent installation of communication and other systems has not prejudiced the fire-resisting performance of the separation. Reference should be made to the principles given in Health Technical Memorandum 05-02.
- 4.18 Change of function of a room or area can present a potential fire risk (sometimes serious) in a hospital. Managers proposing such changes should carefully consider the principles of location and separation set out above.
- ## Means of escape
- 4.19 Means of escape routes from commercial enterprises **must not** pass through any wards or patient care areas.
- 4.20 Means of escape routes from any wards or patient care areas **must not** pass through commercial enterprises.
- 4.21 Substantial-sized commercial enterprises (floor area >90 m²) **must not** be installed in wards or patient care areas.
- 4.22 When commercial enterprises are proposed for incorporation into a healthcare building, they are often sited at ground (final exit) level. This chosen siting for the commercial enterprises has particular significance, because in the event of an evacuation from the building all the occupants need to descend to the ground (final exit) level and evacuate via that level. It is therefore vital that commercial enterprises are designed and incorporated in such a way as not to lessen the safety of the means of escape; nor must they reduce the width of escape routes, at or near the ground (final exit) level, particularly in the case of a total evacuation involving patients with varying degrees of disability.
- 4.23 The best means of escape from high life risk areas are those which are provided and maintained without the need to escape past any commercial enterprises. If this first preference cannot be achieved, fire-resisting separation between the escape routes and the commercial enterprises may be acceptable but may need to be supplemented by other measures, depending on the merits of each situation. These other measures may involve consideration of additional fire detection, alarm and extinguishing systems and smoke control systems beyond those normally provided for hospital premises.
- 4.24 Commercial enterprises should not form part of single direction escape routes which give access to wards or patient care rooms or departments.
- 4.25 In all cases, detailed means of escape proposals for the whole building, inclusive of the commercial enterprises, should be fully discussed and agreed between the healthcare provider, commercial enterprise provider, and building control and fire authority.

Hospital streets

- 4.26 In accordance with Health Technical Memorandum 05-02, hospital streets will have been designed to one-hour (minimum) compartment standards, with the very minimum of openings into the street, in order to limit the spread of fire, smoke and toxic fumes.
- 4.27 Therefore entrances to commercial enterprises should not open directly onto the street. A one-hour (minimum) fire compartment should be formed around the commercial enterprises with access to all the commercial enterprises via (preferably) one door opening onto the street itself, that is, a commercial enterprise department/compartment off the street. A one-hour (minimum) fire-resisting ventilated lobby should be provided between the street and the commercial enterprise department/compartment. Hospital street doors and doors to ventilated lobbies fitted with hold-open devices must be linked to and controlled by a suitable automatic fire detection system.
- 4.28 A hospital street sub-compartment should not contain entrances into high life risk departments together with access into a commercial enterprise department, because of the incompatibility of high life risk and high fire risk.
- 4.29 The principles which apply to hospital streets should also be applied to other main communication routes.

Commercial enterprises within the main entrance

- 4.30 If (contrary to the recommendation in 'Relationship and separation of risks' above) commercial enterprises are incorporated into the main entrance of the hospital, the following **additional** fire precautions will be necessary:
- separation of the main entrance hall from all other escape routes and other accommodation, both vertically and horizontally, by the required fire-resisting construction (one hour minimum);
 - provision of alternative means of escape to bypass the main entrance hall so as to give direct access from the health service escape routes (for example hospital streets/main communication routes) to other final exits.

Fire alarm and detection systems

General

- 4.31 The provision of effective fire alarm and detection systems in commercial enterprise areas is a vital component of the overall fire safety strategy. Health Technical Memorandum 05-03 Part B – 'Fire detection and alarm systems' provides the necessary general principles and technical guidance to enable installation of suitable systems. It should be read in conjunction with BS 5839-1, which forms a comprehensive code of practice on the subject.

Function of the fire alarm system

- 4.32 In hospitals it is undesirable to cause disruption to patient care areas for fires within commercial enterprise zones unless such fires threaten the life safety of hospital occupants. Therefore the purpose of the fire detection and alarm system in a commercial enterprise zone is to:
- protect the commercial property;
 - initiate effective evacuation of customers and staff;
 - ensure as far as practicable with the other fire precaution measures that fire, smoke and water damage is restricted to commercial enterprise areas.

System technology

- 4.33 The type of system, its design, relationship and compatibility with any existing hospital fire alarm system will need to be considered carefully when planning the commercial enterprise area.
- 4.34 Health Technical Memorandum 05-03 Part B recommends that "addressable" systems which incorporate one or more microprocessors should now be specified in hospitals for new work or major refurbishments in preference to conventional systems. Addressable systems have demonstrated improved reliability, fewer false alarms and the ability to provide more meaningful displays of information. They should be considered for all but the smallest of the commercial complexes. The decision about choice of system must take into account its potential suitability and flexibility, in particular to cope with future changes of use within the commercial area. The facilities afforded by systems from different suppliers vary, and the design team should decide which system is most suited to the location under review.

Automatic detectors

- 4.35 In general, automatic detectors should be provided in commercial enterprises.
- 4.36 Associated storerooms should also be included, whether located in the commercial enterprise area or elsewhere; these commercial enterprise store rooms should be treated as fire hazard rooms in accordance with Health Technical Memorandum 05-02 and be provided with automatic detection in accordance with Appendix 2 of Health Technical Memorandum 05-03 Part B.
- 4.36 Guidance on the types, suitability and siting of detectors is given in Health Technical Memorandum 05-03 Part B and BS 5839-1.

Manual call points

- 4.37 The vigilance of staff in detecting a fire during hours of attendance can often pre-empt the warning given by an automatic detector. This is of particular value when commercial enterprises are located within hospitals. Manual call points should be installed to the recommendations of BS 5839-1, as part of the automatic system.

Fire alarm zones

- 4.38 Fire alarm zones should have a common boundary with the fire compartments of commercial enterprise areas. In most cases a single fire alarm zone will be sufficient, but in extensive or complex locations it may be convenient to group a number of zones to form a sector. In all cases the fire alarm zones of the hospital and those of the commercial enterprises should be kept separate.

Fire alarm warnings

- 4.39 The fire alarm warning system should be designed to be an integral part of the hospital evacuation strategy and be so arranged as to minimise distress and disturbance to patients and staff. The alarm should be given automatically in those zones of the commercial complex at risk, and suitable facilities incorporated to alert staff in adjacent patient areas of the hospital.

Provision and location of fire alarm panels

- 4.40 The provision and location of fire alarm panels should take into account the needs of the hospital, the fire and rescue service and the occupiers of the commercial units, since it is they, in conjunction with the special wardens, who will be responsible

for taking pre-planned action. In some cases a suitable location may be adjacent to that for the hospital main system. In others a separate location may be appropriate. In all cases the location must be manned for 24 hours of every day. Local panels must be linked to the hospital main system, from which the arrangements for calling the fire and rescue service will be initiated in accordance with the recommendations of Health Technical Memorandum 05-03 Part B.

User responsibilities

- 4.41 During the consultation process (see Fire Practice Note 5 – ‘Commercial enterprises on hospital premises’), it must be established whether the healthcare organisation or other responsible person associated with the commercial development will have control of the supervision of the fire alarm system for purposes of maintaining its operational integrity, its modification and maintenance.
- 4.42 The duties to be undertaken are explained fully in Health Technical Memorandum 05-03 Part B and BS 5839-1 (section 7).

Provision and segregation of mechanical, electrical, gaseous and liquid services

General

- 4.43 Services should be installed in accordance with the recommendations contained within Health Technical Memorandum 05-02, associated Firecode guidance, Health Technical Memoranda and relevant British Standard Codes of Practice.
- 4.44 The design, location and construction of the services and their accommodation spaces (plantrooms, equipment spaces, service ducts, voids etc) should take into account fire hazards to the services from fires external to or within the accommodation spaces and the hazards to the commercial enterprise area from a major failure of any of the services.
- 4.45 Unless suitable precautions are taken, service accommodation may become a place where fire starts and grows undetected. Service ducts etc can also provide a route for the spread of fire, smoke and toxic fumes. Bad design may lead to situations where a fire, once started, is difficult to extinguish. For detailed information on the subject, see BS 8313:1997.

- 4.46 The routing of services supplying hospital departments and those for the commercial enterprise areas need careful consideration. It will be necessary to ensure that a fire within the commercial area cannot disrupt or damage any of the services supplying hospital departments. Such hospital services should be routed outside the fire compartment formed by the commercial areas. Only if this is not reasonably practical should they be routed through the compartment; in which case they may be accommodated within enclosures having a minimum of one-hour fire-resisting construction and subject to the agreement of the local fire and building control authorities.
- 4.47 Conversely it should not be possible for fire in the services supplying the commercial enterprise fire compartment to disrupt or damage any hospital accommodation. Similar routing or protection arrangements to those described above should be applied here also.
- 4.48 Drawings should be prepared, preferably to a scale of 1:50, showing the location and runs of services, including those for fire detection and alarms, with the location of associated main controls, isolating valves, electrical switchgear etc, and the location of first-aid and fixed fire-fighting equipment being clearly represented. Symbols should be in accordance with the BS document relevant to the particular service. Such drawings should form an essential part of the information exchanged or referred to in 'Organisation and management of fire precautions' section of this Health Technical Memorandum.

Mechanical services

- 4.49 The chief concern here is with ventilation and air-conditioning systems. To meet the requirements of Health Technical Memorandum 05-02, the ventilation systems for patient areas of the hospital and those for the commercial enterprise area should not be derived from a common source. The routing and protection of ductwork systems serving the hospital and the commercial area should be so arranged that it is not possible for the results of fire within the ductwork systems (or from break-in of fire into the ductwork systems) to cause fire to spread into the adjoining patient area or commercial accommodation.
- 4.50 Guidance on the fire problems of ventilation systems and the techniques for overcoming them are dealt with in BS 9999.

Electrical services

- 4.51 All electrical installations should comply with Health Technical Memorandum 06-01 – 'Electrical services supply and distribution', BS 7671:2001 and Health Technical Memorandum 05-02.
- 4.52 Electrical distribution circuits should be so arranged that faults and electrical disturbances and circuit re-arrangements occurring on circuits supplying the commercial enterprise area do not affect the reliability or availability of the essential services to the adjacent hospital departments.
- 4.53 The degree of support given by the hospital's standby generator on failure of the normal supply will be a matter for local agreement, except that supplies necessary for emergency services within the commercial enterprise area should be considered in consultation with the local fire and rescue authority. Useful references dealing with emergency and standby lighting are CIBSE's 'Lighting Guide LG2: Hospitals and health care buildings' and LG12: 'Emergency lighting design guide', and BS 5266-1.

Gaseous services

- 4.54 **Piped medical gases (PMG) as dealt with in Health Technical Memorandum 02-01 – 'Medical gas pipeline systems' must not appear within a commercial enterprise area.** Where a commercial project is to be established along the route of an existing PMG pipe run, the run must be diverted so as to exclude it from the commercial area.
- 4.55 Where pipes conveying flammable gases such as town, natural and LPG are required for the commercial enterprises, they should be routed so that they avoid hospital patient areas. The precautions necessary when flammable gases are run in service ducts are dealt with in BS 8313:1997.

Liquid services

- 4.56 Any pipes conveying flammable, oxidising, toxic or corrosive refrigerants for the commercial enterprises should be routed within the commercial area only. Those in service ducts should be dealt with in accordance with the requirements of BS 8313:1997.

Sprinklers for commercial enterprise areas

General considerations

- 4.57 Where the commercial enterprise is to be incorporated into an atrium forming part of the main entrance to a hospital (contrary to the recommendations in this chapter) and be open-fronted (also contrary to the recommendations in this chapter), a suitable sprinkler system forming an integrated part of the fire safety precautions should be installed within the commercial enterprise. Sprinklers are unlikely to be necessary in those commercial enterprise units that meet the requirements set out in this chapter and that can be shown to have a very low fire risk and very low fire load.
- 4.58 It is not possible in this Health Technical Memorandum to make detailed recommendations about the design of sprinklers for protecting commercial enterprise areas. Those responsible for setting the fire safety precautions will need to assess the risks associated with the introduction of such areas in conjunction with the local fire and rescue authority. Points to consider should include the configuration of the project, the functions of constituent units and their fire loading.

Classification of occupancies for fire hazards

- 4.59 Most areas of hospitals may be classified as having Ordinary Hazard 1 potential – as defined in BS EN 12845. Commercial enterprise areas may require a higher classification of hazard.
- 4.60 Classification is a skilled operation. It affects the choice of sprinkler installation and its operating parameters such that its type, size and design is appropriate to the classified level of hazard.

Rapid response sprinklers for life protection

- 4.61 Sprinkler systems are being used increasingly to protect life. This is in addition to their more familiar role of protecting enclosed commercial shopping complexes, which have similarities with some of the commercial enterprise areas now proposed for hospitals. The use of automatic sprinkler systems would help to prevent the spread of fire, smoke and toxic elements to adjacent patient areas and escape routes of the hospital.
- 4.62 Additional useful guidance on protecting shopping complexes may be obtained by reference to

BS 9999. The design and installation of sprinkler systems, including the particular requirements for protecting life, are dealt with in BS EN 12845.

- 4.63 The importance attached to protecting life within hospital premises may mean that a significant number of commercial enterprise areas will need to be provided with fast-response wet-pipe sprinkler systems.
- 4.64 **The components which form a sprinkler system should be in accordance with the relevant standards and type approved to achieve the required reliability of performance and durability. Sprinkler systems should be maintained to ensure reliable operation when required.**

Planning considerations and consultation

- 4.65 The following guidance is relevant to the procedures recommended in [paragraphs 3.12–3.14](#), ‘Exchange of information’.
- 4.66 Where a sprinkler system is being considered for a commercial enterprise area within a new or existing hospital, early consultations should be arranged with:
- the local fire and rescue authority;
 - the water authority;
 - other appropriate authorities;
 - the insurers (where appropriate);
 - representatives from the sprinkler installation industry.
- 4.67 At the outline planning stage, consideration should be given to any benefits that might be gained by changes to the design configuration and operational procedures proposed for the commercial enterprise area.
- 4.68 Account should also be taken of the possible adverse interaction between the sprinkler system and other fire protection measures and building services, particularly where they affect life safety. Examples are water spray and mist damage to automatic fire alarm systems and their detectors in adjacent areas of the hospital. Similar damage to the safe and reliable operation of nearby bed-passenger lifts, especially escape bed lifts, should also be considered.

Smoke control in commercial enterprise areas

General

- 4.69 An uncontrolled fire in a single commercial unit could fully smokelock the whole commercial area in well under five minutes. Smoke and toxic gases could travel considerable distances both horizontally and vertically if left unchecked.
- 4.70 It is expected that most commercial enterprise areas established within hospitals will be contained within a single fire compartment. Compartmentation, the use of fire door assemblies incorporating adequate smoke control measures, effective fire-stopping in service ducts, voids etc, will produce the simplest form of effective smoke control – see Health Technical Memorandum 05-02.
- 4.71 Where there may be the risk of hot smoky gases penetrating to patient areas, smoke control systems will be necessary. By their extraction techniques, such systems may also assist with the task of fire-fighting within the commercial area.
- 4.72 Generally, commercial enterprise areas in hospitals will be located in thoroughfares having restricted floor-to-ceiling heights. A successful smoke control scheme requires a minimum clearance between head height and the base of a contained smoke layer to allow persons to move about freely beneath it while smoke is being extracted. Since suitable clearance may not be available in many cases, alternative smoke control systems should be considered. It is unacceptable to allow hot smoky gases to penetrate any area used by patients. Suitable alternative protection may be achieved, for example, by the installation of a smoke-detector-actuated rapid-response sprinkler system. A sprinkler installation will normally obviate the need for a smoke control scheme and present a better means for protecting life. It may be necessary to consider such a system where there is restricted headroom in a mall or in public common areas.
- 4.73 However, any commercial enterprise unit within the commercial enterprise area which has a floor area exceeding 1000 m² should be fitted with its own smoke control and extract system independent of any other unit or hospital system (see also BS 9999).
- 4.74 It is not possible within the scope of this Health Technical Memorandum to deal with all the

problems of designing a successful smoke control scheme. This will normally require the services of a specialist, who should undertake an investigation in consultation with the local fire and building control authorities.

Other factors for consideration

- 4.75 As the smoke control system is primarily designed to protect life, any mechanically-powered devices must be actuated via the automatic fire detection and alarm system at the first detection of smoke. Fusible links are generally slow in operation and should only be used as back-up features.
- 4.76 When a mechanically-powered smoke extract system is brought into operation, the normal ventilation system should cease to operate, otherwise the former system will not function correctly.
- 4.77 Extract fans should be adequately rated to deal with the temperatures expected from the hot smoky gases. Alternatively, steps should be taken to reduce the temperature of the gases before they reach the fans.
- 4.78 All electrical apparatus and supply cabling used in the smoke control systems should be suitably protected to withstand sustained operation.

Further considerations

Access and facilities for the fire service

- 4.79 Where commercial enterprises are to be installed in new and existing hospitals, or sited such that the fire safety of the hospital may be affected, early consultation with the local fire and building control authorities is of prime importance. The scale and nature of the commercial enterprises, when taken in conjunction with the hospital premises, will determine the design requirements. The following facilities to assist the fire and rescue service need to be considered:
- vehicular access for fire appliances;
 - access for fire-fighting personnel into buildings;
 - provision of fire mains within buildings;
 - adequate water supplies;
 - sprinkler (or other water extinguishing system) stop valves;
 - smoke extract control panels;
 - fire alarm panels.

Fire safety and hazard signs

- 4.80 All fire safety and hazard signs and notices should accord with the Health and Safety (Safety Signs and Signals) Regulations 1996 and, where appropriate, the Department of Health's 'Wayfinding' guidance.
- 4.81 Fire safety signs and notices should be prominently displayed and highly visible; they must not be allowed to become camouflaged by commercial enterprise signs of an eye-catching or otherwise distracting character.

Emergency lighting

- 4.82 This should be installed within commercial enterprises in accordance with BS 5266-1.

Construction

- 4.83 Standards of fire resistance, compartmentation etc are to accord with Approved Document B.
- 4.84 Solid non-combustible construction is recommended for compartmentation. Where this is not possible (for example in older existing hospitals), discussion should take place with the local fire and building control authorities to see if other fire safety compensatory features can be incorporated.

Catering enterprises

- 4.85 If commercial enterprise areas include catering establishments approaching the level of fire risk/fire

load applicable to main kitchens of hospitals, appropriate fire safety provision should be ensured, including automatic fire suppression.

Fire-fighting equipment

- 4.86 Places of work generally (shops etc) will require means for fighting fire under the provisions of the Regulatory Reform (Fire Safety) Order 2005. The advice of the local fire and rescue authority should be sought to determine the number, type and location of this equipment.

Commercial enterprise goods

- 4.87 The following must be controlled to reduce fire hazards in and about hospital premises:
- a. safe delivery and removal of goods;
 - b. safe storage of goods within the confines of commercial enterprise areas;
 - c. maintenance of all vehicular access routes for fire appliances at all times;
 - d. maintenance of clear means of escape routes at all times;
 - e. adequate and safe provisions for the storage and removal of waste.

5 The Building Regulations 2000

Control

5.1 The Building Regulations 2000 control the erection of a new building, the extension of a building and the material alteration of a building. This section describes how fire safety is controlled by the Building Regulations. Since fire safety is also controlled by the Regulatory Reform (Fire Safety) Order 2005, there is some overlapping of control between these two statutes, and this aspect is also outlined.

Purpose groups and uses

5.2 In many hospitals there may be a complex mix of uses (called “purpose groups” in the Building Regulations). It is therefore necessary to consider the possible risk that one part of a building may have on another, and special measures to reduce this risk may be necessary.

Variety of commercial enterprise installations

5.3 When applying Building Regulations, there are various conditions which can arise, and the combined effect of Building Regulation/Regulatory Reform (Fire Safety) Order 2005 fire requirements can vary accordingly.

5.4 Some examples of the conditions in respect of commercial enterprises are:

- a. installation as compartment(s) within an existing hospital;
- b. installation as compartment(s) within a new hospital;
- c. installation in a new separate building purpose-built solely for commercial enterprise use;
- d. installation in an existing separate building altered and adapted solely for commercial enterprise use;
- e. installation as a “separated part” of either a new or an existing hospital, possibly in the form of an extension.

Means of escape in case of fire

5.5 Building Regulations control means of escape, including a “shop and commercial” purpose group, which is defined in Approved Document B. When new shops have been designed and constructed in accordance with the Regulations concerning means of escape from fire (and no material alterations have taken place), it is likely that the duty under the Regulatory Reform (Fire Safety) Order 2005 concerning means of escape from fire will also be met, provided the standard required by the Order is being maintained effectively. Such new shops become subject to the Regulatory Reform (Fire Safety) Order 2005 when they are first occupied.

6 Checklist of technical fire precautions design factors to be considered when establishing commercial enterprises on hospital premises

- 6.1 This checklist is not exhaustive – it is intended as an aide-memoire.
- a. Assessment/classification of fire risks/loads of commercial units.
 - b. Separation of life and fire risks, both vertically and horizontally in relation to healthcare accommodation.
 - c. Means of escape in case of fire.
 - d. Access and facilities for the fire service.
 - e. Routing and protection of building services.
 - f. Fire-resisting construction, including all perforations thereto.
 - g. Fire properties of materials.
 - h. Automatic fire alarm and detection.
 - j. Water or other extinguishing systems.
 - k. Smoke control systems.
 - m. Fire safety and hazard signs.
 - n. Emergency lighting.
 - p. Fire-fighting equipment.
 - q. Storage and removal of waste.

7 References

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

[National Health Service income generation. Revised guidance on income generation in the NHS.](#)

[Regulatory Reform \(Fire Safety\) Order 2005.](#)

Health Technical Memorandum 05-02 – ‘Guidance to support functional provisions for healthcare premises’.

Health Technical Memorandum 05-03 Part A – ‘General fire safety’.

Health Technical Memorandum 05-03 Part B – ‘Fire detection and alarm systems’.

[The Building Regulations 2010.](#)

[The Building Regulations 2000 Approved Document B.](#)

Health Building Note 00-08 – ‘Estatecode’.

Firecode: Fire Practice Note 5 – ‘Some special conditions affecting shopping complexes established on hospital premises’.

Health Technical Memorandum 06-01 – ‘Electrical services supply and distribution’.

Health Technical Memorandum 02-01 – ‘Medical gas pipeline systems’.

[Health and Safety \(Safety Signs and Signals\) Regulations 1996.](#)

‘Wayfinding’. DH, 2007.