



Scottish Health Technical Memorandum 2040

(Part 6 of 6)

The control of legionellae in healthcare premises

Supplementary guidance applicable to
intermittently used healthcare premises

IMPORTANT NOTE LEGIONELLA

SHTM 2040 and the HSC Approved Code of Practice and Guidance (L8) 2000

HSC's Approved Code of Practice came into effect on 8 January 2001. At this time i.e. December 2001 the UK Health Department's Guidance HTM 2040 (SHTM 2040 in Scotland) has not been aligned with the ACOP. Work is ongoing but it is unlikely that HTM 2040 and SHTM 2040 will be updated until late 2002 and launched on a UK basis.

L8 takes cognisance of 'hospitals' but requires considerable interpretation for practical application. The revised UK Health Department Guidance will undertake to address this issue.

In the meantime this version of SHTM 2040 must be read as subordinate to the new ACOP.

Disclaimer

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IMPORTANT NOTE: See front cover for status of SHTM 2040. SHTM 2040 must be read in conjunction with and as subordinate to HSC ACOP L8.

1. Introduction

General

- 1.1 Scottish Health Technical Memorandum (SHTM) 2040; *The control of legionellae in healthcare premises – a code of practice*, provides guidance for those with responsibilities in this area. However, Scottish Health Technical Memorandum 2040 is considered to be perhaps more applicable to continuous occupied healthcare sites and to the types of building services likely to be present, than to intermittently used healthcare sites offering a range of out-patient services.
- 1.2 This supplement seeks to provide a framework for the assessment of the risk of legionellae infection which derives from intermittently used healthcare premises and prescribes appropriate control measures which may be put in place. This document provides guidance on the measures to be taken to ensure safe intermittent operation of domestic hot water plant and hot and cold water supply services.

Application to premises

- 1.3 The guidance offered in this supplement is applicable for all intermittently used healthcare sites. These sites are considered to be premises such as health centres, clinics, offices etc, which are not used on a 24 hour basis.
- 1.4 There may be instances however, where staff may occupy intermittently used healthcare premises for longer periods of time such as an overnight stay. If during this period of occupancy, there is known to be “zero” demand on the hot water services provided to the premises, the guidance in this supplement is considered to be appropriate. However, should hot water services be required by staff during a period of occupancy such as an overnight stay, more comprehensive control measures are required as detailed in the main text of Scottish Health Technical Memorandum 2040.

Priorities

- 1.5 All intermittently used healthcare premises should be reviewed regularly to identify where they do not meet the standards outlined in this guidance. A realistic programme should be prepared to eliminate any shortfall.

2. Overview and management responsibilities

Statutory requirements

- 2.1 It is the responsibility of management to ensure that intermittently used healthcare premises comply with all health and safety statutory requirements. These are detailed in the main text of Scottish Health Technical Memorandum 2040.
- 2.2 Duties under the Health and Safety at Work etc Act 1974 extend to risks from the legionellae arising from work activities. More specifically, the Control of Substances Hazardous to Health Regulations relate to the risks from hazardous micro-organisms, including legionellae and chemical such as biocides and chlorine. Under these Regulations risk assessments and the adoption of appropriate precautions are required.

NOTE: Reference should be made to the Scottish Infection Manual – Guidance on core standards for the control of infection in hospitals, healthcare premises and at the community interface, for the role of the Infection Control Team.

Management responsibility

- 2.3 The chief executive or general manager has overall responsibility for all aspects of water supplies within his/her organisation.
- 2.4 Scottish Health Technical Memorandum 2040 Part 1 outlines the managerial responsibilities and requirement for the effective management for healthcare premises. The requirements for intermittently used healthcare premises should form part of this overall system.

Nominated person

- 2.5 A nominated person (legionellae), possessing adequate professional knowledge and with appropriate training, should be nominated in writing for the prevention of Legionnaire's disease in intermittently used healthcare premises.
- 2.6 The requirements and responsibilities of the nominated person are outlined in the main text of Scottish Health Technical Memorandum 2040 Part 1.

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Site contact

- 2.7 The person who manages the site should appoint a “site contact” and confirm this in writing to the “nominated person” as defined above. The “site contact” should, on behalf of the “nominated person”, undertake to ensure that specific site information and appropriate routine checks for the premises are completed and duly recorded within the site’s log book.

Epidemiology

- 2.8 For details of the epidemiology of Legionnaire’s disease refer to the main text of Scottish Health Technical Memorandum 2040 Part 1.

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3. Design considerations

General

- 3.1 For details of the design requirements and considerations that should be applied to the design up to the contract document, refer to the main text of Scottish Health Technical Memorandum 2040 Part 2, 'Design Considerations'. All modifications and alterations to the existing systems should comply as far as practicable with the requirements of SHTM 2040. Reference should also be made to Scottish Health Technical Memorandum 2027; *Hot and cold water supply, storage and mains services*.

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4. Validation and verification

General

- 4.1 For details of the validation and verification requirements and considerations that should be applied, including testing and commissioning aspects, refer to the main text of Scottish Health Technical Memorandum 2040 Part 4, 'Validation and Verification'.

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5. Operational management

Operational considerations

- 5.1 A risk assessment diagram has been devised to assist in assessing the risk from legionellae in relation to the range of equipment and facilities likely to be available in intermittently used healthcare premises.
- NOTE:** Refer to Appendix 2: Intermittently used healthcare premises – checklist for assessing the risk from legionellae.
- 5.2 Assistance in identifying whether the facility under review is categorised as an intermittently used healthcare premises for the purposes of this document, is provided within this risk assessment diagram.
- 5.3 Those premises identified as being intermittently used healthcare premises may present a lower risk due to the nature of the systems involved and this document attempts to match the sophistication of the control measure to the complexity of the system. Such controls and inspection frequencies are detailed in the supplementary notes to the risk assessment diagram.
- 5.4 Those premises identified as being intermittently used healthcare premises, but unable to meet in its entirety the requirements outlined in the risks assessment diagram and supplementary notes are deemed to be of a higher risk. Such premises will require more comprehensive control measures to be put in place. The controls and inspection frequencies to be applied to premises in this category are detailed in the main text of the 'Operational management' part of Scottish Health Technical Memorandum 2040 (Part 3).
- 5.5 A standard survey sheet specifically for intermittently used healthcare premises and the varying facilities and equipment likely to be provided, has been designed. This form should be completed for each site; this ensures a written record is available for every site under consideration. It is recommended that the user refer to the risk assessment diagram when completing the standard survey sheet.

NOTE: Refer to Appendix 3: Intermittently used healthcare premises – water systems survey sheet.

Background to risk assessment and monitoring

- 5.6 In undertaking a suitable and sufficient risk assessment, it is essential that consideration be given to the chances of being exposed to the hazard, coupled with the consequences of the exposure; in this instance the hazard being the contraction of legionellae infection.
- 5.7 Systems susceptible to colonisation by legionellae and which incorporate the potential to create and disseminate water droplets should be identified and the risk they present assessed.
- 5.8 In completing a risk assessment of intermittently used healthcare premises, the following points have been addressed when developing the diagram for assisting in the assessment of risk in relation to legionellae:
- the potential for droplet formation;
 - water temperature;
 - the likely risk to those who will inhale water droplets;
 - the susceptibility of the potentially exposed population;
 - means of preventing or controlling risk.
- 5.9 The majority of intermittently used healthcare premises offer only basic water related services i.e. sanitary accommodation and washing facilities, providing both a hot and cold water supply for staff and patient use.
- 5.10 Ideal conditions for the colonisation and growth of legionella organisms may occur in intermittently used healthcare premises if water supply is being held in storage and/or pipework in the temperature range of 20°C to 45°C and if water supplies are stagnant for long periods of time.
- 5.11 Whilst a greater number of susceptible people may indeed access intermittently used healthcare premises, the facilities offered are unlikely to be used other than on an infrequent basis.

Hazard assessment

- 5.12 Legionellae, which causes legionellosis, are naturally widespread in water systems. It is exceptional for a water supply, either public or private, to be entirely free from aquatic organisms, and for this reason it is important that appropriate measures are taken to guard against conditions which may encourage microbial multiplication. Provided water is derived from the public mains and its quality is maintained in the storage and distribution system by correct design, installation and maintenance, it can be regarded as being microbiologically acceptable for use without further treatment.

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- 5.13 Strict adherence to the additional guidance provided in this supplement read in association with the main text of Scottish Health Technical Memorandum 2040 will not eradicate legionellae, but there will be reduction in the risk of an outbreak.

Monitoring and record keeping

- 5.14 Based on the results of risk assessments completed and the guidance contained in this document, a written operational plan should be devised and regularly reviewed. A realistic programme should be prepared to tackle any area where action is indicated.

NOTE: Refer to Appendix 1: Guidance in developing an operational plan for the management of intermittently used healthcare premises.

- 5.15 Records of risk assessment completed, and the implementation of the operational plan should be retained throughout the period for which they remain valid, and for at least a further period of two years.



6. Good practice guide

General

- 6.1 For details of the course of action if an outbreak of Legionnaire's disease is suspected, refer to 'Overview and management responsibilities' part of Scottish Health Technical Memorandum 2040.

Reference should also be made to the Scottish Infection Manual.

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Appendix 1: Guidance in developing an operational plan for the management of water systems in intermittently used healthcare premises

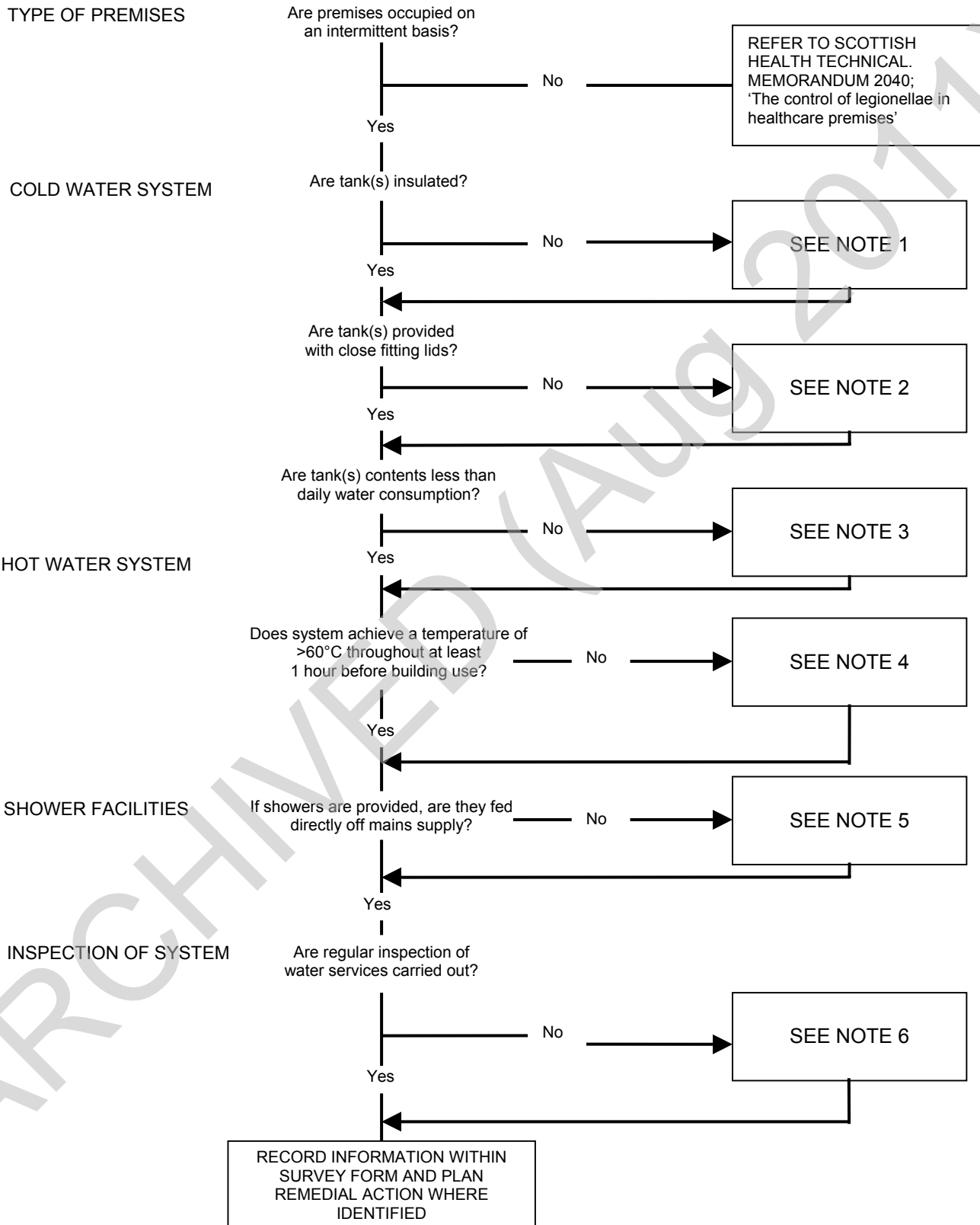
An operational plan should:

- a. Be in written form and available for inspection.
- b. Be prepared by or approved by the nominated person (legionella).
- c. Detail the frequencies of routine inspection and maintenance. The minimum frequencies are detailed in HSC(L8) 2000. The control of legionella bacteria in water systems – Approved Code of Practice and Guidance. However, the risk assessment may indicate that increased frequencies are appropriate in some cases.
- d. Name the nominated person and the site contact.
- e. Be reviewed when the risk assessment is reviewed.
- f. Detail known weaknesses and identify remedial actions including timescales.
- g. Be signed and dated by the nominated person (legionella) and identify the premises to which it applies.
- h. Identify the person or persons responsible for each action called for in the plan including checking temperatures, inspection of systems, time controls etc.

A copy of the operational plan should be retained by the nominated person (legionella), the site contact, the Infection Control Team and any other person upon whose actions the successful implementation of the plan depends.



Appendix 2 Intermittently used healthcare premises – checklist for assessing the risks from legionella



IMPORTANT NOTE: See front cover for status of SHTM 2040. SHTM 2040 must be read in conjunction with and as subordinate to HSC ACOP L8.

Intermittently used healthcare premises

Checklist for assessing the risks from legionella

Supplementary notes

- Note 1 Storage tanks should be insulated to ensure that stored water does not exceed 20°C. Consideration should be given to the location of storage tanks to minimise casual heat gains.
- Note 2 Tanks should be provided with close fitting lids secured to the tank. Vents and overflows should be fitted with mesh screens to prevent access by insects and rodents. Tank lids should allow easy access for cleaning and inspection.
- Note 3 Water storage should be kept to the minimum required by operational considerations (requirements of Scottish Health Technical Memorandum 2027 or Water Authorities Guidelines) to ensure that water turnover is as high as possible. Reducing storage time reduces the effects of heat gains and helps to maintain temperatures below 20°C.

NOTE: The volume of stored water can be reduced by lowering the water level in the tank.

- Note 4 To ensure pasteurisation, stored water must reach a temperature of 60°C throughout the system at least one hour before the water systems to be used and maintained throughout the occupancy. The temperature at the bottom of a calorifier can be significantly below that at the top and this should be taken into account. Calorifiers in which the heating element is not at the bottom will have difficulty in meeting this requirement. Domestic hot water circulators should be sized to ensure that the temperature within the distribution circuit is above 50°C at all points. Where a temperature of 50°C cannot be maintained, alterations to the systems should be considered.
- Note 5 Showers fed from the mains with the hot water at point of use are preferred to showers fed from calorifiers. Where point of use heating is used, the amount of heated water left in the system after operation should be minimised. If showers are provided which are not fed directly from the mains supply, calorifier temperature should be maintained at above 60°C 24 hours a day.
- Note 6 A system of regular inspections should be used to ensure that the risk of contamination and multiplication of the organism is minimised.
- Note 7 Where Thermostatic Mixing Valves are fitted, the operational requirements of Pressure and Temperature ranges of the valve must be established and recorded.

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Appendix 3: Intermittently used healthcare premises water systems survey sheet

General information

Premises name:	
Site contact/manager:	
Date survey completed:	

Building

Hours of use of building (hrs/wk):	
Year built:	
Heated volume of building:	

Cold water storage

Tank material (No. of tanks)	Galvanised steel
	Epoxy lined
	Plastic
	Other specify
Insulation:	Yes <input type="checkbox"/> No <input type="checkbox"/> Comments:
Close fitting lid(s):	Yes <input type="checkbox"/> No <input type="checkbox"/> Comments:
Tank water volume:	
Water usage m ³ /day:	
Water turnover: $\left(\frac{\text{Tank volume}}{\text{Water usage}} \right)$:	

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Hot water storage/generation

Verification of Temp.>60°C 1 hour before building use? Yes <input type="checkbox"/> No <input type="checkbox"/> .	
Location of heating element (please tick) Top <input type="checkbox"/> Middle <input type="checkbox"/> Bottom <input type="checkbox"/>	
Time control: Time setting	On:
	Off:
	On:
	Off:

Distribution system

	Staff: Yes <input type="checkbox"/> No <input type="checkbox"/> Patient: Yes <input type="checkbox"/> No <input type="checkbox"/> .
Showers: Source of hot water:	Point of use heater <input type="checkbox"/> From calorifier <input type="checkbox"/>
Baths: Patient/staff use:	Yes <input type="checkbox"/> No <input type="checkbox"/> .
Thermostatic Mixing Valves Fitted	Yes <input type="checkbox"/> No <input type="checkbox"/> .

Additional comments

<p>TYPE of TMV etc......</p> <p>.....</p> <p>.....</p>

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References

NOTE:

Where there is a requirement to address a listed reference, care should be taken to ensure that all amendments following the date of issue are included.

Publication ID	Title	Publisher	Date	Notes
Acts and Regulations				
	The Building (Scotland) Act	HMSO	1959	
	Clean Air Act	HMSO	1993	
	Consumer Protection Act	HMSO	1987	
	Electricity Act	HMSO	1989	
	The Food Safety Act	HMSO	1990	
	Registered Establishments (Scotland) Act	HMSO	1998	
	The Water (Scotland) Act	HMSO	1980	
	Health and Safety at Work etc Act	HMSO	1974	
SI 346	The Active Implantable Medical Devices Regulations	HMSO	1992	
SI 2179 & 187	The Building Standards (Scotland) Regulations	HMSO	1990	
	The Building Standards (Scotland) Regulations: Technical Standards Guidance	HMSO	1998	
SI 1460	Chemicals (Hazard Information and Packaging for Supply) Regulations (CHIP2)	HMSO	1997	
SI 3140	Construction (Design and Management) Regulations	HMSO	1994	
SI 437	Control of Substances Hazardous to Health Regulations (COSHH)	HMSO	1999	
SI 635	Electricity at Work Regulations	HMSO	1989	
SI 1057	Electricity Supply Regulations	HMSO	1988 (amd 1990)	
SI 3080	Electromagnetic Compatibility (Amendment) Regulations	HMSO	1994	
SI 2372	Electromagnetic Compatibility Regulations	HMSO	1992	

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Publication ID	Title	Publisher	Date	Notes
	Food Safety (Temperature Control) Regulations	HMSO	1995	
	Food Safety (General Food Hygiene) Regulations	HSMO	1995	
SI 2451	Gas Safety (Installation and Use) Regulations	HMSO	1998	
SI 917	Health & Safety (First Aid) Regulations	HMSO	1981	
SI 682	Health & Safety (Information for Employees) Regulations	HMSO	1989	
SI 2792	Health and Safety (Display Screen Equipment) Regulations	HMSO	1992	
SI 341	Health and Safety (Safety Signs and Signals) Regulations	HMSO	1996	
SI 1380	Health and Safety (Training for Employment) Regulations	HMSO	1990	
SI 2307	Lifting Operations and Lifting Equipment Regulations (LOLER)	HMSO	1998	
SI 3242	Management of Health and Safety at Work Regulations	HMSO	1999	
SI 2793	Manual Handling Operations Regulations	HMSO	1992	
SI 3017	The Medical Devices Regulations	HMSO	1994	
SI 1790	Noise at Work Regulations	HMSO	1989	
SI 2225	The Notification of Cooling Towers and Evaporative Condensers Regulations	HMSO	1992	
SI 3139	Personal Protective Equipment (EC Directive) Regulations	HMSO	1992	
SI 2966	Personal Protective Equipment at Work (PPE) Regulations	HMSO	1992	
SI 2169	The Pressure Systems and Transportable Gas Containers Regulations	HMSO	1989	
SI 574	The Private Water Supplies (Scotland) Regulations	HMSO	1992	
	The Public Health (Notification of Infectious Disease) (Scotland) Regulation	HMSO	1988	
	The Public Health Act (Infectious Disease) Regulations	HMSO	1975	
SI 2306	Provision and Use of Work Equipment Regulations (PUWER)	HMSO	1998	

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Publication ID	Title	Publisher	Date	Notes
SI 3163	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR)	HMSO	1995	
SI 1333	The Water Supply (Water Quality) (Scotland) Regulations (amendment)	HMSO	1991	
SI 3004	Workplace (Health, Safety and Welfare) Regulations	HMSO	1992	
British Standards				
BS 6700	Specification for design, installation, testing and maintenance services supplying water for domestic use within buildings and their curtilages	BSI Standards	1997	
BS 7206	Specification for unvented hot water storage units and packages	BSI Standards	1990 (1997)	
BS 6920	Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on water quality	BSI Standards	1996	
BS 7592	Sampling for Legionellae organisms in water and related materials	BSI Standards	1992	
European Union Directives				
80/778/EEC	The Quality of Water Intended for Human Consumption	EEC		
Scottish Health Technical Guidance				
SHTM 2005	Building management systems	EEF	1999	CD-ROM
SHTM 2023	Access and accommodation for engineering services	EEF	1999	CD-ROM
SHTM 2024	Lifts	EEF	1999	CD-ROM
SHTM 2025	Ventilation in healthcare premises	EEF	1999	CD-ROM
SHTM 2027	Hot and cold water supply, storage and mains services	EEF	1999	CD-ROM
SHGN	'Safe' hot water and surface temperatures	EEF	1999	CD-ROM
SHPN 1	Health service building in Scotland	HMSO	1991	
SHPN 2	Hospital briefing and operational policy	HMSO	1993	
SHTN 1	Post commissioning documentation for health buildings in Scotland	HMSO	1993	
SHTN 2	Domestic hot and cold water systems for Scottish Health Care Premises	EEF	1999	CD-ROM
SHTN 4	General Purposes Estates and Functions Model Safety Permit-to-work Systems	EEF	1997	

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Publication ID	Title	Publisher	Date	Notes
	NHS in Scotland – Scotconcode Scottish Infection Manual: Guidance on core standards for the control of infection in hospitals, healthcare premises and at the community interface	EEF	1999	Version 3
NHS in Scotland Firecode				
HTM 81	Fire precautions in new hospitals	EEF	1998	CD-ROM
HTM 82	Alarm and detection systems	EEF	1998	CD-ROM
HTM 83	Fire safety in healthcare premises: general fire precautions	EEF	1998	CD-ROM
HTM 84	Fire safety in NHS residential care properties	EEF	1998	CD-ROM
HTM 85	Fire precautions in existing hospitals	EEF	1998	CD-ROM
HTM 86	Fire risk assessment in hospitals	EEF	1998	CD-ROM
HTM 87	Textiles and furniture	EEF	1998	CD-ROM
Fire Practice Note 3	Escape bed lifts	EEF	1998	CD-ROM
Fire Practice Note 4	Hospital main kitchens	EEF	1998	CD-ROM
Fire Practice Note 5	Commercial enterprises on hospital premises	EEF	1998	CD-ROM
Fire Practice Note 6	Arson prevention and control in NHS healthcare premises	EEF	1998	CD-ROM
Fire Practice Note 7	Fire precautions in patient hotels	EEF	1998	CD-ROM
Fire Practice Note 10	Laboratories on hospital premises	EEF	1998	CD-ROM
UK Health Technical Guidance				
EH 40	HSE Occupational Exposure limits	HSE	Annual	As required
MES	Model Engineering Specifications	NHS Estates	1997	
	The colonisation of water in United Kingdom transplant units with Legionella bacteria and Protozoa and the risk to patients	HEEU	1995	
	Pseudomonas Aeruginosa in whirlpool baths	HEEU	1997	

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Publication ID	Title	Publisher	Date	Notes
Public Health Laboratory Services				
	Spa pool working party	PHLS	1994	
	Hygiene for hydrotherapy pools	PHLS	1990	
	Hygiene for spa pools: guidance for their safe operation	PHLS		
Miscellaneous References				
	Model Water Byelaws: Dept. of the Environment	HMSO	1986	
	Chemical Disinfection in Hospitals (second edition)	PHLS	1993	
	Water Byelaws Scheme's (WBS) Water Fittings and Materials Directory (WFMD).			
	Department of rehabilitation: a design guide	DHSS	1974	
	The central sterilization club, hygiene for hydrotherapy pools	PHLS	1990	
	A guide to pre-commission cleaning of water systems	BSRIA	1991	

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