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of climate change



Health Technical Memorandum 07-02: EnCO₂de – making energy work in healthcare

Environment and sustainability



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Health Technical Memorandum 07-02: EnCO₂de – making energy work in healthcare

Environment and sustainability

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HEALTH ESTATES
creating healing environments



Encode was funded by the Carbon Trust and written by the Building Research Establishment (BRE) as a collaborative project between the Department of Health, NHSScotland, Welsh Health Estates and Northern Ireland Health Estates. For further information about these organisations, please visit the following websites:
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Front cover photograph: Causeway Hospital, Coleraine

An atrium and roof lights – affording good levels of natural light to the hospital interior

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Preface

About Health Technical Memoranda

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

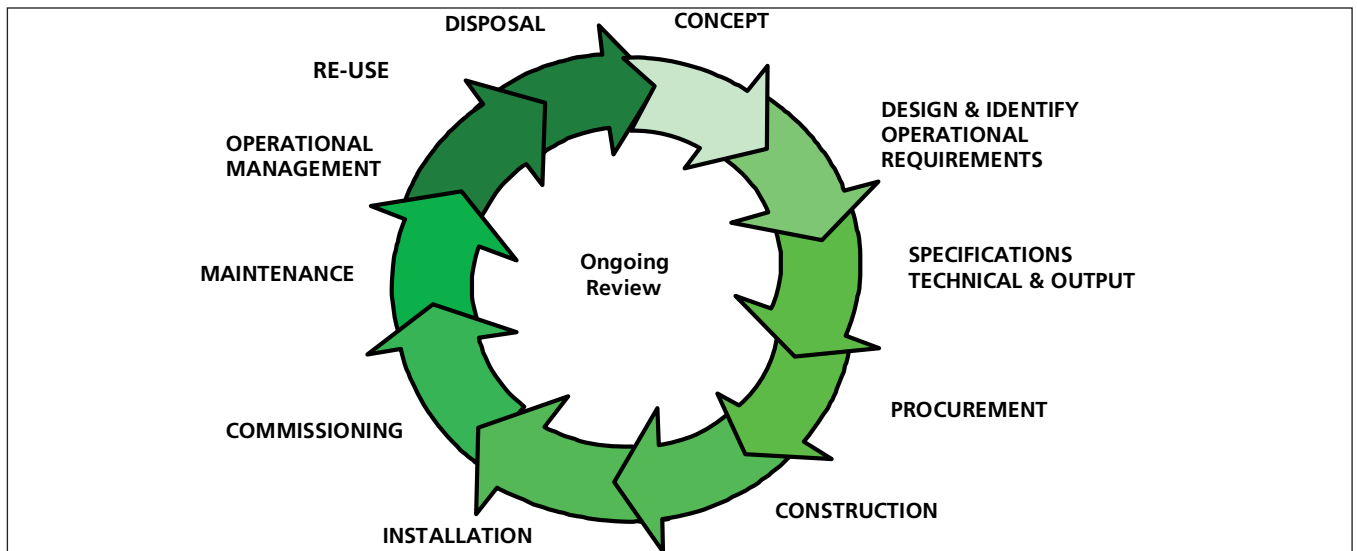
The focus of HTM guidance remains on healthcare-specific elements of standards, policies and up-to-date established best practice. They are applicable to new and existing sites, and are for use at various stages during the whole building lifecycle:

facilities. Health Technical Memorandum guidance is the main source of specific healthcare-related guidance for estates and facilities professionals.

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

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

Figure 1 Healthcare Building Lifecycle



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

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

Healthcare-specific technical engineering guidance is a vital tool in the safe and efficient operation of healthcare

Structure of the Health Technical Memorandum suite

The new series of engineering-specific guidance contains a suite of nine core subjects:

- Health Technical Memorandum 00
Policies and principles (applicable to all Health Technical Memoranda in this series)
- Health Technical Memorandum 01
Disinfection and sterilization
- Health Technical Memorandum 02
Medical gases

Health Technical Memorandum 03
Ventilation systems

Health Technical Memorandum 04
Water systems

Health Technical Memorandum 05
Fire safety

Health Technical Memorandum 06
Electrical services

Health Technical Memorandum 07
Environment and sustainability

Health Technical Memorandum 08
Specialist services

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

Example: Health Technical Memorandum 06-02 Part A will represent:

Electrical Services – Safety – Low Voltage

In a similar way Health Technical Memorandum 07-02 will simply represent:

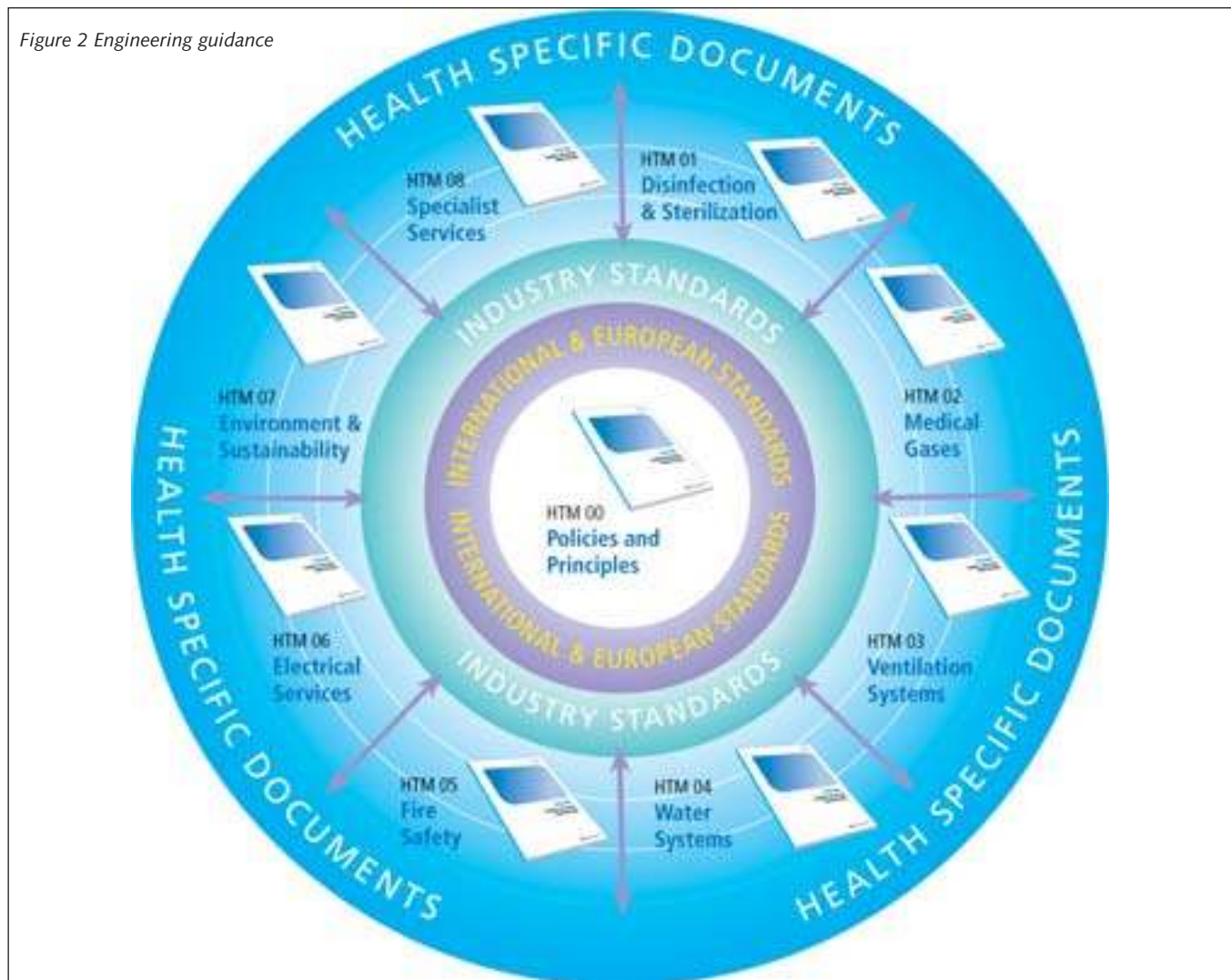
Environment and Sustainability – EnCO₂de.

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

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

DH Estates and Facilities Division acknowledges the contribution made by professional bodies, engineering consultants, healthcare specialists and NHS staff who have contributed to the review.

This document was developed in partnership with the devolved administrations, and where HTM appears in this document, it should also be taken to refer to the Scottish equivalent, that is, SHTM.



Executive summary

Preamble

Encode 2006 – which comprises this document and a CD-ROM of resource materials – is the primary guidance on energy efficiency in healthcare facilities. It has been produced as a comprehensive guide to all issues relating to the procurement and management of energy in the NHS.

Encode was funded by the Carbon Trust and written by the Building Research Establishment (BRE) as a collaborative project between NHS Estates, NHSScotland Property and Environment Forum, Welsh Health Estates and Northern Ireland Health Estates.

Encode is not prescriptive. It draws together best practice guidance so that healthcare organisations can determine a way forward that best suits their situation.

This version of Encode replaces all previous versions.

Introduction

Electricity and fossil fuels have been used in the delivery of healthcare for more than 100 years, and reliance on energy has grown to a point where only the most basic healthcare can be delivered without it. The challenge for the twenty-first century is to continue to deliver world-class healthcare without compromising the global environment.

Encode 2006 sets the foundations for meeting this challenge.

Aim of the guidance

The aim of Encode is to ensure that everyone involved in managing, procuring and using buildings and equipment thinks about the implications of energy use; today and in the future. In short – it puts energy at the heart of the health service.

The most important step on the way to achieving energy and carbon savings is strong leadership. Strong leadership and commitment from the chief executive will enable staff, patients, suppliers and visitors to take the necessary actions to gain control of energy use, keep that control, and make the right choices for the future. Encode

explains how cost savings – and environmental benefits – can be achieved.

Who should use Encode?

Encode provides sufficient information for any healthcare organisation to manage its daily energy-saving activities, and to plan effectively to make the most of the opportunities that lie ahead. Each chapter deals with a different aspect of energy management and is colour-coded for easy reference:

- **Chapter 1** deals with policy-related issues, and is therefore aimed at senior managers.
- **Chapter 2** provides guidance for those responsible for managing the organisation's energy use.
- **Chapter 3** provides guidance to anyone who is involved with both capital and revenue spending decisions.
- **Chapter 4** looks in detail at the issues to be considered for all those involved with commissioning new buildings, services or refurbishments.
- **Chapter 5** provides technical background information to support the design team's design and energy management decisions.

Recommendations

- It emphasises the need for an organisation to have an energy and carbon management policy (or an environmental policy) which is endorsed by the chief executive and supported by an “energy champion” who sits on the board.
- It recommends a five-step approach to energy management, which has successfully been adopted by numerous companies and organisations across the UK.
- It provides a project design checklist that it recommends should be used during the design, construction and hand-over phases of all capital

projects to confirm that the aims of the organisation's energy and carbon management policy have been taken into consideration and correctly addressed.

- It recommends that all sites should have a site-wide energy plan that explains how the energy needs of the healthcare organisation are to be met, and suggests that the plan be reviewed when any change to heat and power or equipment are planned.

Chief executives should ensure that:

- Encode is distributed to board members and departmental leaders;
- departmental leaders brief their colleagues and staff on the specific recommendations set out in Encode;
- Encode is given to suppliers and contractors – perhaps as an appendix to contractual requirements – so that they too can play their part in helping to cut energy usage and carbon emissions.

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About the sponsor

Prime Minister Tony Blair set up the Carbon Trust four years ago as an independent not-for-profit company that would spearhead low-carbon innovation and help Britain lead the way in the international fight against climate change. Fundamental to achieving all these goals is the creation and establishment of the British low-carbon economy.

Our role is to help all businesses and public-sector organisations, whatever their size or location, make a difference and integrate proactive carbon management and energy efficiency strategies into their everyday operations. We also need to help Britain's senior managers to understand the business benefits to be gained as well as the corporate risks to be avoided. Consumers, investors, shareholders and other stakeholders will focus on carbon emissions as a priority concern.

We work with UK business and the public sector to help them cut carbon by creating practical business-focused solutions to carbon emission reduction, encompassing both energy efficiency and carbon management. We also

invest in the development of low-carbon technologies, which will have a crucial role to play in the future energy mix.

Our annual funding is in excess of £69 million in grants from the Department for the Environment, Food and Rural Affairs (Defra), the Scottish Executive, the Welsh Assembly Government and Invest NI.

We also promote the Enhanced Capital Allowance (ECA) Scheme for energy-saving investments on behalf of Defra and manage the associated Energy Technology List.* This ECA scheme is a tax relief that enables businesses to claim 100% first-year capital allowances on investments in energy-saving equipment listed on the approved Energy Technology List. Further details on qualifying products and ECAs are available at <http://www.eca.gov.uk/>

For further information on the Carbon Trust, our products and services, please visit our website at <http://www.thecarbontrust.co.uk> or call the helpline on 0800 085 2005.

* This scheme is not available in the public sector.

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