NHS National Services Scotland

NHSScotland 'Firecode'

Scottish Health Technical Memorandum 87

Textiles and furniture

Health Facilities Scotland
Property and Capital Planning

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Contents

1. About this publication

1.1 Scottish Health Technical Memorandum 87 (SHTM 87) sets out revised recommendations and guidance for the procurement and use of furniture and textile products in healthcare premises in Scotland.

1.2 SHTM 87, version 3, replaces version 2, dated December 1999. As part of the fire safety strategy, the contents of healthcare premises should, so far as possible, limit the potential for the ignition of textile products and furniture and so far as possible ensure that textiles, including upholstered furniture, do not support the rapid spread of flame.

1.3 In any case, the statutory requirements of the Fire (Scotland) Act 2005 as amended, and the Fire Safety (Scotland) Regulations 2006, must be complied with, in particular the obligation to conduct suitable and sufficient fire risk assessment/s. The information and guidance contained in this document will inform and assist that part of a fire risk assessment considering the fire safety impact of textiles and furniture.

1.4 This document identifies the performance requirements that should be used when purchasing or specifying textile products and furniture for use in healthcare premises.

1.5 SHTM 87, version 3, reflects Scottish legislation and best practice; however, the principles and contents of this document are closely based on the contents of HTM 05-03: Operational provisions Part C: Textiles and furnishings; published by the Stationary Office on behalf of the Department of Health; Estates and Facilities in consultation with the National Fire Policy Advisory Group, chaired by NHS Estates.

1.6 This SHTM is consistent with the requirements of, and should be read in conjunction with the Fire Safety Policy for NHSScotland issued by the Scottish Government Health Directorates, Health Finance Directorate CEL 25 (2008).

European Legislation

1.7 European Council regulations, directives, decisions and recommendations have had an impact on the content of this revision. In accordance with Treaty of Rome obligations, the UK Government has introduced national regulations to assimilate the requirements in UK law. This revision of SHTM 87 reflects these changes.

1.8 In particular, the General Product Safety Directive (2001/95/EC) has had the most significant impact on the recommendations contained in this SHTM. The implications of this directive are discussed, and the definitions of a ‘safe product’, ‘dangerous product’ and ‘serious risk’ are provided.

Technical specifications

1.9 This SHTM also recognizes the publication of European technical specifications (EN). Under the current rules of the European Standards body (CEN), the members (including the UK) are required to withdraw any conflicting national standard in favour of the corresponding EN standard.

Note: Within this document, reference is made to both British Standards and the European Standards. The British Standard classifications do not directly equate with the equivalent classifications of the European Standard; therefore, products cannot typically assume a European class unless they have been tested accordingly.

Other developments

1.10 SHTM 87; version 3 reflects current Government policy in supporting areas such as:

- the Keymark (the CEN mark of conformity);
- the use of eco-labels in textile end-use applications;
- the application of certain flammability requirements for medical devices;
- the publication of a draft Standard by CEN covering textiles in the healthcare system; and
- the use of the CE Mark.

Revisions:

SHTM 87 Version 3 updates and replaces SHTM 87 Version 2, and is amended to take account, in particular, of the following;

- the Fire (Scotland) Act 2005 as amended;
- the Fire Safety (Scotland) Regulations 2006;
- the General Product Safety Directive (2001/95/EC) and other relevant European Council directives, decisions and recommendations.

2. Introduction and scope

Terminology

2.1 Throughout this document, in common with other guidance available, the terms 'hazard' and 'risk' are frequently used. It is appropriate that these two terms are defined to prevent any misunderstanding:

- a **hazard** is something that has the potential to cause harm;
- a **risk** is the likelihood of that harm occurring.

2.2 Various references are also made to the several kinds of legal instrument available to the European Commission:

- **regulations:** these are directly enforceable laws, applicable and binding on member states, and consequently have force even without subsequent domestic legislation;
- **directives:** these are also legally binding and are addressed to member states. They lay down the intended results of legislation, leaving it to the individual member states as to how the legal obligations are to be achieved. A directive is the instrument most commonly encountered. It is the member states' only means of action for achieving an approximation of laws and also freedom of establishment, freedom to provide services and free movement of capital. It is the main source of EU law in relation to health and safety (including fire safety);
- **decisions:** these are addressed to member states or to an individual or legal entity (for example a company) and are binding to the addressee. They are particularly useful in the enforcement of competition policy;
- **recommendations and opinions:** these are not legally binding but do have considerable political influence.

General application

2.3 Fire statistics show us that in terms of unwanted fires in the healthcare estate, it is often a textile or textile-based material that is the item first ignited. Textiles are often easy to ignite and burn rapidly (especially in a vertical orientation) unless they are inherently flame retardant or have been treated with a chemical flame retardant.

2.4 This SHTM sets out recommendations, advice and guidance for the purchase, use and acceptance of donations of furniture and textiles in hospitals and other healthcare premises.

Scope of SHTM 87

2.5 SHTM 87, version 3, should not be quoted as if it was a specification, and any claims of compliance should be carefully examined to ensure they are not misleading. Users of this Scottish SHTM should be able to justify any course of action that deviates from the recommendations, including the use of alternative solutions.

2.6 The guidance contained in SHTM 87 may be used as benchmark guidance when undertaking a fire risk assessment in pursuance of compliance with the Fire (Scotland) Act 2005 as amended, and the Fire Safety (Scotland) Regulations 2006.

2.7 This guidance may also be used in the independent healthcare sector.

Major changes since the last edition

European standards

2.8 The specifications for fire retardancy and the fire test specification have remained unchanged for a number of years. These tests and specifications have now been superseded by European technical standards, and these changes are reflected in this revised guidance.

Procurement policy

2.9 The Public Contract (Scotland) Regulations 2006 provide that, subject to UK mandatory technical requirements, a contracting authority should define technical specifications in the following order of preference:

a. British Standards transposing European Standards i.e. where a standard has been agreed across Europe and then subsequently adopted as a British Standard;
b. European technical approvals;
c. common technical specifications;
d. international standards; or
e. other technical reference systems established by the European standardisation bodies.

2.10 The above requirement is mandatory. It is only in the absence of any of the above standards (in order of preference) that British Standards would apply.

2.11 SHTM 87 guidance represents best practice for the healthcare environment and the quoted standards should be regarded as the minimum to be applied.

Fire safety measures for the whole hospital

2.12 Hospitals and other healthcare premises are subject to the provisions of the Fire (Scotland) Act 2005, as amended, and the Fire Safety (Scotland) Regulations 2006. The current statutory regime requires that NHS Scotland organisations conduct, act on the findings of, and periodically review fire risk assessments for the relevant premises they occupy. Audits, to determine whether or not NHS Scotland hospitals and other healthcare comply with the requirements of the Act and supporting Regulations, will be conducted by authorized Fire and Rescue service enforcement officers. The guidance contained in this document will provide information to assist assessors in the conduct and review of these assessments.

2.13 Healthcare organisations will need to select and effectively implement a combination of measures to achieve an acceptable level of fire safety, taking into account:

- the guidance contained in the Practical Fire Safety Guidance for Healthcare Premises; Scottish Government, Police and Community Safety Directorate; to support compliance with the Fire (Scotland) Act 2005, as amended and the Fire Safety (Scotland) Regulations 2006;
- the guidance in this SHTM;
- the relevant guidance contained in other parts of Firecode Scotland;
- all relevant legislation and statutes;
- the advice of the local fire authority;
- the advice of relevant competent staff in the healthcare organisation.

2.14 Products and materials that comply with harmonised European technical standards provide an assurance of conformity for manufacturers who may then claim product or material compliance without the need for any further testing. By this route, healthcare organisations are able to ensure a consistent level of safety by procuring products and materials that are considered safe within the definition of the General Products Safety Directive (2001/95/EC) (see paragraphs 14.6–14.9).

European Union Legislation

2.15 The publication of a number of EC directives has had a significant impact on the fire safety recommendations in this SHTM:

- the Framework (89/391/EEC) and Workplace (89/654/EEC) Directives introduce a requirement for an assessment of the risk from fire to be completed in all places of work;
- the Construction Products (89/106/EEC) Directive provides performance requirements applicable to textile floor coverings, which are included in the scope of this SHTM;

- the General Products Safety Directive (2001/95/EC) (see Section 14) and the Medical Devices Directive (93/42/EEC) (see Section 15) both apply certain provisions to some of the items covered by this SHTM.

2.16 Explicit in the Treaty of Rome is the duty of member states to assimilate laws, regulations and administrative procedures to meet the essential requirements of these directives. Each member state will therefore have enacted specific national legislation imposing the essential requirements of the directives.

Technical standards

2.17 Standardisation at the European level (that is, in CEN) has led to the publication of technical standards, many of them "harmonised", which means that under the current rules of CEN membership, the UK and all other members of CEN have to withdraw any conflicting national standard.

2.18 Standards have a useful role in the single market by supporting a series of laws called 'new approach directives' (as in the case of the Medical Devices Directive 93/42/EEC and the General Products Safety Directive 2001/95/EC). These European-wide directives set out the essential requirements that products need to meet before they may be sold across the whole of the European Union.

2.19 New approach directives comprise only the broad requirements and do not contain technical detail. Manufacturers and specifiers therefore need to translate the broad 'essential requirements' into technical solutions. One of the best ways that manufacturers and specifiers can do this is to use specially developed European standards. These standards are called harmonised standards (hEN) and they provide a "presumption of conformity" with the directive for which they have been written (visit the following website for further information: www.newapproach.eu/).

2.20 The European Commission (the Directorate-General for Health and Consumer Protection) is currently assessing the third group of existing standards with a view to possible publication of their references in the Official Journal of the European Union (OJEU)[1]. The Commission Services is currently considering which of the available standards fulfil the conditions required for such publication. The publication confers a particular status in that a product shall be deemed 'safe' (as far as risks and risk categories covered by relevant national standards are concerned) when it conforms to voluntary national standards transposing European standards, the references to which have been published by the Commission in the Official Journal of the European Union (OJEU).

Note 1: With effect from 1 February 2003, the Official Journal of the European Communities (OJEC) changed its name to the Official Journal of the European Union (OJEU).

2.21 Many of the technical standards covered by this document are being considered as part of the consultation exercise under the provisions of the General Products Safety Directive (2001/95/EC). On that basis alone – the fact that such

technical standards exist – manufacturers and specifiers in Europe will already be utilising the provisions of such technical standards to test their products (or will be wishing to) and will therefore seek to express the results in the terms provided to support their claims that their products are 'safe' within the definition provided in the directive.

2.22 A list of appropriate technical standards is provided in Appendices C and D.

3. Technical specifications

General comments

Medical Devices Regulations 2002 and the Medical Devices (Amendment) Regulations 2005

3.1 These regulations, made to fulfil the UK's obligation under the Medical Devices Directive (93/42/EEC), may apply to some of the items covered by this SHTM where they are classified as medical devices. There are no specific essential requirements for fire safety in the directive (and therefore in the regulations).

3.2 Clause 7.1 of Annex 1 to the directive contains the general requirement that, in the design of the medical device, particular attention must be paid to 'the choice of materials used, particularly as regards to toxicity and, where appropriate, flammability'.

3.3 The recommendation in this SHTM with regard to fire behaviour performance is applicable to all such products, whether or not they are classified as medical devices.

Performance

3.4 Guidance is provided on standards of flammability performance for resistance to ignition by specified ignition sources and subsequent surface spread of flame or surface flash.

3.5 As the methods of test for the fire behaviour of textiles and textile products and textile-related products may be the same, whatever the occupancy or end use, the only variation will be the performance recommended.

3.6 The guidance given in this SHTM is relevant to any healthcare facility where patients receive treatment or care. The recommendations particularly apply to acute healthcare situations such as hospitals, primary care premises such as health centres, clinics, treatment centres etc., and specialist healthcare facilities such as mental health units.

3.7 The application of this guidance to supported accommodation in the community is optional as such premises will usually comprise single private dwellings with or without NHS Scotland carer support. As such premises comprise private dwellings, as opposed to NHS Scotland managed healthcare premises, the provision of items complying with these recommendations cannot be mandatory. However, those responsible for the care provisions may wish to complete an assessment of the risk, taking into account the abilities, disabilities and other characteristics of the occupants and premises. The use of textiles and

other items meeting the recommended performance levels in this SHTM may be deemed appropriate and necessary to reduce the assessed fire risk.

3.8 The guidance in this document may be applied in patient hotels.

Fire safety in healthcare premises

3.9 The guidance in this document is applicable to common circulation spaces and escape routes used by patients. These areas should be included in fire risk assessments.

3.10 Commercial enterprises, often under the control of organisations other than the Health Board, may introduce significant risks/hazards to hospital or other healthcare premises and, because of that, such areas are subject to specific guidance contained in Scottish Fire Practice Note 5 (SFPN 5): Commercial enterprises on hospital premises. The guidance in this document is additional to that contained in SFPN 5 (see Section 5: paragraphs 5.6–5.7).

3.11 Within this document, the references to ‘high risk’ or ‘high hazard’ refer to furniture and furnishings used in accommodation for the following occupancy groups:

- the elderly;
- those with learning difficulties;
- young people with disabilities;
- secure and medium secure premises for those having mental health problems.

4. Burning of textiles

General

4.1 Flammable textile materials decompose readily when sufficient heat is applied. They can usually be ignited quickly and easily with a small ignition source such as a match, and burning spreads rapidly. They tend to burn upwards with a flame that rapidly increases in speed and intensity and the material tends to burn away completely, exposing the substrate or underlying material. The heat from burning textile materials may contribute to the spread of fire by acting as a secondary ignition source, igniting other materials that may not have ignited with the initial ignition source.

4.2 Burning clothing fabrics will cause severe skin burns and some materials may be thermoplastic, melting on the application of heat. If the material forms a hole, it exposes the underlying material to the effect of the primary ignition source. Flaming molten drops may fall from the material and ignite other materials.

4.3 The main hazard from burning textile materials arises from the build-up and transfer of heat. If clothing is ignited large areas of skin can be damaged. In the case of furnishing fabrics particularly, the heat may be transferred to other materials facilitating the development of a large fire. The combustion products of all materials are toxic and irritating, and in sufficient quantity the atmosphere is likely to become lethal. This will occur more quickly in smaller spaces than in larger spaces. Some textile materials are more flammable than others and attempts have been made to classify the flammability behaviour of textiles by fibre type.

4.4 However, the actual classification may depend on other factors related either to the test procedure or to the fabric construction. The choice of flammability test conditions and performance levels can influence the classification. Burning behaviour is influenced by the position and intensity of the ignition source, the availability of oxygen supply, and the test specimen orientation in the particular test employed.

4.5 The performance levels that are set, and the terms used to describe the different classes, may therefore not be consistent from one standard to another. Fabric factors that affect flammability include fabric weight and surface construction. In general, the lighter the weight of the material, the more easily it is ignited and the more rapidly it burns. Thus, different weights of cotton and thermoplastic fibres, for instance, can be rated as slow burning, flammable, or highly flammable.

4.6 Pile fabrics and those with a brushed or raised surface tend to burn very rapidly. If the base fabric burns at a high speed, the material may be considered as unsuitable for clothing use. If the material exhibits surface flash, defined as rapid spread of flame over the surface of a material without ignition of its basic

structure, the flame is usually so weak that it is unlikely to cause any burning damage. Materials that surface flash may be used for clothing, but they must be kept away from sources of flame.

4.7 Thermoplastic fibres, which melt on the application of a flame, may not ignite or may give only limited flame spread. However, thermoplastic fibres melt and expose the skin, which can cause contact-burn injury or ignite other underlying materials. They are liable to give very erratic burning behaviour but normally are classed as low or reduced flammability.

4.8 The burning behaviour of fabrics made from blends of fibres, or composites made from different materials, cannot be predicted from tests of the separate materials. In particular, thermoplastic fibres burn more readily if supported by non-melting materials that provide a so-called scaffold effect. The flammability of various fibre types can be modified by the presence of certain textile finishes (anti-soil, anti-crease, easy-iron).

4.9 Flame retardant treatments are used to reduce flammability, but other treatments or finishes may increase flammability. Grease and soil acquired during use can also affect the flammability properties, as can the cleansing procedures used to remove them. Fibres that give only restricted flame spread are normally divided into two types:

a. inherently flame retardant fibres in which the properties are a feature of the fibre structure;
b. flame retardant-treated fibres which contain a flame retardant which is added at the fibre extrusion or fabric finishing stage.

4.10 Special fibres have been developed that not only restrict the spread of flame but resist decomposition on contact with flame, and these are mainly used for specialist protective clothing and equipment.

Note: Attention is drawn to the contents of Safety Action Notice SAN (SC) 07/43. Curtains / bed screens: risk of fire due to inadequate flame retardancy. Attention is drawn in particular to the recommendations, especially to consider the use of inherently flame retardant fabrics for screens and curtains in mental health wards, Accident and Emergency Departments and other high-risk areas, and the need for risk assessments to be carried out. See Appendix A.

5. Furniture

General

5.1 This section deals with furniture in wards and other hospital or healthcare areas to which patients may have access. It also deals with staff and public areas including those areas occupied by commercial undertakings on healthcare premises, whether or not patients have access.

5.2 Upholstered furniture and furnishings for use in NHS Scotland healthcare premises should meet, at least, the same fire safety standards specified for furniture and furnishings for domestic use. Upholstered furniture and furnishings intended for domestic use have to meet levels of ignition resistance set by the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended).

5.3 In order to achieve the performance levels recommended in this SHTM, chemical flame retardant treatments may be used. The advantages of the improved fire safety performance provided by such chemical flame retardant treatments far outweigh any disadvantages. The question of suitable treatments and the required durability is dealt with in Section 11.

5.4 Wear and tear due to heavy use will inevitably lead to cover fabrics on furniture becoming worn or torn, exposing the filling materials. In some areas such as waiting rooms upholstered furniture may also be subjected to malicious damage.

5.5 If the cover fabric of upholstered furniture is damaged and the filling material is exposed, it should be replaced or repaired without delay and in any case withdrawn from use until made good.

Commercial enterprises on hospital premises

5.6 The guidance contained in SFPN 5: Commercial enterprises on hospital premises, covers the general fire safety measures for these premises. Such areas may, however, contain upholstered seating and other textiles such as floor coverings, curtains or drapes not covered by the guidance in SFPN 5.

5.7 Where contractual arrangements exist with third party commercial enterprises, the healthcare organisation should require the service provider to comply with the fire safety performance requirements detailed in this SHTM.

Storage furniture

5.8 This type of furniture is usually made of wood or wood-based products such as particleboard and is relatively difficult to ignite. However, it can contribute significantly to a fire once it is ignited, possibly by being adjacent to burning

textiles such as curtains or drapes. Care taken with both the amount of such furniture used and its location can reduce this possibility.

Fixed or mobile screens

5.9 Privacy for patients in multi-bed wards or treatment areas may be provided by screens or carcass furniture. Fire spread over such surfaces may be controlled by using materials or products that meet a given fire safety performance level, determined in tests appropriate for the materials or products involved.

5.10 As screens or furniture are considered as lining materials, they should meet the same surface spread of flame classification of performance. The performance rating of such items should be in accordance with BS EN 13501-1.

5.11 In transposing the performance levels of the Euroclass System (see Commission Decision 2000/147/EC as amended by Commission Decision 2003/632/EC) Class 0 equates with Euroclass B. It is recommended that all such products should now be classified to this Euroclass performance.

Bedsteads

5.12 All-metal bedsteads, of which the King's Fund type is the most common, do not present a fire hazard.

5.13 There may be local circumstances where a more homely environment is desirable and solid timber bedsteads, for example, are provided. In such circumstances, the recommendations given in paragraph 5.8 in respect of storage furniture should be observed.

Upholstered furniture – general

5.14 Upholstered furniture including seating, mattresses, divans, bed-bases and similar items are a substantial risk in terms of fire. Regulations in the UK have consistently imposed basic requirements in terms of their resistance to ignition and studies have shown that compliance with these regulations has been directly responsible for saving many lives and preventing injuries.

5.15 For the purposes of the regulations, upholstered furniture is defined as seating furniture (including children's furniture) as well as upholstered articles such as stools, beanbags and floor cushions.

5.16 Recommendations on the performance of such items of furniture are contained in two British Standards:

- BS 7176 – 'Specification for resistance to ignition of upholstered furniture for non-domestic seating by testing composites';
- BS 7177 – 'Specification for resistance to ignition of mattresses, divans and bed bases'.

5.17 While the recommendations contained in these two British Standards apply to hospitals and other healthcare premises, the guidance contained in this document extends, in part, the recommendations.

5.18 Studies conducted in the UK before the introduction of the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended) showed that the principal hazard associated with upholstered furniture was from the cellular foam fillings commonly used. On that basis, Part 1 of Schedule 1 to the regulations contained an ignitability test for polyurethane foam in slab or cushion form. All the following performance levels recommended in this SHTM, in terms of ignitability, are made on the assumption that the filling materials will also comply with the requirements of the 1988 Regulations.

Divans and upholstered bed-bases

5.19 Guidance as to whether bed mattresses may be classified as medical devices is provided in paragraphs 15.7 – 15.9. It is suggested that, as medical devices, such items are not covered by the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended).

5.20 BS 7177 (see Table 1) provides the recommended performance requirements for mattresses, bed-bases and divans and also provides advice on the application of hazard categories. This standard has been modified to take account of published European standards.

5.21 Any cellular foam used in divans or upholstered bed-bases, including padded headboards, should be capable of meeting the flammability requirements of the Furniture and Furnishings (Fire)(Safety) Regulations 1988.

The Regulations also apply to furniture intended to be used as seating as well as a bed. All parts of convertible furniture for which the seating also provides the sleeping surface should be capable of meeting the filling-material and cover fabric requirements of the Regulations.

5.22 In BS 7177, hospitals are classified as medium or high hazard but with an additional category of “very high hazard”, covering accommodation in certain hospital wards (for example, secure psychiatric units/wards). The performance recommended in such applications is the same as for “high risk” but allows for additional tests to be required by the specifier. The need for an increased level of performance in very high hazard areas can only be established by a local risk assessment.

5.23 The higher-intensity ignition source deemed necessary by this SHTM – that of BS 6807 ignition source 5 (20 g of newspaper equivalent) and ignition source 7 (100 g newspaper equivalent) – is not yet available as either a European or an international technical specification.

Upholstered furniture

5.24 Upholstered furniture used in NHS Scotland healthcare premises should in any case meet at least the minimum standard required for domestic upholstered furniture.

The Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended) provide for a basic level of resistance to ignition to be applied to upholstered furniture. In addition, the Regulations contain a requirement for filling materials to be evaluated in a standardised manner for mass loss.

5.25 Table 1 in BS 7176 gives the recommended performance requirements for upholstered furniture and provides advice on the application of hazard categories. Hospitals are classified as medium risk, with the qualification that sleeping accommodation in certain hospitals might be classified as high hazard. The performance requirements suggested by BS 7176 are given in Table 2.

Medium Risk		High risk	
British Standard	**European Standard**	**British Standard**	**European Standard**
BS 7177 Resistant to ignition source 5 in section 2 of BS 6807	Resistant to ignition source: Smouldering cigarette of BS EN 597-1. Resistant to ignition source: Match flame equivalent of BS EN 597-2.	BS 7177 Resistant to ignition source 7 in section 2 of BS 6807	Resistant to ignition source: Smouldering cigarette of BS EN 597-1. Resistant to ignition source: Match flame equivalent of BS EN 597-2.

Table 1: Mattresses, divans and bed-bases

Medium hazard		High hazard	
British Standard	**European Standard**	**British Standard**	**European Standard**
BS 7176 ignition source 0 and 5 Resistant to ignition source 5 in Part D of BS 5852.	Resistant to ignition source: Smouldering cigarette of BS EN 1021-1. Resistant to ignition source: Match flame equivalent of BS EN 1021-2.	BS 7176 ignition source 7 Resistant to ignition source 7 in Part D of BS 5852.	Resistant to ignition source: Smouldering cigarette of BS EN 1021-1. Resistant to ignition source: Match flame equivalent of BS EN 1021-2.

Table 2: Upholstered furniture

Wheelchairs

5.26 The resistance to ignition of the upholstered parts of wheelchairs is covered by BS ISO 7176-16, which contains requirements and test methods. It cites ISO 8191-1&2 as the appropriate method of test, but neither of these two technical specifications has been taken up as British Standards.

5.27 Healthcare organisations may wish to consider this particular aspect, as in some cases the upholstered parts of a wheelchair can be substantial and it would be clearly undesirable for these parts to be ignitable by smokers' materials.

5.28 It would be appropriate for such upholstered parts to be considered as upholstered furniture, and for the test standard and associated performance required of upholstered furniture to be applied to wheelchairs.

Scatter cushions and seat pads

5.29 The Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended) apply to the filling material of cushions and pads supplied for use on the seats of wooden chairs. The regulations also apply in the case where non-foam (fibre) filling is used. Either the filling or the primary cover must meet the provisions of the regulations.

Removable, loose or stretch covers

5.30 Removable covers that are supplied with the furniture are regarded as permanent covers for the purposes of the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended). If such furniture is provided, the cover forms part of the overall fire performance characteristics of the piece of furniture. If such covers are removed, the furniture may not be capable of meeting the stipulated performance in respect of ignition. It would therefore be necessary to remove from use any such furniture while the removable cover was being cleaned or repaired. Their use is therefore not recommended.

5.31 If there is a positive need for loose or stretch covers, despite the recommendation in para. 5.30, they should be capable of meeting BS 5852 ignition source 1 or BS EN 1021-2 when tested over a standard grade of polyurethane foam as required by the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended).

Furniture in mobile vehicles

5.32 It is now common for healthcare organisations to provide a mobile service, taking healthcare to users in the community. This may be in the form of a specially adapted vehicle or purpose-built trailer. The Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended) apply to upholstered furniture (including beds) supplied with new caravans. Whilst it is unlikely that a commercially available caravan would be used for this purpose, the fabrics and furnishings of any purpose built mobile vehicles or trailers used should comply with all the appropriate recommendations of this SHTM.

Polypropylene (hard-backed) chairs

5.33 Where polypropylene chairs are purchased it is recommended that FR (fire resistant) polypropylene shells should be specified.

Totally soft play environments

5.34 Soft play environments may be provided either as play areas for young children, as a recreation/treatment facility for adults or children with a disability and in physiotherapy department gymnasia. They should be identified as a significant fire risk in view of the fire load the material itself presents, even though obvious sources of ignition are not present, during the conduct of fire risk assessments. Particular attention should be paid to the storage arrangements and to the integrity of the equipment, including the condition of the stitching and coverings. Covered foam should meet the requirements of BS 5852 with ignition sources 0 and 5.

Foam pits filled with foam off-cuts should be avoided, as should the use of raw uncovered foam for any purpose. Only combustion-modified type (CMHR) cellular foam should be used, meeting the requirements of the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended). Floor mats should comply with the requirements of BS 1892: part 3.

- floor mats should be stored flat to reduce the vertical surface area that may be presented to flame;
- they should be stored separately, in a store conforming to the standard for a fire hazard room (short fire resistance duration), the provision of which should be subject to the findings of a fire risk assessment that takes into account the quantity of materials and all the relevant circumstances involved;
- ignition sources should be eliminated if possible, or at least reduced to the lowest possible level. Lighting should comprise bulkhead or fully enclosed ceiling fittings;
- the store should be fitted with a smoke detector(s) that is an integral part of the fire alarm system for the premises. Optical smoke detectors are considered to be most appropriate for use in spaces where the smoke generated is likely to be optically dense, such as that usually produced by polyurethane foam. Refer to BS 5839 for more detailed guidance on the selection of the appropriate detector type to be used;
- the door should be kept closed when not in use and locked when the area is unoccupied.

Upholstered garden furniture

5.35 Where such furniture is used indoors as temporary or other seating, upholstered components should comply with the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended).

6. Bed assemblies

General

6.1 This section deals with textile bedding items used on hospital wards and in other healthcare areas used by patients. It covers several different products that may be found as part of a typical bed assembly in the healthcare environment. By their nature and use, some of these items, such as pressure-relief products, may be classified as medical devices.

While covered by the provisions of the Medical Devices Directive (93/42/EEC) (see Section 15) and therefore the Medical Devices Regulations 2002 (see paragraphs 3.1–3.3), their specific performance in respect of fire behaviour should be in accordance with the recommendations contained here.

6.2 Care should be taken with the desired performance of bedding items where they are used in oxygen or nitrous-oxide-enriched atmospheres. Firecode SHTM 83 'General fire precautions' contains additional guidance.

6.3 Standards for the testing of mattresses, upholstered divans and upholstered bed-bases are contained in EN 597-1 and EN 597-2 (see paragraphs 5.19–5.23). In addition, separate standards covering the testing of items of bedding are provided in BS EN ISO 12952.

6.4 Where the total make up of the bed i.e. bed-base, mattress, mattress covers and bed covers, can be specified, it is advisable to undertake a test of the whole bed assembly that will be used in practice. Such conditions would be applicable in healthcare premises or homes providing residential care.

6.5 As in the case of upholstered furniture the test methods applied to beds and bedding use the smouldering cigarette and simulated match (small open flame). This is unlikely to provide an adequate standard for healthcare premises.

6.6 It is recommended that bed assemblies should be resistant to ignition by a smouldering cigarette (BS EN ISO 12952-1&2) and ignition source 5 (20 g newspaper equivalent) of BS 5852.

Bed covers

6.7 EN 14533 provides a classification scheme for the burning behaviour of bedding items, based on two ignition sources contained in BS EN ISO 12952. The classification is applied to single bedding items and not to complete bed assemblies. It provides for three classes of performance as shown in Table 3.

6.8 BS 7175 describes methods of test for the ignitability of bed covers and pillows, individually and in combination, when subjected to smouldering and flaming types of ignition sources of different severities. It is divided into five sections as follows:

- general application;
- pillows and continental quilts tested with smouldering and flaming ignition sources;
- individual bedcovers (including mattress covers, sheets, pillowslips, blankets, bedspreads and continental quilt covers) tested with smouldering and flaming ignition sources;
- composites of known bed covers and pillows tested with smouldering and flaming ignition sources;
- final examination of test specimens and test reports.

CLASS	Class definition determined by EN ISO 12952
A	Passes the ignitability test with a smouldering cigarette Passes the ignitability test with a small open flame
B	Passes the ignitability test with a smouldering cigarette
C	Fails the ignitability test with a smouldering cigarette Fails the ignitability test with a small open flame

Table 3: Burning behaviour of bedding items

6.9 The tests detailed in BS 7175, in common with those in both BS 7176 and BS 7177, are now based on the available European technical standards. BS 7175 has now, in part, been replaced by BS EN ISO 12952-1–4 (see Appendix C). The performances applied in BS 7176 and BS 7177 are only in respect of a smouldering source and a simulated match flame. There is no available European or international standard based on agreed larger ignition sources.

6.10 The scope of BS EN ISO 12952 describes specific test methods for bedding items that can normally be placed on a mattress (for further information, see paragraphs C61–C65 in Appendix C).

6.11 Given the classification awarded in both BS 7176 and BS 7177, the same classification is extrapolated here. The test provides for the individual items to be subjected to the test procedures as well as a full composite representing the made-up bed and bedding (see Table 4).

Pressure-relief products

6.12 Pressure-relief products may be found in a variety of forms (for example support aids, mattress overlays, underlays, air-filled mattresses, cushions etc). They are usually placed within a bed assembly or on a chair or wheelchair.

6.13 These products should meet the requirements of BS 7175 using ignition source 0 and 5. However, where there may be a conflict between fire safety and the health of the patient, discussion should take place between care staff and fire safety professionals. Decisions on the suitability of any pressure-relief products selected for use should be adequately documented in a fire risk assessment.

6.14 The above standards need not be applied to products used in baby cots.

Medium Hazard		High hazard	
British Standard	**European Standard**	**British Standard**	**European Standard**
BS 7176 and BS 7177 Ignition source 0 and 5 Resistant to ignition source 5 in Part D of BS 5852	Resistant to ignition source: Smouldering cigarette of BS EN ISO 12952-1 & 2. Resistant to ignition source: Match flame equivalent of BS EN ISO 12952-3 & 4.	BS 7176 and BS 7177 Ignition source 7 Resistant to ignition source 7 in Part D of BS 5852	Resistant to ignition source: Smouldering cigarette of BS EN ISO 12952-1 & 2. Resistant to ignition source: Match flame equivalent of BS EN ISO 12952-3 & 4.

Table 4: Bed assemblies

7. Clothing

General

7.1 While it is generally accepted that in acute wards patients will normally be dressed in their own nightclothes (pyjamas, nightdresses and dressing-gowns), and in long-stay situations patients will more commonly wear their own normal day clothes. In both cases the necessary laundering is likely to be undertaken by the patient's family.

7.2 In most cases it will not be possible to exercise any control over the fire behaviour of personal clothing. However, a degree of safety can be achieved where NHS Scotland provides clothing or other garments for personal use.

7.3 Items of nightwear are covered by the Nightwear (Safety) Regulations 1985 and the Nightwear (Safety) (Amendment) Regulations 1987. The regulations require nightwear to be appropriately labelled e.g. 'Keep away from fire'.

7.4 Such requirements do not recognise that, in many instances, such garments could be homemade or misused e.g. that older children may be wearing non-compliant adult nightwear. In such circumstances the impracticality for hospital staff to check all such garments on admission is recognised, as in the case of long-stay patients especially, this could be a continuous, ongoing requirement.

7.5 The basic provision, therefore, in the case where garments are provided by the hospital or other service provider, is that garments must conform to the current regulations i.e. the Nightwear (Safety) Regulations 1985 and the Nightwear (Safety) (Amendment) Regulations 1987. Gifts or donations of garments that cannot be so identified should not be used.

7.6 Additionally, certain material constructions give rise to the phenomenon of rapid surface burning or surface-flash when tested in accordance with EN 1103. Such garments (usually dressing-gowns) include cotton or other fabrics with a raised (pile) surface. The use of such garments should be discouraged. If the patient provides such a garment, they should be offered the use of another dressing gown provided by the hospital.

7.7 The Nightwear (Safety) Regulations and the Nightwear (Safety) (Amendment) Regulations apply to garments supplied as nightwear, and to garments supplied otherwise than for nightwear but which are similar in nature and commonly worn as nightwear, for example: bathrobes, negligées and snuggle wraps.

7.8 While it is unlikely that negligées would be either supplied or worn in a hospital, there is every possibility that bathrobes and even snuggle wraps could be worn or provided by the hospital. In the case of older people who are long-stay patients, snuggle wraps might be worn in day rooms.

7.9 The flammability performance of the regulations relates to the whole area of the garment including threads, trimmings, decorations and labels. This should be borne in mind where repairs are carried out on the premises.

7.10 Nightwear made and trimmed with synthetic fibres that melt without decomposing when ignited as part of the BS test, can be taken to meet the flammability performance requirements.

7.11 The regulations cite the test specifications of BS 5722, which in turn cites BS 5438. As the regulations are still in force, the only means of demonstrating compliance is to test using these two technical standards. There can be no other method of test while the regulations are extant.

7.12 For all other applications for clothing items, EN 1103 would be the appropriate method of test. The European Commission (Directorate-General for Health and Consumer Protection) recently gave a study mandate to CEN to complete an investigation on the need for technical specifications for fire behaviour at the European level. This was followed by a standardisation mandate, and a draft technical specification prEN 14878 covering nightwear has been produced and is currently being formally considered by CEN members.

7.13 This European technical specification requires that EN 1103 be used to evaluate the fire behaviour of nightwear. The ignition test specified is BS EN ISO 6941. Once prEN 14878 is published, the UK may consider the future status of the current regulations.

Until this happens and a decision is made, healthcare organisations must continue to use only the methods of test cited in the current regulations.

8. Disposables

Sheets, pillowslips, drapes and bibs

8.1 Disposable or non-woven products are available for a number of end-use applications, and the quality now available makes them attractive to healthcare organisations as they can be used in an emergency when supplies of conventional items are interrupted. They must be used with caution because they can present a higher fire risk than reusable textiles, as it is difficult to have disposable products with FR properties. As far as reasonably practical, their use should be kept to a minimum, and they should not be used regularly as a matter of course to reduce maintenance costs.

8.2 Particular care and observance of fire precautions is recommended where these types of product are used or stored. Large quantities of these products should not be stored in the ward areas.

Curtains

8.3 A number of suppliers now offer disposable cubicle curtains. These lightweight curtains are easy to take down and are maintenance-free. It is claimed that they help to eliminate cross-contamination and are ideal for critical care units, burns units or anywhere where cubicle curtains must be changed frequently.

8.4 Made from non-woven polypropylene material, it is claimed that they are 100% flame retardant. Many of these products originate from the USA, although UK suppliers may offer these to healthcare organisations. Claims as to the flame retardancy (FR) treatment and subsequent claimed performance should be treated with caution.

8.5 If their use is being contemplated in any healthcare application, the method of test used to determine the claimed performance should be established. It is also important to establish the means by which the stated performance has been achieved. The flame retardant chemicals used in the USA may not meet the requirements imposed by European legislation.

They should conform to the same flame retardant requirements as reusable curtains (for example BS 5867); however, the durability requirement of 50 wash cycles need not be met due to the disposable nature of the curtains. Nevertheless, as part of the fire retardant test procedures, they should have been subjected to a specified water soaking procedure.

9. Marking and labelling

General

9.1 In most instances, the product (for example furniture and nightwear) in use will carry the label as required by the current national regulations.

As most of the performance requirements given in this SHTM are above the minimum requirements, the products will not carry any label.

9.2 All textiles, furniture and furnishings covered by this SHTM should be clearly and durably labelled or marked according to the individual contract requirements. Labels should be safely, securely and permanently attached e.g. sewn in place. Labels should not be attached using staples or similar methods.

9.3 It is recommended that suppliers attach labels to relevant products confirming that they provide compliance to the specified technical specification.

9.4 The label should include advice on any special precautions that are necessary concerning care and cleansing.

9.5 Where furniture or furnishings or any other product within the scope of this SHTM is re-upholstered or repaired, only materials that comply with the original performance recommendations should be used.

The repairer should provide a new label that confirms this.

10. Cleansing

General

10.1 This section primarily relates to fabrics that have been chemically treated to provide FR. It does not give detailed laundry-process instructions. It is included as information for all those concerned with the selection, purchase and care of textiles and textile items, to illustrate the laundering process for those fabrics.

10.2 As there are many variations in the types of washing and finishing equipment in commercial and hospital laundries, individual linen service and laundry managers must formulate the appropriate washing processes which must be strictly followed to retain the FR effectiveness of chemically-treated fabrics.

10.3 Where appropriate, records should be maintained to allow for effective monitoring and audit of the care and cleansing of chemically treated items. This should include the loading factor expressed as the ratio of dry load (kg) to net cage volume.

Flame retardant cotton fabrics

Loading factor

10.4 The normal loading factor (1:12) for cotton articles is satisfactory, but white and coloured fabrics should not be washed in the same load.

Wash

10.5 Generally a two-wash process will be satisfactory. This means a break-wash or pre-wash to remove surface soiling and a second wash or main wash at a higher temperature to remove more resistant soiling and to achieve thermal disinfection.

Break-wash (first wash)

10.6 Net washing time five minutes at a recommended maximum temperature of 40°C at a high dip (liquor ratio 1:10 – liquor ratio is defined as the ratio of dry load (kg) to total volume of water (litres)).

Second wash (main wash)

10.7 Net washing time ten minutes at the recommended loading factor of 1:12 at a low dip (liquor ratio 1:4) and at a maximum temperature of 75°C ± 2°C.

Wash materials

10.8 To minimise the risk of masking the FR properties by insoluble lime soaps, a synthetic, preferably non-ionic, detergent is recommended. BS EN ISO 15797 gives the appropriate industrial detergent formulation.

10.9 Sodium hypochlorite (chlorine) bleach should not be used, as it will destroy the imparted FR properties.

10.10 Starch or other additives such as fabric conditioners should not be used, as they will mask the FR properties.

Rinse/extraction10.15

10.11 When washing with a synthetic detergent, three rinses should be adequate.

Fabrics from synthetic fibres

10.12 Fabrics of this type, such as modacrylic and polyester, are of low fire hazard level.

10.13 Synthetic fibre fabrics are not affected by the laundering processes that are recommended for them, but care must be taken in the finishing of modacrylic fibres.

10.14 Generally they are unsuitable for calendering, and excessively high temperatures must be avoided during tumble-drying.

Dry-cleaning

10.15 Dry-cleaning solvents do not mask or degenerate FR properties. Cleaning of such items/garment should be carried out according to the care label.

11. Chemical flame retardant treatments

General

11.1 The fire behaviour of textiles in furniture and furnishings in both domestic dwellings and public buildings is of considerable importance. The fire hazard/risk inherent in these materials, including the smoke and toxic gases produced during combustion, cannot be entirely mitigated by adopting e.g. improved methods of escape, fire detection or smoke extraction.

11.2 The best fire safety performance that can be achieved is resistance to ignition by specific sources such as smouldering cigarettes or small open flames (equivalent to a match) or larger flames (a single burning item such as a waste-paper basket). In a number of limited applications, certain natural fibres e.g. wool, can exhibit an inherent natural ability, such as resistance to ignition. Some man-made fibres e.g. flame retardant polyester can also provide modified fire behaviour, such as ignition resistance or a reduction in surface burning.

However, no textile can truly be classified as flameproof.

11.3 It would be normal practice in the light of such a requirement for some textile fabrics to be treated with a flame retardant chemical to achieve the required performance. This can be done either by applying chemicals to the fibres before processing into a textile, or by applying it to the textile fabric at an appropriate stage during manufacture.

11.4 In some cases, the nature of such chemicals is controversial and their use may be deprecated. Following a risk assessment, the European Parliament's Environment Committee introduced an EU marketing-and-use ban on the brominated flame retardant 'pentaBDE'. This has now been widened to cover other related controversial substances in the same chemical group.

11.5 Textile end-use applications should not present any health hazard arising from the chemical properties of the fabric(s) from which they were made. Neither should there be any health hazard from any substances or preparations used to treat or coat any textile.

11.6 Specifically, the toxic and eco-toxic aspects of chemical flame retardant treatments when applied to any textile end-use application may need to be considered. One specific principle that may be considered is that only those flame retardant substances and preparations that the European Commission's Scientific Committee on Health and Environment Risks (SCHER) has evaluated can be used.

11.7 The standardisation mandate (M304) given to CEN to prepare technical standard methods of test for adult and children's nightwear recognises that certain flame retardant treatments can be considered acceptable.

Durability

11.8 In achieving both the recommended fire behaviour and flame retardant performance discussed in this guidance, chemical treatments may therefore be applied to the textiles. Such treatments must perform the task for which they are applied for the normal life of the fabric; they therefore must be durable.

11.9 Any normal routine washing or cleansing procedures (see Section 10) applied to garments or to fabrics (such as beds and bedding, curtains, upholstered furniture etc) that have been treated in any way should be carried out in accordance with the manufacturer's instructions contained on the care label on the garment or product.

12. The Keymark: the CEN/CENELEC mark of conformity

General

12.1 The Keymark, also called CEN European Mark, is a voluntary third-party certification mark providing assurance that a product complies with specified requirements of the relevant European Standard(s) issued by CEN.

12.2 The Keymark is only licensed for use in combination with the marks of existing national certification systems e.g. the BSI Kitemark and other schemes demonstrating conformity of products with CEN standards and operated by empowered certification bodies.

12.3 It is a sign of “Europeanisation” of the national marks and in some cases it constitutes a step to harmonising the national certification schemes and marks. It improves confidence in the national marks of all countries concerned and acceptance of the equal quality of the national certification schemes.

12.4 Given that the UK Government is supportive of the scheme, healthcare organisations may wish to consider their position in this respect. If products were to be offered that carry the Keymark, it might be considered an advantage.

12.5 Once a product is tested and certified to obtain the Keymark in one country, there should be no need for retesting in other countries participating in the scheme. The manufacturers and retailers should therefore be able to effectively market their products Europe-wide. The Keymark also acts as a market-opener, a key to the single market. Consumers and users will be confident that it addresses all the social concerns which are defined in a European Standard, and that it will be recognised in Europe by those with an interest in requirements relating to safety, health and environmental protection.

12.6 The Keymark can be applied for by manufacturers, importers and retailers in collaboration with manufacturers. In this respect the mark aims to provide sufficient value so that retailers/ manufacturers can effectively market their products. Governments, in the framework of EU directives such as the General Product Safety Directive (2001/95/EC) and in the framework of recommendations such as those relating to mutual recognition, are expected to rely on the Keymark as evidence that the products concerned are suitable for

use, taking into account all the established requirements of the reference standard(s). It is possible that manufacturers in other parts of Europe will offer the Keymark in support of a tender to supply a healthcare organisation with their products.

12.7 The Keymark should not be confused with the CE Mark (see Section 18), which is a mandatory declaration from the manufacturer/supplier that the product fulfils and demonstrates respect for the essential requirements of the relevant EU directives.

12.8 Consumers support a single European mark, which has to fulfil specific requirements such as third party testing and precise information to provide transparency on safety, performance and environmental aspects of the product.

12.9 The Keymark delivers products to the European market with the required confidence using the fewest possible resources.

12.10 In principle, the basic components of the scheme are:

- proof of conformity of the product(s) against the CEN European Standard(s), taking account of, if applicable, the specific rules approved by the CEN Certification Board;
- initial conformity assessment, especially by type testing and evaluation of the factory product control of the manufacturer, taking into account the elements of the BS EN ISO 9000 series;
- decisions on certification and licensing, including maintenance, extension, suspension and withdrawal;
- periodic surveillance.

How does it work?

12.11 The precondition for establishing a Keymark scheme is a set of relevant requirements in the CEN European Standard(s) to which conformity can be evaluated.

12.12 If national marks (or a national mark) exist, granted on the basis of national standards transposing the European standards involved, the CEN Certification Board can decide, after evaluation, on the acceptance of the existing national schemes as conforming to the Keymark requirements and allow the Keymark to be licensed for use in combination with those national marks.

12.13 To obtain the Keymark, the manufacturer must submit the application to a certification body empowered for the scheme relevant for his/her products. Attention is drawn to the fact that his/her choice implies also the choice of the national mark in combination with which the Keymark is granted. The descriptions and documentation pertaining to the product to be provided by the manufacturer may, at least in detail, vary from country to country.

13. Eco-labels and textile end-use applications

13.1 As in the case of the Keymark scheme (see Section 12), the UK Government is supportive of eco-labels, and a request to manufacturers/suppliers to conform to the provisions required to use eco-labels may be considered desirable.

13.2 The basic aim of the original Council Regulation (880/92/EEC of 23 March 1992 on a Community eco-label award scheme) was for a voluntary and selective Community eco-label award scheme, and this is carried over in the later, replacement European regulations. The award scheme should provide guidance to specifiers/ consumers on products with a potential for reducing environmental impact when viewed through its entire life cycle. It should provide information on the environmental characteristics of labelled products.

13.3 Such provisions are supported by the UK Government, and healthcare organisations may therefore wish to confirm this by recommending that products, where possible, should be able to demonstrate compliance with the principles concerned.

Regulation (EC) No 1980/2000 of 17 July 2000 on a revised Community eco-label award scheme

13.4 The initial proposal for the Community eco-label was made in Council Regulation 880/92/EEC. It provided for a review after five years, and thus Regulation (EC) No 1980/2000 was consequently published in July 2000. The current regulations are the basis for the eco-label award scheme being extant today.

13.5 The use of the Commission eco-label is optional. There are no mandatory requirements for a manufacturer to provide the eco-label, but if they so choose, they must follow the provisions of the relevant Commission decision.

13.6 The provisions of this regulation refer to Council Directive 67/548/EEC, which proceeded the 1999/45/EC Directive. It is under the 67/548/EEC Directive that certain flame retardant chemical substances are classified as harmful to the environment.

13.7 The scheme could be applied to most of the products covered by this guidance. For the purposes of the regulations, the term “product” is taken to include any goods or services. The Community eco-label may be awarded to products available in the Community that comply with the essential environmental requirements of Article 3 of the regulations.

13.8 The specific application of the scheme is detailed in a series of formal Commission decisions, individual to the various “product” groups; there are two such decisions relevant to healthcare organisations. Each such decision has a maximum life of five years. The regulation under which these decisions are made does not have a specific life-span of application.

Commission Decision 2002/371/EC of 15 May 2002 establishing the ecological criteria for the award of the Community eco-label to textile products

13.9 To be covered by this decision, a textile product must fall within the scope of Article 2, which stipulates that textile products shall comprise:

- textile clothing and accessories;
- interior textiles for interior uses (wall and ceiling coverings are not included).

13.10 In the annex to the decision, fibre-specific criteria are set out for a number of major textile groups. The annex also covers the use of dyes, coatings and finishes including flame retardants.

13.11 No use is allowed of flame retardant substances or of flame retardant preparations containing more than 0.1% by weight of substances that are assigned or may be assigned at the time of application of any of the following risk phases (or combinations thereof):

R40 (limited evidence of a carcinogenic effect);

R4 (may cause cancer);

R46 (may cause heritable genetic damage);

R49 (may cause cancer by inhalation);

R50 (very toxic to aquatic organisms);

R51 (toxic to aquatic organisms);

R52 (harmful to aquatic organisms);

R53 (may cause long-term adverse effects in the aquatic environment);

R60 (may impair fertility);

R61 (may cause harm to the unborn child);

R62 (possible risk of impaired fertility);

R63 (possible risk of harm to the unborn child);

R68 (possible risk of irreversible effects).

This requirement does not apply to flame retardants that, on application, change their chemical nature to no longer warrant classification under any of the R-Phrases listed above, and where less than 0.1% of the flame retardant on the treated yarn or fabric remains in the form as before application.

As laid down in Council Directive 67/548/EEC and its subsequent amendments.

Commission Decision 2002/740/EC of 3 September 2002 establishing revised ecological criteria for the award of the Community eco-label to bed mattresses

13.12 The product group here comprises:

- Bed mattresses

  (This definition includes products providing a surface to sleep or rest on, consisting of a strong cloth cover filled with materials that can be placed on an existing supporting bed structure. This includes framed sprung mattresses, which are defined as an upholstered bed-base consisting of springs, topped by fillings, on a rigid frame to be used as a bed frame or freestanding, combined with a mattress pad which is not intended to be used separately.)

13.13 This Commission decision refers to Decision 2002/371/EC (see paragraphs 13.9–13.11) relating to textiles. It, by a direct reference, refers to the use of flame retardants in the manufacture of mattresses.

14. General product safety directive 2001/95/EC of December 2001

Introduction

14.1 It is this single directive that has the most significant impact on the recommendations contained in this SHTM.

Based on the single premise that all products must be “safe”, manufacturers and specifiers are obliged to take this definition and the implication that what is safe can only be determined by the application of published European technical specifications (or the national provisions transposing them into national standards) and apply it to their products.

14.2 There are profound implications, and these are considered in some detail here. One important aspect to be considered initially is that the General Product Safety Directive does not cover “services”.

While it could be argued that certain occupancies such as healthcare or care homes are a service industry, other important provisions of the directive could be applicable.

14.3 In order to secure the protection objectives it contains for the consumer, certain provisions of the directive are applied to products that are supplied or made available to consumers in the context of service provision for use by them.

On this basis, it is suggested that in the case of healthcare premises or a care home, for instance, the products such as furniture, beds, curtains and drapes etc are products made available in the context of a service provision. The provisions of the directive will therefore apply to all such products.

14.4 The obligation is placed on the manufacturer to supply only “safe” goods. By definition, any product that does not meet the requirements imposed is deemed to be “unsafe”. This can have serious implications for manufacturers where technical specifications exist at the European level and whose product does not meet any appropriate performance requirements when tested to the relevant specification standard.

A “safe” product

14.5 A product may also be deemed safe when, in the absence of specific Community provisions, it conforms to the specific rules of national law of the member state.

14.6 Additionally, a product may also be deemed safe when it conforms to voluntary national standards transposing European standards, the references to which have been published by the Commission in the Official Journal of the European Union.

14.7 In circumstances where either of the above two provisions do not apply, the conformity of the product is to be assessed by taking into account the following elements, where they exist:

- voluntary national standards transposing relevant European standards;
- the standards drawn up in the member state;
- Commission recommendations setting guidelines on product safety assessment;
- product safety codes of good practice;
- state-of-the-art and technology;
- reasonable consumer expectations concerning safety

Application

14.8 Within any building providing a healthcare service, many products will be incorporated or provided either for the comfort and convenience of the occupants/guests or specifically to provide a degree of safety in the case of fire.

14.9 Within the provisions of the 2001/95/EC Directive, the contribution of harmonised European technical standards and national standards transposing the European standards is recognised. Under Clause 14, this procedure is acknowledged as an effective and consistent application of the general safety requirement of the directive.

14.10 A very significant risk in any building, particularly healthcare, is posed by the contents. Whether they be in the form of furnishings provided in public areas – lounge, dining room, reception areas – or in individual wards/bedrooms, these products are commonly the items first ignited or mainly responsible for the fire.

14.11 In the UK, the original national regulations are applicable to domestic upholstered furniture and nightwear, but these basic provisions in respect of upholstered furniture have been extended by other guidance documents issued to cover public buildings.

14.12 Looking at the basic provisions of the 2001/95/EC Directive, there are a number of fundamental considerations that have to be made in connection with fire safety.

14.13 Within Whereas Clause 6, it is stated:

'This Directive has been introduced as it has been considered necessary to establish at Community level a general safety requirement for any product

placed on the market, or otherwise supplied or made available to consumers, intended for consumers, or likely to be used by consumers under reasonably foreseeable conditions even if it is not intended for them. In all these cases the products under consideration can pose risks for the health and safety of consumers which must be prevented.'

14.14 Within Whereas Clause 9, it is stated:

'This Directive does not cover services. However, to secure the attainment of the protection objectives in question, its provisions should also apply to products that are supplied or made available to consumers in the context of service provisions for use by them.'

14.15 Within Whereas Clause 11 it is stated:

'In the absence of more specific conditions, within the framework of Community legislation covering safety of the products concerned, all the provisions of the Directive should apply to ensure consumer health and safety.'

14.16 Within Whereas Clause 14 it is stated:

'In order to facilitate the effective and consistent application of the general safety requirement of this Directive, it is important to establish European voluntary standards covering certain products and risks in such a way that a product which conforms to a national standard transposing a European standard is to be presumed to be in compliance with the said requirement.'

14.17 Within Whereas Clause 16 it is stated:

'In the absence of specific regulations and where European standards established under Mandates set by the Commission are not available or recourse is not made to such standards, the safety of products should be assessed taking into account in particular national standards transposing any other relevant European or international standards, Commission recommendations or national standards, international standards, codes of practice, the state of the art and the safety which consumers may reasonably expect.'

14.18 In this context, the Commission's recommendations may facilitate the consistent and effective application of this directive pending the introduction of European standards or as regards the risks and/or products for which such standards are deemed not to be possible or appropriate.

Definition of a 'product'

14.19 Article 1(2) applies the provisions of the directive to all products. The definition of "product" is given under Article 2(a) as:

'Any product – including in the context of providing a service – which is intended for consumers or likely, under reasonably foreseeable conditions, to be used by

consumers even if not intended for them, and is supplied or made available, whether for consideration or not, in the course of a commercial activity, and whether new, used or reconditioned.'

Definition of a 'safe product' and a 'dangerous product'

14.20 Article 2(b) defines a 'safe product' as:

'Any product which, under normal or reasonably foreseeable conditions of use including duration and, where applicable, putting into service, does not present any risk or only the minimum risks compatible with the product's use, considered to be acceptable and consistent with a high level of protection for the safety and health of persons, taking into account the following points, in particular:

- the characteristics of the product … ;
- the effect on other products, where it is reasonably foreseeable that it will be used with other products … ;
- the categories of consumers at risk when using the product, in particular children and the elderly.

14.21 Article 2(c) is explicit in that it defines a 'dangerous product' as any product that does not meet the definition of a 'safe product'.

Definition of a 'serious risk'

14.22 Article 2(d) also defines serious risk as 'any serious risk, including those the effects of which are not immediate, requiring rapid intervention by the "public authorities'.

14.23 Article 3(1) obliges producers to place only safe products on the market (see paragraphs 14.5–14.7).

15. Medical devices directive 93/42/EEC of 14 June 1993

Introduction

15.1 The connection between the generally accepted understanding of a “medical device” and fire safety may seem tenuous, but when one considers the definition given in the scope of this directive, a clear connection may be established. Article 1(2)(a) of the directive defines a medical device as “any instrument, apparatus, appliance, material or other article, whether used alone or in combination”.

Article 1 also gives the scope as applying to medical devices and accessories, and on this basis confirms that accessories are to be treated as medical devices in their own right.

15.2 Article 1(2)(b) further defines an accessory as “an article which whilst not being a device is intended specifically by its manufacturer to be used together with a device to enable it to be used in accordance with the use of the device intended by the manufacturer of the device”.

15.3 Article 2 identifies the need to consider the safety aspects. It provides for devices to be placed on the market and put into service only if they do not compromise the safety and health of patients, users and, where applicable, other persons when properly installed, maintained and used in accordance with their intended purpose. When this is taken with a specific comment in the “whereas clauses” that the provisions of Directive 89/391/EEC (on the introduction of measures to encourage improvements in the safety and health of workers at work) should continue to apply, the full application cannot be questioned.

Application of the directive

15.4 Within Annex 1 of the directive covering essential requirements, it states that devices must be designed and manufactured in such a way that, when used under the conditions and for the purposes intended, they will not compromise the clinical condition, or the safety and health of users. This particular requirement is therefore related to the provisions of the 89/391/EEC Directive dealing with the health and safety of those employed to work in the building.

15.5 Under the requirements regarding design and construction, Clause 7.1 states that particular attention must be paid to the choice of materials used, particularly as regards toxicity and, where appropriate, flammability.

15.6 While it would be difficult to argue or maintain that items such as curtains, drapes or most other textile end-use applications had a “medical application”,

there is a case for such a claim for certain other items, including beds and upholstered furniture claimed to have a medical application such as being specifically designed/manufactured for orthopaedic use.

Mattresses and bed-bases

15.7 There is a degree of misunderstanding about the status of mattresses placed on the market as medical devices with a CE mark of conformity and the fact that these mattresses do not have to meet the current requirements imposed by the Furniture and Furnishings (Fire) (Safety) Regulations 1988 (as amended).

15.8 It is the manufacturers' decision whether their products fall within the scope of the Medical Devices Directive (93/42/EEC) and therefore the Medical Devices Regulations 2002. Manufacturers would have to be able to justify such a claim by providing evidence to support the medical claims made and to meet the relevant essential requirements, which include flammability.

15.9 For further clarification, contact the Medicines and Healthcare products Regulatory Agency (MHRA) (http://www.mhra.gov.uk/).

16. ENV 14237: textiles in the healthcare system

Introduction

16.1 CEN technical committee TC 248 has prepared a technical specification covering the use of textiles in healthcare. At the time of drafting this document the technical committee has so far only published its proposed standard as a European pre-standard (ENV). This has now been transposed by British Standards as a Draft for Development (DD).

16.2 ENV 14237 should not be regarded as a European standard; it is issued as a pre-standard (ENV) because it is of a provisional nature. It is intended that the content should be applied on a provisional basis so that information and experience of its practical application may be obtained.

16.3 The experience so gained at the national level will be passed to CEN for consideration when the document is formally proposed for conversion to a full European standard.

16.4 Clause 2 “Normative references” cites the following EN standards as being appropriate:

- EN 1103;
- EN 13773;
- EN 20139;
- BS EN ISO 6330;
- BS EN ISO 12952-1–4

Note: BS EN 20139 has been superseded by BS EN ISO 139.

16.5 All these technical specifications are addressed elsewhere in this SHTM.

16.6 These technical specifications are applied in Tables 1–8 of ENV 14237. The end-uses covered by these tables are as follows:

- Table 1 – bed textiles;
- Table 2 – pillows and quilts;
- Table 3 – mattress protectors;
- Table 4 – blankets;
- Table 5 – towels;*
- Table 6 – curtains;
- Table 7 – patients’ clothing/baby clothing; **

- Table 8 – staff clothing. *

Note* – No flammability performance requirement.

Note** – Flammability performance requirement not yet determined.

16.7 In each case where a flammability performance is given, the requirement is simply that the item “shall not ignite”. There is the further requirement applied in that where flame retardant properties are not inherent, the producer shall certify the durability of the treatment and the test method used.

Comment

The European pre-standard provides a specification for “unused” textiles in the healthcare system. However, there is confusion over what is meant by “unused” textiles. It is clear from the scope that the proposals do not apply to surgical textiles under the Medical Devices Directive (93/42/EEC), but the use of the term “unused” is confusing. Clarification from the chairman/secretary of the CEN/TC 248 committee suggests that it is intended to be interpreted as “new” textiles.

Within the document there is no definition of “healthcare”. Given the primary objective of anything used in healthcare being for patient comfort, there may well be adverse comment from the various healthcare providers, particularly where performances are given in respect of patients’/baby clothing.

There is every possibility that the future status of this document will be determined during the currency of this SHTM. Given the basic requirement of “does not ignite”, it can be assumed that the provisions made in this SHTM will adequately cover any future recommendations in this area.

All technical specifications cited as being applicable to the various textile end-use applications are contained in this SHTM.

17. The use temporary structures (large tents and marquees)

General

17.1 There may be instances, particularly during the summer months, when functions such as open days or other such events are organised in the grounds of a hospital. In order to provide shelter for a significant number of persons, or to accommodate a function, a large temporary structure such as a tent, marquee, pneumatic structure, air-supported structure or similar structure may be erected.

17.2 Events of this nature may be subject to the statutory compliance requirements of the Fire (Scotland) Act 2005 as amended, and the Fire Safety (Scotland) Regulations 2006. The Scottish Government publication; Practical fire safety guidance for places of public entertainment, contains specific supporting guidance in regard to the use of large tents or marquees for public events and should be referred to where such structures are to be used. This guidance is accessible at; http://www.infoscotland.com/firelaw/.

17.3 Such structures may be completely freestanding or attached to the hospital building to provide additional accommodation. Temporary structures of this type may have a seating capacity of several hundred persons.

17.4 These structures, by the nature of their construction and the materials they are made of, may present difficulties not normally found in conventional buildings. Their contents e.g. temporary seating, trestle tables, flooring, temporary lighting and generators etc., brought in by the contractor, may introduce hazards because of their temporary nature.

17.5 Difficulties may range from managing the provision and maintenance of the structural and other safety features such as appropriate lighting, to difficulties for the public, who may often find their routes of egress to be over uneven ground, temporary flooring, duckboards, ramps, stairways etc rather than the permanent surfaces found in and around conventional buildings.

17.6 The risk assessment therefore needs to consider the different activities being accommodated and the proposed length of time for which the structure will be erected. The impact this may have on the normal fire safety arrangements, such as the means of egress provided from adjacent healthcare or other buildings, will also need to be considered.

17.7 In addition to the normal ignitability and flame spread characteristics/hazards associated with the use of large areas of textile materials, it is possible that other hazards, such as high levels of toxic hazard, could be presented if certain modern materials (for example fluorocarbon polymers) are used.

17.8 Consideration in the risk assessment must also be given to the nature of any internal decoration or drapes provided; this includes the provision of artificial grass on the ground inside the structure.

17.9 The fabric of the structure should be assessed in accordance with EN 14115. The assessment of the burning behaviour of the interior decorations used should be in accordance with Section 5 of this SHTM.

18. European CE (Conformité Européenne) Mark

General

18.1 The CE Mark is a visible declaration by the manufacturer (or his representative, importer etc) that the equipment/product, which is marked, complies with all the requirements of all the applicable directives (including the entire administrative requirement involved in being able to demonstrate compliance).

18.2 The letters “CE” indicate that the manufacturer has undertaken all the assessment procedures required for the product.

18.3 The CE mark is not a quality mark and does not indicate conformity to a standard; rather it indicates conformity to the legal requirements of the EU directives.

18.4 The CE Mark is now mandatory for all regulated products sold in the European Union.

Appendix A: Safety Action Notice

SAFETY ACTION NOTICE

By arrangement with NSS Health Facilities Scotland

NHS SCOTLAND

SAN(SC)07/43
09 OCT 2007
Facilities
Page 1 of 2 Pages

CURTAINS / BED SCREENS: RISK OF FIRE DUE TO INADEQUATE FLAME RETARDANCY

SUMMARY

Some supposedly flame retardant cotton curtains / bed screens may exhibit poor flame retardancy, with resultant risk of fire. Consideration should be given to replacing them with polyester in high risk areas.

BACKGROUND

1. Two incidents have occurred in which a supposedly flame retardant (FR) cotton curtain / bed screen was set alight by an in-patient in a mental health ward.

2. After the second incident, another bed screen of identical type and age from the same ward was tested by hospital staff, and later by Scottish Healthcare Supplies, who found it could be set alight with relative ease using a cigarette lighter.

3. The curtains were made by Gatoc Ltd who are no longer trading. The cotton material was manufactured in 2000 by Gradus Fabrics Ltd and involved treatment with the FR chemical Pyrovatex, which was carried out by a subcontractor. Both incidents involved material from the same batch.

4. Samples of the curtains / bed screens involved in the incidents were tested by Gradus Fabrics Ltd to British Standard BS 5867-2 (1) Type C. They failed the flammability test. A further eight curtains from the same batch were tested and only one failed the flammability test, indicating that the problem did not affect the entire batch.

5. Chemical analysis of the two curtains involved in the fires found only trace amounts of the Pyrovatex flame retardant chemical on the fabric surface, suggesting that the FR treatment had not been applied or had been applied incorrectly. The lack of Pyrovatex has not been explained fully but the possibilities suggested by the manufacturer include material being missed at the beginning / end of the roll and problems during the baking / curing process.

6. The use of hypochlorite bleach in the laundering of FR cotton curtains will reduce the effectiveness of the FR treatment. However, investigation into the processes at the laundry involved in the incidents has shown that the use of bleach was unlikely, and in any case it is improbable that bleach would have reduced the amounts of Pyrovatex to the low levels found.

7. Although no fire incidents have been reported, the findings of the investigation suggest that other makes of FR cotton curtains might also fail to perform as expected.

Suggested Distribution	Accident & Emergency	Accommodation Officers	Capital Planning & Design
Care Home Services	Estates/Facilities	Fire Safety Advisor	Health & Safety
Health Centres	Laundries	Nominated Officer Fire	Risk Management
Safety Representatives	Stores	Supplies/Procurement	

SAFETY ACTION NOTICE

By arrangement with NSS Health Facilities Scotland

NHS SCOTLAND

CURTAINS / BED SCREENS: RISK OF FIRE DUE TO INADEQUATE FLAME RETARDANCY

8. In contrast to cotton, polyester is inherently flame retardant as the material melts away from the flame, allowing it to pass the BS 5867-2 flammability test without the need for FR treatment. It is also not thought to be adversely affected by bleach. Polyester can ignite eventually, producing hot molten droplets, and this should be taken into account when choosing curtain materials.

9. The use of disposable curtains is increasing for infection control reasons.

ACTION

10. This notice should be brought to the attention of all appropriate managers and staff.

11. A risk assessment should be carried out for all areas where curtains / bed screens are in use. In areas assessed as high risk, consideration should be given to replacing all cotton curtains (regardless of make) with inherently flame retardant polyester as soon as practicable.

12. Consideration should be given at the planning stage to fitting polyester curtains / bed screens in high risk areas including, but not limited to, Accident & Emergency and mental health wards.

13. Where cotton curtains / bed screens are to be replaced with polyester, NHS Boards will need to decide whether to retain the cotton ones for use in lower risk areas, or to dispose of them.

14. If desired, samples of surplus cotton curtains / bed screens could be tested to ascertain the scope of the problem within an NHS Board and also to find out if other makes of FR cotton curtains are implicated. (Scottish Healthcare Supplies would be interested in the results, see contact details in footer.) An accredited test house could carry out flammability testing to BS 5867-2.

15. Claims regarding the flame retardancy of disposable curtains should be treated with caution and the method of testing used to determine the claimed performance should be established before putting the curtains into use.

16. Laundries (NHS and commercial) should be reminded about the adverse effects of bleach on FR-treated cotton and procedures in NHS laundries should be reviewed. Should commercial laundries be used, their procedures should be scrutinised before awarding or renewing a contract.

REFERENCES

(1) BS 5867 Part 2:1980 *Specification for fabrics for curtains and drapes. Flammability requirements*, British Standards Institution, 1 Jan 1980 ISBN 0 580 11380 9

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A Division of National Services Scotland for NHSScotland

Emergency
0131 334 1638
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0131 275 7575

CONTACT EMAIL: stewart.robertson@shs.csa.scot.nhs.uk
TEL: 0131 275 6936 FAX: 0131 314 0722
WEBSITE: http://www.show.scot.nhs.uk/shs/hazards_safety/adverse.html

Appendix B: European Legislation

Introduction

B1 This Appendix contains a summary of the principal provisions or essential requirements of the individual directives, Council decisions and Council recommendations identified as having a direct impact on textiles or specific textile end-use application. Under the provisions of the Treaty of Rome, the member states are required to provide the necessary national legislation to transpose the essential requirements and other provisions of directives into national law.

Directive 2001/95/EC – The General Product Safety Directive

B2. It is this single directive that has the most significance as far as textiles are concerned (see Section 14).

Council Directive 89/106/EEC – The Construction Products Directive

B3. This directive applies to construction products/materials and cannot be construed as being applicable to textiles generally. Textiles, by themselves, are not used in the “construction” of a building. They may, however, be incorporated in other construction materials such as wall or ceiling linings. The exception to this is soft floor coverings, and these are included in respect of their reaction to fire performance only.

B4 The directive provides for the setting of classes of performance known as “Euroclasses”. The member states are free to set their own level of performance, but only from within the seven classes given. The directive allows for the award of the CE mark to products, which ensures they may be used anywhere in the EU without the need for any further testing.

Commission Decision 2000/147/EC – Reaction to fire performance of construction products

B5 Within this decision, Article 1 states that when the end-use application of a construction product is such that it may contribute to the generation and spread of fire and smoke within the room (or area of origin or beyond), the product shall be classified on the basis of its reaction to fire performance, having regard to the classification system set out in Tables 1 and 2 of the annex to the decision. Table 2 is applicable to flooring generally.

B6 There are seven classes determined in the tables, and this includes a “no performance determined” category. The testing to be applied is listed in paragraphs C41, C52 and C54 of Appendix C in this Health Technical Memorandum; the actual performance required of the product can only be determined by the regulatory authorities in the member states. The smoke-producing potential of the flooring may be measured if required.

B7 There has been a minor amendment to this decision by way of Commission Decision 2003/632/EC.

Directive 89/391/EEC – The Safety and Health of Workers (Framework) Directive

B8. The duties of the employer are given under Article 6. The employer is required to take all the measures necessary for the safety and health protection of workers. Under Article 8(1) the employer is required to take all the necessary measures for firefighting and evacuation of the workers. He/she is required to take into account “other persons present”.

B9 Article 9(1)(a) obliges the employer to be in possession of an “assessment of the risks” to safety and health at work for examination by the enforcing authority.

Directive 89/654/EEC – The Minimum Safety and Health Requirements Directive

B10. This directive defines a “workplace” as anywhere where any person works, and includes any other place within the workplace to which the worker has access. The directive contains two annexes, dealing with workplaces used for the first time and workplaces already in use. These annexes contain many of the provisions that are to be taken into account in the preparation of the assessment of the risks. In completing the assessment, due consideration must be given to all the risks and/or hazards identified, and this will include a careful consideration of the fire behaviour of the contents, as this will be directly related to all the other fire safety provisions the workplace contains. Due cognisance will have to be given to the provisions of the General Product Safety Directive (2001/95/ EC) and the requirement to provide only “safe” products for use by the workers (consumers).

Directives 1999/45/EC and 67/548/EEC – The Classification, Packaging and Labelling of Dangerous Preparations

B11 These directives do not have a direct application for textiles, but they do provide the legislative means for the Commission to introduce regulations and decisions that themselves have a direct impact on textile end-use applications (see paragraphs B13–B18 below).

Regulation (EC) 1980/2000 – Eco-label award scheme

B12 This regulation introduces a voluntary Community eco-label scheme intended to promote products with a reduced environmental impact during their entire life-cycle (see paragraphs 13.4–13.8).

Commission Decision 2002/371/EC – Textile products

B13 This decision establishes a "product group" comprising clothing and accessories and interior textiles (see paragraphs 13.9–13.11).

Commission Decision 2002/740/EC – Bed mattresses

B14 This decision establishes a "product group" comprising of bed mattresses regardless of filling (latex or polyurethane) as well as interior sprung mattresses (see paragraphs 13.12–13.13).

Directive 93/42/EEC – The Medical Devices Directive

B15. See Section 15.

Directive 88/378/EEC – The Safety of Toys Directive

B16 The relevant fire safety provisions of the directive are contained in Annex II Part II Clause 2. Within the provisions of this clause it is required that toys do not constitute a dangerous flammable element of a child's environment. All the materials used must therefore:

- not burn if directly exposed to a flame or spark or other potential seat of fire;
- not be readily flammable (the flame must go out as soon as the fire cause disappears);
- burn slowly if they do ignite, and present a low rate of spread of flame;
- irrespective of the toy's chemical composition, be treated so as to delay the combustion process;

B17 EN 71-2 covers the methods of test for the flammability safety of toys. It has been prepared under a standardisation mandate and therefore supports the essential requirements of the directive. Logically, it is the only method of demonstrating any presumption of conformity (see paragraphs C3–C12 in Appendix C).

B18 The scope of the directive includes:

- toys to be worn on the head;
- toy disguise costumes and other toys intended to be worn by the child;

- toys intended to be entered by the child; and
- soft filled toys larger than 150 mm.

Council Resolution 2003/C11/01 – Community policy strategy 2002–2006

B19 This Council resolution outlines, in general principles, the Commission's consumer policy strategy for the four years starting in 2002. There is no mention of any specific target, but the principles will be applied to all future consumer safety activity. Basically, the resolution confirms that the Commission attach a high level of importance to consumer safety as provided for in the General Product Safety Directive (2001/95/EC). Its provisions, therefore, are relevant to the contents of this revision.

B20 The resolution confirms its general support for the communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions.

Council Resolution 2003/C299/01 – Safety of services for consumers

B21 Council is moving towards the publication of a directive to complement the General Product Safety Directive (2001/95/EC). Dealing with the safety of services, it is intended to provide the basic framework of all safety aspects in the provision of services generally. Until the document has been agreed, the Commission Services is asking member states to consider and express their views.

Appendix C: European and international technical specifications

Introduction

C1. This appendix contains comments on the principal technical specifications published by CEN.

C2 The technical specifications are listed in numerical order and not in order of any other importance.

EN 71-2 – Safety of Toys. Flammability

C3. EN 71 has been prepared by CEN technical committee CENC52 under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports the essential requirements of the EU directive.

C4. Part 2 deals specifically with the flammability aspects of toy safety. However, Part 2 must be considered along with Part 1, which deals with the general mechanical and physical properties of all toys.

C5. Part 2 is based on the general principle that toys (as defined) must not constitute a dangerous flammable element in a child's environment.

C6 The technical specification therefore specifies the categories of material that are prohibited in all toys, and gives requirements concerning the flammability of certain toys when they are subjected to a small source of ignition.

C7. The technical specification includes a reference to EN ISO 6941 as the cited means of evaluating the flame spread properties of vertically oriented specimens, and to EN 1103 as the means of identifying the surface-flash properties of materials.

C8. The scope of the technical specification includes:

- toys to be worn on the head, which includes beards, moustaches, wigs etc, masks, and flowing material attached to hats, masks etc;
- toy disguise costumes and toys intended to be worn by a child;
- toys intended to be entered by a child;
- soft filled toys with a pile or textile surface and larger than 150 mm in height.

C9. The testing protocol provides for the toys to be subjected to a small gas burner as described in ISO 6941, and either butane or propane may be used. The basic testing configuration is amended to the various categories of toy as follows.

C10. Clause 4.1 on general requirements provides for a definition of highly flammable solids and flammable gases when used in the context of toys.

C11 Clause 4.2 covers those toys intended to be worn on the head, such as masks, wigs and hats etc.

C12 Clause 4.3 covers those toys worn by a child, such as disguise costumes.

C13. Clause 4.4 covers those toys intended to be entered by a child, such as play tents, play tunnels etc.

C14. Disguise costumes and toys that a child can enter are usually large. Therefore, a specially constructed U-shaped double frame has been designed to ensure that the material is secured throughout the test. This is covered by Clause 5.1. In such circumstances, it is not the ease of ignition that presents the basic problem, it is the rate of spread of flame.

EN 597-1 – Furniture. Assessment of the ignitability of mattresses and upholstered bed-bases. Ignition source: smouldering cigarette

C15. This standard is one of a series of standards concerned with the ignitability of mattresses and upholstered bed-bases using different ignition sources. The ignition source used in this standard is a smouldering cigarette. It cannot be assumed that protection against smouldering ignition sources will automatically provide protection against a flaming ignition source. Users of this standard should therefore recognise the need to submit test specimens to both smouldering (cigarette) and flaming (match flame equivalent) sources.

C16 This standard lays down a test method to assess the ignitability of mattresses, upholstered bed-bases or mattress pads when subjected to a smouldering ignition source (cigarette). Air mattresses and waterbeds are excluded from this standard. The full upper surface or upper-surface characteristic features of the mattress, bed-base or mattress pad is subjected to the contact of smouldering cigarettes by disposing the cigarettes so that all the zones having different characteristics are tested.

EN 597-2 – Furniture. Assessment of the ignitability of mattresses and upholstered bed-bases. Ignition source: match flame equivalent

C17. This part of EN 597 is the same as Part 1 except for the substitution of a small gas flame (match-flame equivalent) for the smouldering (cigarette) ignition source.

EN 1021-1 – Furniture. Assessment of the ignitability of upholstered furniture. Ignition source: smouldering cigarette

C18. This part of the standard is one of a series of standards concerned with the ignitability of upholstered furniture using different ignition sources. The ignition source used in this part is a smouldering cigarette.

C19. Part 1 lays down a test method to assess the ignitability of materials combinations, such as covers and fillings used in upholstered seating, when subjected to a smouldering cigarette as an ignition source. The test measures only the ignitability of a combination of materials used in upholstered seating and not the ignitability of a particular item of finished furniture incorporating these materials. They give an indication of, but cannot guarantee, the ignition behaviour of the finished item of furniture.

C20. The test sample is prepared using the materials combined together in a way intended to be generally representative of their end-use in upholstered seating; thus, the potential ignitability of a particular cover, filling and interliner, if provided, can be assessed.

EN 1021-2 – Furniture. Assessment of the ignitability of upholstered furniture. Ignition source: match-flame equivalent

C21. The provisions of this part of EN 1021 are the same as Part 1 except that the ignition source is a small flaming source equivalent to a match.

EN 1101 – Textiles and textile products. Burning behaviour. Curtains and drapes. Detailed procedure to determine the ignitability of vertically oriented specimens (small flame)

C22. This European standard specifies a procedure to determine the ignitability of textiles used for curtains and drapes by testing in accordance with BS EN ISO 6940. The preparation of the sample and the test procedure are as provided in BS EN ISO 6940. In addition, the provisions of EN ISO 6330 and BS EN ISO 3175-1&2 are applied.

EN 1102 – Textiles and textile products. Burning behaviour. Curtains and drapes. Detailed procedure to determine the flame spread of vertically-oriented specimens

C23. This European standard specifies a procedure to determine the flame spread of textiles used for curtains and drapes by testing vertically-oriented specimens in accordance with EN ISO 6941. The sampling and test procedure are as provided in EN ISO 6941. Again, the provisions of EN ISO 6330 and EN ISO 3175 are applied.

EN 1103 – Textiles. Fabrics for apparel. Detailed procedure to determine the burning behaviour

C24. This European standard specifies a procedure to determine the burning behaviour of textiles when tested using the surface ignition test in EN ISO 6941. Again, the provisions of EN ISO 6330 are applied. In the case of the testing protocol, only the outer surface of the fabric is tested; if the outer surface cannot be determined, only the surface shown by pre-testing to spread flame at a higher rate is tested. Where the material comprises more than a single layer, the combination of materials as worn is subjected to the test procedures. If there is any occurrence of surface flash (defined in EN 1103), this is reported in the test report.

EN 1624 – Textiles and textile products. Burning behaviour of industrial and technical textiles. Procedure to determine the flame spread of vertically-oriented specimens

C25. This European standard specifies a procedure to determine the flame spread of vertically-oriented specimens of industrial and technical textiles, when tested in accordance with EN ISO 6941.

C26. The definition of industrial and technical textiles means any textile that can be used for industrial or technical purposes. It does not include textiles for general purposes such as curtains and drapes, protective clothing, upholstery or bedding.

EN 1625 – Textiles and textile products. Burning behaviour of industrial and technical textiles. Procedure to determine the ignitability of vertically oriented specimens

C27. This European standard specifies a procedure to determine the ignitability of vertically oriented specimens of industrial and technical textiles, when tested in accordance with EN ISO 6941.

C28. The definition of industrial and technical textiles means any textile that can be used for industrial or technical purposes. It does not include textiles for general purposes such as curtains and drapes, protective clothing, upholstery or bedding.

EN 12229 – Surfaces for sports areas. Procedure for the preparation of synthetic turf and needle-punch pieces

C29. This European standard specifies a procedure for the preparation of test pieces for synthetic turf and needle-punch sports surfaces. The test is applied to the surfacing and supporting layers. It is applied to carpet pile surfaces such as indoor bowling rinks and similar applications.

EN 12751 – Textiles. Sampling of fibres, yarns and fabrics for testing

C30. This European standard specifies several test methods for preparing laboratory samples of fibres, yarns or fabrics, and presents a limited treatment of the problems of drawing specimens for testing.

C31. It is not possible for the coverage of each individual procedure to be fully comprehensive; in many instances, the selection of test samples or test specimens is necessarily covered by the appropriate method of test.

EN 13772 – Textiles and textile products. Burning behaviour. Curtains and drapes. Measurement of flame spread of vertically-oriented specimens with a large ignition source

C32. This European standard specifies a method of test for the measurement of flame spread of vertically oriented textile fabrics intended for curtains and drapes using a large ignition source. A heat flux of a defined energy is applied to a specified area of the lower part of the backside of the vertical specimen.

C33 After a period of exposure (30 sec), the small flame defined in BS EN ISO 6941 is applied for 10 sec to a small piece of cotton fabric fixed around the bottom edge of the specimen. The possible flame spread is measured through the severance of marker threads.

C34. While much of the test procedure etc is based on BS EN ISO 6941, the size of the test sample has necessitated a number of adjustments to the test apparatus.

EN 13773 – Textiles and textile products. Burning behaviour. Curtains and drapes. Classification scheme

C35. This European standard specifies a classification scheme for the burning behaviour of vertically oriented fabrics intended for curtains and drapes and similar uses such as blinds and textile hangings, where classification is required. Untested materials are not classified. The classification scheme is based on the measurement of ignitability and flame spread according to the relevant European test methods – EN 1101, EN 1102 and EN 13772.

C36 The flame spread of the materials that are ignited by the small flame source (EN 1101 and EN 1102) is measured with this same ignition source. The flame spread of materials that will not ignite with the small flame source is measured with a more severe ignition source. Ignitability and flame spread leads to a classification scheme with five classes (see Table 3).

C37. In the case of ignitability or ease of ignition, the classification scheme refers to the edge ignition test of EN 1101, modified by starting with 1 sec flame application time and increasing the ignition time by 1 sec steps up to 5 sec and

then by 5 sec up to 20 sec if no ignition occurs. The flame spread classification refers to the ignition tests of EN 1102 and EN 13772.

EN 14115 – Textiles. Burning behaviour of materials for marquees, large tents and related products. Ease of ignition

C38. This standard specifies a test method for the burning behaviour of industrial and technical textiles used for tarpaulins, large tents, marquees and related structures. It is not intended to apply to materials used for small camping tents, nor any other internal features, nor to awnings.

C39 Test specimens are subjected under specified conditions to the dual effect of: heat radiation; hot gases flowing over the surface of test specimens to encourage any spread or propagation of the flames.

C40 In this test protocol, a flame is used to ignite any gases emitted. The effects of ignition are noted and the extent of damage is measured.

EN 14533 – Textiles and textile products. Burning behaviour of bedding items. Classification scheme

C41 This European standard is one of five related standards (the other four being EN ISO 12952- 1–4; see paragraphs C55–C61 of this Appendix) for testing and classifying bedding items with regard to their burning behaviour. The standard specifies a classification scheme for the burning behaviour of bedding items based on two ignition sources (smouldering cigarette and small open flame). The classification is applied to single bedding items and not to complete bed assemblies. The classification refers to all the EN ISO 12952 test methods for ignitability by a smouldering cigarette and by a small open flame.

EN ISO 139 – Textiles. Standard atmospheres for conditioning and testing

C42 This international standard defines the characteristics and use of standard atmospheres for conditioning and for determining the physical and mechanical properties of textiles.

C43 Before a textile is tested to determine a mechanical or physical property, it shall be conditioned by placing it in a standard temperate atmosphere for testing, in such a way that the air flows freely through the textiles, and keeping it there for the time required to bring it into equilibrium with the atmosphere.

C44 The tests outlined in paragraphs C42, C53, C55 and C56 are not specifically applicable to textile end-use applications; they are concerned with construction products and have been prepared under a mandate from the European Commission. They are referred to in the Commission Decision 2000/147/EC (as

amended by Commission Decision 2003/632/EC) and applied in Table 2 to floor coverings.

EN ISO 1182 – Reaction to fire tests for building products. Non-combustibility tests

C45. This international standard specifies a method of test for determining the non-combustibility performance, under specified conditions, of homogeneous building products and substantial components of non-homogeneous products.

EN ISO 1716 – Reaction to fire tests for building products. Determination of the heat of combustion

C46. This international standard specifies a test method for the determination of the heat of combustion of building products at constant volume in a bomb calorimeter.

EN ISO 3175-4 – Textiles. Dry cleaning and finishing. Procedure for testing performance when cleaning and finishing using simulated wet cleaning

C47. Part 4 of ISO 3175 specifies the simulation of professional wet cleaning procedures using a reference machine given in Annex A for fabrics and garments. It comprises a normal process for normal materials, a mild process for sensitive materials, and a very mild process for very sensitive materials.

C48. The specimen or specimens are cleaned in a reference washing machine and finished to one of the specified procedures. The process simulates the effect of commercial professional wet cleaning, drying and finishing.

BS EN ISO 3758 – Textiles. Care labelling code using symbols

C49. This international standard:

- establishes a system of graphic symbols intended for use in the permanent marking of textile articles, providing information essential for their proper care;
- specifies the use of these symbols in care labelling.

C50. The following treatments are covered: washing; chlorine-bleaching; ironing; dry-cleaning; and tumble-drying after washing. The standard applies to all textile articles in the form in which they are supplied to the consumer.

EN ISO 6330 – Textiles. Domestic washing and drying procedures for textile testing

C51. This international standard specifies washing and drying procedures for textile testing. The procedures are applicable to textile fabrics, garments and other textile articles that are subjected to appropriate combinations of domestic and washing procures.

C52. A specimen is washed in an automatic washing machine and dried according to a specified procedure which includes:

- "A" Line dry;
- "B" Drip dry;
- "C" Flat dry;
- "D" Flat press;
- "E" Tumble-dry.

EN ISO 6940 – Textile fabrics. Burning behaviour. Determination of ease of ignition of vertically oriented specimens

C53. This international standard specifies a method for the measurement of ease of ignition of vertically oriented textile fabrics intended for apparel, curtains and draperies in the form of single- or multi-component (coated, quilted, multi-layered, sandwich construction or similar combination) fabrics.

C54. A defined ignition source from a specified burner is applied to textile specimens that are vertically oriented. The time necessary to achieve ignition is determined as the means of the measured times for ignition of the fabric. The minimum ignition time is defined as the minimum time of exposure of the material to an ignition source to obtain sustained combustion under specified test conditions.

EN ISO 6941 – Textile fabrics. Burning behaviour. Measurement of flame spread properties of vertically oriented specimens

C55. This international standard species a method for the measurement of flame spread properties of vertically oriented textile fabrics intended for apparel, curtains, draperies and large tents including awnings and marquees, in the form of single- or multi-component (coated, quilted, multi-layered, sandwich construction and similar combinations) fabrics.

C56. A defined ignition flame from a specified burner is applied for a defined period of time to textile specimens that are vertically oriented. The flame spread time is the time in seconds for a flame to travel between marker threads located at defined distances. Other properties relating to flame spread may also be

observed, measured and recorded. These parameters include the presence of afterflame or afterglow.

EN ISO 9239-1 – Reaction to fire tests. Horizontal spread of flame on floor covering systems. Determination of the burning behaviour using a radiant heat source

C57. This international standard specifies a method for assessing the wind-opposed burning behaviour and spread of flame of horizontally mounted floorings exposed to a heat-flux radiant gradient in a test chamber, when ignited by pilot flames. The method is applicable to all types of flooring.

EN ISO 10528 – Textiles. Commercial laundering procedure for textile fabrics prior to flammability testing

C58. This international standard specifies methods for assessing the possible effect of repeated commercial laundering on the flammability of textile fabrics.

C59 The effect of laundering is simulated using an automatic drum washing machine or small-scale laundry drum (wash wheel).

EN ISO 11925-2 – Reaction to fire tests. Ignitability of building products subjected to direct impingement of flame. Single-flame source test

C60. This international standard specifies a method of test for determining the ignitability of building products by direct small flame impingement under zero-impressed irradiance using specimens tested in a vertical orientation. Products that melt and shrink away from the flame without being ignited may be addressed by an additional procedure given in the standard.

EN ISO 12952-1 –Textiles. Burning behaviour of bedding items. General test methods for the ignitability by a smouldering cigarette

C61. This international standard specifies a general test method common to all bedding items for assessment of their ignitability when subjected to a smouldering cigarette. It should be read in conjunction with EN ISO 12952-2, which describes a specific test method for bedding items that can normally be placed on a mattress. These will include:

- mattress covers;
- underlays;
- incontinence sheets and pads;

- sheets;
- blankets;
- electric blankets (not the electrical component);
- quilts or duvets and covers;
- pillows (whatever their filling);
- bolsters;
- pillowcases.

C62. For the purposes of this test, the test specimen is placed on a testing substrate and is subjected to a smouldering cigarette placed on top of and/or below the test specimen as detailed in EN ISO 12952-2. Any progressive smouldering and/or flaming is reported. Where the actual mattress to be used is known, it can replace the testing substrate.

EN ISO 12952-2 – Textiles. Burning behaviour of bedding items. Specific test methods for the ignitability by a smouldering cigarette

C63. This European standard specifies product-specific details concerning specimen size, wash procedures, set-up of specimens and positions of cigarettes for testing bedding items according to the methods described in EN ISO 12952-1. It must be used in conjunction with part 1 at all times.

EN ISO 12952-3 – Textiles. Burning behaviour of bedding items. General test methods for the ignitability by a small open flame

C64 This European standard is the same as part 1 except that the ignition source of a smouldering cigarette is replaced by a small open flame (match-flame equivalent).

EN ISO 12952-4 –Textiles. Burning behaviour of bedding items. Specific test methods for the ignitability by a small open flame

C65. This European standard is the same as part 2 except that the ignition source of a smouldering cigarette is replaced by a small open flame (match-flame equivalent). This part must be used with part 3 at all times.

Appendix D: British Standards with their date of original publication

D1. Most of the British Standards in this Appendix are presently being considered by the appropriate BS technical committee for probable withdrawal in compliance with the obligations placed on the members of CEN. The publication of the technical specifications given in Appendix C imposed this obligation, and this is currently an active work item of BSI.

D2. The date in brackets (year) is the confirmed date, indicating continued currency of the standard without full revision.

BS 2483 1977 (1983) Specification for overbed tables.

BS 4790 1987 (1996) Method for determination of the effects of a small source of ignition on textile floor coverings (hot metal nut method).

BS 5223-2 1999 Specification for hospital bedding. Combustion modified, flexible polyurethane, general purpose foam mattress cores.

BS 5223-3 1976 (1998) Specification for hospital bedding. Flexible polyurethane pillows.

BS 5223-4 1976 (1995) Specification for hospital bedding. Mattress covers of polyurethane coated nylon.

BS 5287 1988 (1996) Specification for the assessment and labelling of textile floor covering tested to BS 4790.

BS 5438 1989 (2002) Methods of test for flammability of textile fabrics when subjected to a small igniting flame applied to the face or bottom edge of vertically oriented specimens.

BS 5651 1989 (2002) Method for cleansing and wetting procedures for use in the assessment of the effect of cleansing and wetting on the flammability of textile fabrics and fabric assemblies.

BS 5722 1991 (2002) Specification for flammability performance of fabrics and fabric combinations used in nightwear garments.

BS 5742 1989 (1995) Specification for textile labels requiring to be washed and/or dry cleaned.

BS 5815-1 2005 Sheets, sheeting, pillowslips, towels, napkins, counterpanes and continental quilt secondary covers suitable for use in the public sector. Specification for sheeting, sheets and pillowcases.

BS 5815-3 1991 (1999) Sheets, sheeting, pillowslips, towels, napkins, counterpanes and continental quilt secondary covers suitable for use in the public sector. Specification for counterpanes and continental quilt secondary covers including flammability performance.

BS 5852 2006 Method of test for the assessment of the ignitability of upholstered seating by smouldering and flaming ignition sources.

BS 5866-1 1990 (1998) Blankets suitable for use in the public sector. Specification for wool and wool/polyamide blankets.

BS 5866-2 1991 (1998) Blankets suitable for use in the public sector. Specification for cotton leno cellular blankets.

BS 5866-3 1991 (1998) Blankets suitable for use in the public sector. Specification for synthetic fibre cellular blankets.

BS 5866-4 1991 (1998) Blankets suitable for use in the public sector. Specification for flammability performance.

BS 5867-2 1980 (2002) Specification for fabrics for curtains and drapes. Flammability requirements.

BS 6807 2006 Methods of test for assessment of the ignitability of mattresses, upholstered divans and upholstered bed-bases with flaming types of primary and secondary sources of ignition.

BS 7175 1989 (1994) Methods of test for the ignitability of bedcovers and pillows by smouldering and flaming ignition sources.

BS 7176 1995 Specification for resistance to ignition of upholstered furniture for non domestic seating by testing composites.

BS 7177 1996 Specification for resistance to ignition of mattresses, divans and bed-bases.

ISO 8191-1 & 2 Fire tests for upholstered furniture, have not been adopted by BSI and therefore do not carry a BS ISO number.

Reference should be made to BS EN 1021-1 & 2.

Appendix E: Quick reference to products and British Standards

PRODUCT	BRITISH STANDARD
Fixed screens	BS 476*
Upholstered furniture	BS 7176
Loose covers	BS 5852 ignition source 1
Divan beds and mattresses	BS 7177 ignition source 5 or 7
Pillows, quilts etc	BS 7175 ignition source 0 and 5
Pressure relief	BS 7175 ignition source 0 and 5
Blankets	BS 5866-4
Counterpanes	BS 5815-3
Curtains, drapes and blinds	BS 5438 BS 5438 or BS 5867

Table 5: Quick reference to products and British Standards

Note: * Requires a surface spread of flame achieving Class 0. This is not a classification identified by any British Standard test. It is defined as the classification achieved by a material or composite product which is either:

- composed throughout by materials of limited combustibility; or
- a Class 1 material when tested in accordance with BS 476-7, which has a fire propagation index (I) of not more than 12 and sub-index (i1) of not more than 6.

Note: The entire international, European and national technical specifications listed in this SHTM are available from: British Standards Institution, Customer Service Sales Department, 389 Chiswick High Road, London W4 4AL. Tel: 0208 996 7000.

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