Health Facilities Scotland

NHS National Services Scotland

STATUS IN NHSSCOTLAND

BEST PRACTICE GUIDANCE

Health Building Note 00-01

Core elements:

General design guidance for healthcare buildings

For queries on the status of this document contact
nss.hfsenquiries@nhs.net or telephone 0141207 1600

Status Note amended 14th October 2014

Health Facilities Scotland

NHS National Services Scotland

DOH Document Code Part - DOH Document Title and Name

This document must be read in conjunction with current Scottish Government Policy and NHSScotland Guidance, which take precedence. These include publications in both: www.sehd.scot.nhs.uk/ and www.hfs.scot.nhs.uk/publications-/ .

Specific updates for NHSScotand use:

Chapter 1. Policy and regulatory overview

The legal, regulatory and policy framework in Scotland can differ significantly from those in England referred to in this chapter, and must take precedence. However, best practice may be similar, given that the quality and efficiency considerations, plus Equality, Health and Safety regulation, and many of the technical standards, European and British, are the same.

Department of Health

Health Building Note 00-01 General design guidance for healthcare buildings

March 2014

Health Building Note 00-01
General design guidance for healthcare buildings

This document is available from our website at www.gov.uk/government/collections/health-building-notes-core-elements

Front cover photograph of Alder Hey Children's Health Park, Liverpool, courtesy of BDP.

Preface

About Health Building Notes

Health Building Notes give best practice guidance on the design and planning of new healthcare buildings and on the adaptation/ extension of existing facilities.

They provide information to support the briefing and design processes for individual projects in the NHS building programme.

The Health Building Note suite

Healthcare delivery is constantly changing, and so too are the boundaries between primary, secondary and tertiary care. The focus now is on delivering healthcare closer to people's homes.

The Health Building Note framework (see next page) is based on the patient's experience across the spectrum of care from home to healthcare setting and back.

Health Building Note structure

The Health Building Notes have been organised into a suite of 17 core subjects.

Care-group-based Health Building Notes provide information about a specific care group or pathway but cross-refer to Health Building Notes on generic (clinical) activities or support systems as appropriate.

Core subjects are subdivided into specific topics and classified by a two-digit suffix (-01, -02 etc), and may be further subdivided into Supplements A, B etc.

All Health Building Notes are supported by the overarching Health Building Note 00-01 in which the key areas of design and building are dealt with.

Example

The Health Building Note on accommodation for adult in-patients is represented as follows:

> "Health Building Note 04-01:
> Adult in-patient facilities"

The supplement to Health Building Note 04-01 on isolation facilities is represented as follows:

> "Health Building Note 04-01:
> Supplement 1 – Isolation facilities for infectious patients in acute settings"

Health Building Note number and series title	Type of Health Building Note
Health Building Note 00 – Core elements	Support-system-based
Health Building Note 01 – Cardiac care	Care-group-based
Health Building Note 02 – Cancer care	Care-group-based
Health Building Note 03 – Mental health	Care-group-based
Health Building Note 04 – In-patient care	Generic-activity-based
Health Building Note 05 – Older people	Care-group-based
Health Building Note 06 – Diagnostics	Generic-activity-based
Health Building Note 07 – Renal care	Care-group-based
Health Building Note 08 – Long-term conditions/long-stay care	Care-group-based
Health Building Note 09 – Children, young people and maternity services	Care-group-based
Health Building Note 10 – Surgery	Generic-activity-based
Health Building Note 11 – Community care	Generic-activity-based
Health Building Note 12 – Out-patient care	Generic-activity-based
Health Building Note 13 – Decontamination	Support-system-based
Health Building Note 14 – Medicines management	Support-system-based
Health Building Note 15 – Emergency care	Care-group-based
Health Building Note 16 – Pathology	Support-system-based

Other resources in the DH Estates and Facilities knowledge series

Health Technical Memoranda

Health Technical Memoranda give comprehensive advice and guidance on the design, installation and operation of specialised building and engineering technology used in the delivery of healthcare (for example medical gas pipeline systems, and ventilation systems).

They are applicable to new and existing sites, and are for use at various stages during the inception, design, construction, refurbishment and maintenance of a building.

All Health Building Notes should be read in conjunction with the relevant parts of the Health Technical Memorandum series.

Activity DataBase (ADB)

The Activity DataBase (ADB) data and software assists project teams with the briefing and design of the healthcare environment. Data is based on guidance given in the Health Building Notes and Health Technical Memoranda.

For ADB technical queries only, contact the ADB Helpdesk. Telephone number: 01939 291684; email: support@talonsolutions.co.uk

For new ADB customers and licence renewals only, email: adblicencerenewals@dh.gsi.gov.uk

How to obtain publications

Health Building Notes are available from the UK Goverment's website at:

https://www.gov.uk/government/collections/health-building-notes-core-elements

Health Technical Memoranda are available from the same site at:

https://www.gov.uk/government/collections/health-technical-memorandum-disinfection-and-sterilization

Foreword

'To improve is to change; to be perfect is to change often.
'We shape our buildings, and afterwards our buildings shape us' (Winston Churchill)

The overriding challenge for commissioners, regulators and providers of both health and social care and associated physical environments in which care is delivered, is reconciling the need for patient safety, effectiveness and efficiency and the need for creating a truly therapeutic environment. For this to be successful, it is essential that all who receive healthcare are aware of the nature of this interrelationship.

Achieving effectiveness and efficiency in combination with creating a safe, healing environment are of vital importance in order to address the global challenges from dwindling resources, increasing public expectations and demands. This includes meeting the needs of an aging population and the expectations from rapidly changing technological advancements. Having to do more with less while being able to achieve value for money are worthwhile goals at anytime – but they have an increased level of interest and scrutiny within a health and care context.

The above factors create an appropriate context for this new and different type of Health Building Note (HBN), an introductory HBN for the suite of HBNs. This overarching HBN gives an overview of the policy and legislative framework around capital projects in healthcare, strategic planning, master planning and building design.

Most of the content will be familiar to healthcare planners, architects and others with formal design education. However, it will also be useful for the informed client, commissioners and regulators – those who do not have detailed knowledge of capital investment projects but who want more involvement and information on the issues that are encountered in these types of project.

Illustrations/pictograms with explanatory text are used as the main focus, with photographs providing supporting precedents. Organisations should try to excel beyond simply complying with regulations that effectively just meet the minimum standards.

For HBN 00-01, the goal is to guide organisations, in terms of not only complying with a new registration regime that is based on efficacy, but also fulfilling their obligations and shared responsibilities under the NHS Constitution for ensuring that "services are provided in a clean and safe environment that is fit for purpose, based on national best practice". In so doing, this is also about good design of healthcare premises and its often integrative nature. A single idea, device, form, arrangement or choice of material can often solve a multiplicity of problems.

Dr Michael Phiri
School of Architecture
Healing Architecture Research Group

Executive summary

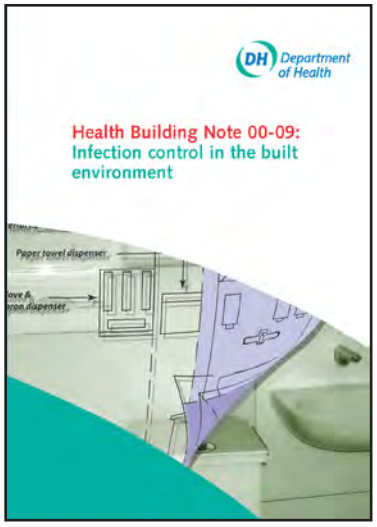
The World Health Organization defined "health" as "a state of physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 1946).

Healthcare facilities should provide a therapeutic environment in which the overall design of the building contributes to the process of healing and reduces the risk of healthcare-associated infections rather than simply being a place where treatment takes place.

In turn, the healthcare planning and design process therefore needs to be correspondingly broad enough to include not only the issues surrounding the treatment of disease, but also the promotion of health and prevention of disease – essentially the creation of a safe and therapeutic care environment.

This Health Building Note (HBN) gives general design guidance for healthcare buildings. Because of its general nature, its content will be familiar to experienced architects and healthcare planners. It is intended particularly for those who are new to this work and also to patients or their advocates who may be requested to become involved. It may also be helpful for commissioning organisations and regulators, giving an overall picture of the design issues and future-proofing requirements that need to be addressed in a healthcare capital project.

An opportunity to build a new department/ facility or refurbish an existing one may only happen occasionally but when it does, it provides the opportunity to design a modern department that inspires and intuitively supports safe, effective and efficient patient care, with the flexibility to meet future developments in healthcare, technology and patient needs.



HBN 00-01 should be read in conjunction with Health Building Note 00-09 – 'Infection control in the built environment'

Acknowledgements

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Contents

Part 1: Policy and regulatory overview/Scope

1. Policy and regulatory overview

Assurance of estates and facilities

Introduction

1.1 One of the government's key priorities is delivering better health outcomes for patients.

1.2 The quality and fitness-for-purpose of the healthcare estate is vital for high quality, safe and efficient healthcare, and this document seeks to set out the general design principles used in the construction of the estate.

1.3 Design quality is also important in the context of healthcare building, where well-designed healthcare buildings can help patients recover their health and well-being and have a positive effect on staff performance and retention. Additionally, good design improves the efficiency of operational relationships and provides better value for money for the taxpayer and in the context of whole-life costs.

1.4 Assurance of estates and facilities in the new landscape is assessed against a set of legal requirements and standards:

- Regulation 15 of the **Health and Social Care Act 2008 (Regulated Activities) 2010** on the safety and suitability of premises;
- the registration requirements in the **CQC's standards**;
- pledges on a safe environment as outlined in the **NHS Constitution**.

Health and Social Care Act 2008 (Regulated Activities) 2010

1.5 Regulation 15 of the Act states that patients must be "protected against the risks associated with unsafe and unsuitable premises, by means of …. suitable design and layout … maintenance and ….operation".

Regulator requirements

1.6 The Care Quality Commission (CQC) regulates all providers of regulated health and adult social care activities in England. The CQC's role is to provide assurance that the care given meets essential requirements of quality and safety.

1.7 The registration requirements are set out in the Care Quality Commission (Registration) Regulations 2009 (CQC Regulations) and include requirements relating to:

- safety and suitability of premises;
- safety, availability and suitability of equipment; and
- cleanliness and infection control.

1.8 The CQC is responsible for assessing whether providers are meeting the registration requirements. Failure to comply with the CQC Regulations is an offence and, under the Health and Social Care Act 2008 (Regulated Activities) Regulations 2010, CQC has a wide range of enforcement powers that it can use if the provider is not compliant. These include the issue of a warning notice that requires

improvement within a specified time, prosecution, and the power to cancel a provider's registration, removing its ability to provide regulated activities.

Note on amendment to the CQC Regulations

New regulations are due to come into effect during 2014 and will apply to all providers of health and social care that are required to register with the CQC.

NHS Constitution

1.9 The NHS Constitution sets out the rights to which patients, public and staff are entitled. It also outlines the pledges that the NHS is committed to achieve, together with responsibilities that the public, patients and staff owe to one another to ensure that the NHS operates fairly and effectively. All healthcare organisations will be required by law to take account of this Constitution in their decisions and actions.

1.10 Healthcare organisations need to "ensure that services are provided in a clean and safe environment that is fit for purpose, based on national best practice (pledge)".

In order to deliver on this pledge, it specifically advises NHS organisations to take account of:

- the NHS Premises Assurance Model;
- national best-practice guidance for the design and operation of healthcare facilities (such as Health Building Notes (HBNs) and Health Technical Memoranda (HTMs)).

NHS Premises Assurance Model (PAM)

1.11 The NHS has developed, with the support of DH, the NHS Premises Assurance Model (NHS PAM), whose remit is to provide governance and assurance to boards of organisations that patients, staff and visitors are protected against risks associated with hazards such as unsafe premises. It has been designed to apply across the range of estates and facilities management services.

1.12 Although not mandatory, NHS PAM allows organisations that provide NHS-funded care and services to better understand the effectiveness, quality and safety with which they manage their estate and facilities services and how that links to patient experience and patient safety.

1.13 Key questions are underpinned by prompt questions which require the gathering of evidence. Healthcare organisations need to prepare and access this evidence to support their assessment of the NHS PAM.

1.14 The model also includes references to evidence and guidance (for example, HBNs and HTMs) to assist in deciding the level of NHS PAM assurance applicable to a particular healthcare organisation.

1.15 For more information on how to use the tool, visit the NHS PAM website.

Regulations and Codes of Practice

1.16 The two major pieces of legislation affecting buildings are:

- Building Regulations 2010 – regulations that govern the construction and services within buildings. Practical help on how to comply with the building regulations can be found in a series of approved documents (http://www.planningportal.gov.uk/buildingregulations/approveddocuments).
- Health and Safety at Work etc Act 1974 – regulations that govern the working conditions within buildings.

Health and safety regulations

1.17 The Health and Safety Executive (HSE) is the national regulator for workplace health and safety. The following legislation places legal duties on various dutyholders:

- Health and Safety at Work etc Act 1974, section 3
- Workplace (Health, Safety and Welfare) Regulations 1992
- Management of Health and Safety at Work Regulations 1999, regulation 3
- The Construction (Design and Management) Regulations 2007
- Manual Handling Operations Regulations.

For more information, visit the HSE's website.

Climate Change Act 2008

1.18 Healthcare organisations need to be mindful of the Climate Change Act and the resultant measures that need to be taken, particularly with regard to flooding, drought, hot weather and freezing temperatures (for further guidance, see Health Building Note (HBN) 00-07 – 'Planning for a resilient healthcare estate').

1.19 There are two main areas of focus for action with respect to climate change:

a. **Mitigation** – which reduces the impact of business functions on the climate through the lowering of carbon emissions from energy use, the reduction of water consumption, improved efficiency of transport etc. Under the Climate Change Act, the government has set up the CRC Energy Efficiency Scheme, which requires large public and private sector organisations to achieve energy-saving targets.

b. **Adaptation** – which requires measures be put in place to minimise the adverse effects of climate change (for example, flooding, storms, heatwaves and impact on air quality). With respect to buildings and infrastructure, flooding is identified as the main threat by the current UK Climate Change Risk Assessment. The next update to this assessment is expected in 2017.

Code of Practice on infection prevention and control

1.20 The information outlined in this document follows the general principles given in the 'The Health and Social Care Act 2008: Code of Practice on the prevention and control of infections and related guidance' (the HCAI Code of Practice). This Code of Practice sets out criteria against which a registered provider will be judged on how it complies with the registration requirement for cleanliness and infection control. Not all criteria will apply to every regulated activity.

1.21 The law states that the HCAI Code of Practice must be taken into account by the CQC when it makes decisions about registration against the cleanliness and infection control requirement. The regulations also say that providers must have regard to the Code when deciding how they will comply with registration requirements. The Code aims to exemplify what providers need to do in order to comply with the regulations.

Note

Infection prevention and control teams should be consulted on any design decisions. See HBN 00-09 – 'Infection control in the built environment' for guidance on design issues and how to comply with the HCAI Code of Practice.

Accessibility

1.22 Authorities need to comply with the provisions of the Building Regulations (including Approved Document M – 'Access to and use of buildings') and the Equality Act 2010.

Note that some HBNs have variations from Approved Document M. Where this is the case, the reasons are discussed in the respective documents.

Relevant government initiatives

Government Construction Strategy

1.23 The Government Construction Strategy (GCS) seeks to reduce the cost of public sector construction by 15–20% by 2015.

1.24 ProCure21+ is working with the Cabinet Office to reduce construction costs of NHS capital schemes and has signed up to deliver 14.1% cost savings by 2016. Three initiatives have been put in place to achieve this:

a. cost targeting and benchmarking – 3% savings required on every scheme;

b. standardisation of components and repeatable designs offering up to 25% savings;

c. the implementation of building information modelling (BIM) software on all ProCure21+ schemes.

1.25 For more information on these initiatives, visit the ProCure21+ website.

Common Minimum Standards

1.26 The Common Minimum Standards (CMS) for the procurement of built environments in the public sector set a requirement that:

> "All clients will aim to deliver design excellence in accordance with the principles set out in the Government Construction Strategy" (CMS 4.1).

Compliance is expected, although the CMS do make provision for practicality, achievability and value for money to be considered in certain circumstances. Details on the CMS can be found on the Common Minimum Standards web page.

1.27 The CMS recommend that Design Quality Indicators (DQIs) are used as part of ensuring all stakeholders, including end-users, are involved in the development of the output specification, design brief and in the assessment of project success. The DQIs for the health sector have been developed by the UK Construction Industry Council as a five-stage facilitated and accredited process. This replaces the Achieving Excellence Design Evaluation Toolkit originally produced by the Department of Health, which has been archived and is no longer supported.

1.28 The CMS document also recommends that an appropriate environmental assessment process such as BREEAM, or an equivalent process appropriate to the size, nature and impact of the project, should be carried out on all projects.

BREEAM for healthcare buildings replaces NEAT (NHS Environmental Assessment Tool) as the preferred environmental assessment method and certification scheme for healthcare buildings in the UK.

Government Soft Landings

1.29 The handover stage of assets is critical to ensure that the as-designed performance is achieved as soon as possible and that the ongoing operation continues to conform to as-designed parameters. This is an area identified in the GCS and it is being supported through the implementation of the Government Soft Landings (GSL) policy.

1.30 GSL means designers and constructors staying involved with healthcare buildings beyond practical completion, to assist the client during the first months of operation and beyond, to help fine-tune and de-bug the systems, and ensure the occupiers understand how to control and best use their buildings. It also provides a natural route for post-occupancy evaluation and feedback.

2. Scope of Health Building Note 00-01

Introduction to Health Building Notes (HBNs)

2.1 HBNs are the key documents for all health building, planning and briefing guidance in England. They draw together the best current knowledge for healthcare needs and should be regarded as setting standards of best practice and providing essential information on how to comply with the statutory and policy framework around the assurance of estates and facilities as outlined in paragraphs 1.1–1.15 (see Figure 1).

2.2 The main aims of HBNs are to:

- promote the design of healthcare facilities with regard to the safety, privacy and dignity of patients, staff and visitors;
- provide best practice guidance to architects, designers and healthcare planners seeking information on the special needs of typical healthcare facilities;
- help to achieve value-for-money solutions for the planning and design of healthcare facilities.

2.3 Good design is often integrative. A single idea, device, form, arrangement or choice of material can solve a multiplicity of problems. Of importance, the evidence-based design approach has the potential to improve the quality of patient experience and health outcomes while also saving time and costs.

Health Building Note 00-01

2.4 HBN 00-01 is provided as a guide to the design principles and issues that are applicable to all adult acute in-patient healthcare facilities (although the standards and principles it advocates may be appropriate to follow in all locations where healthcare is provided).

2.5 The document provides an overview of general design principles and is not a comprehensive guide. Because of its general nature, its content will be familiar to experienced architects and healthcare planners. It is intended particularly for those who are new to this work. It may also be helpful for commissioning organisations and regulators, giving an overall picture of the design issues that need to be addressed in a healthcare capital project.

2.6 Much of this guidance will also apply to mental health facilities. However, for more specific design guidance (for example, anti-ligature design), see HBN 03-01 – 'Adult acute mental health units'.

Format

2.7 Chapters 3 and 4 deal with the strategic and master planning stages. Chapter 5 looks at the design brief. Chapter 6 shows some evidence-based design ideas that can be used to inform the design brief. (For a list of all current HBNs in the series, see the Preface.)

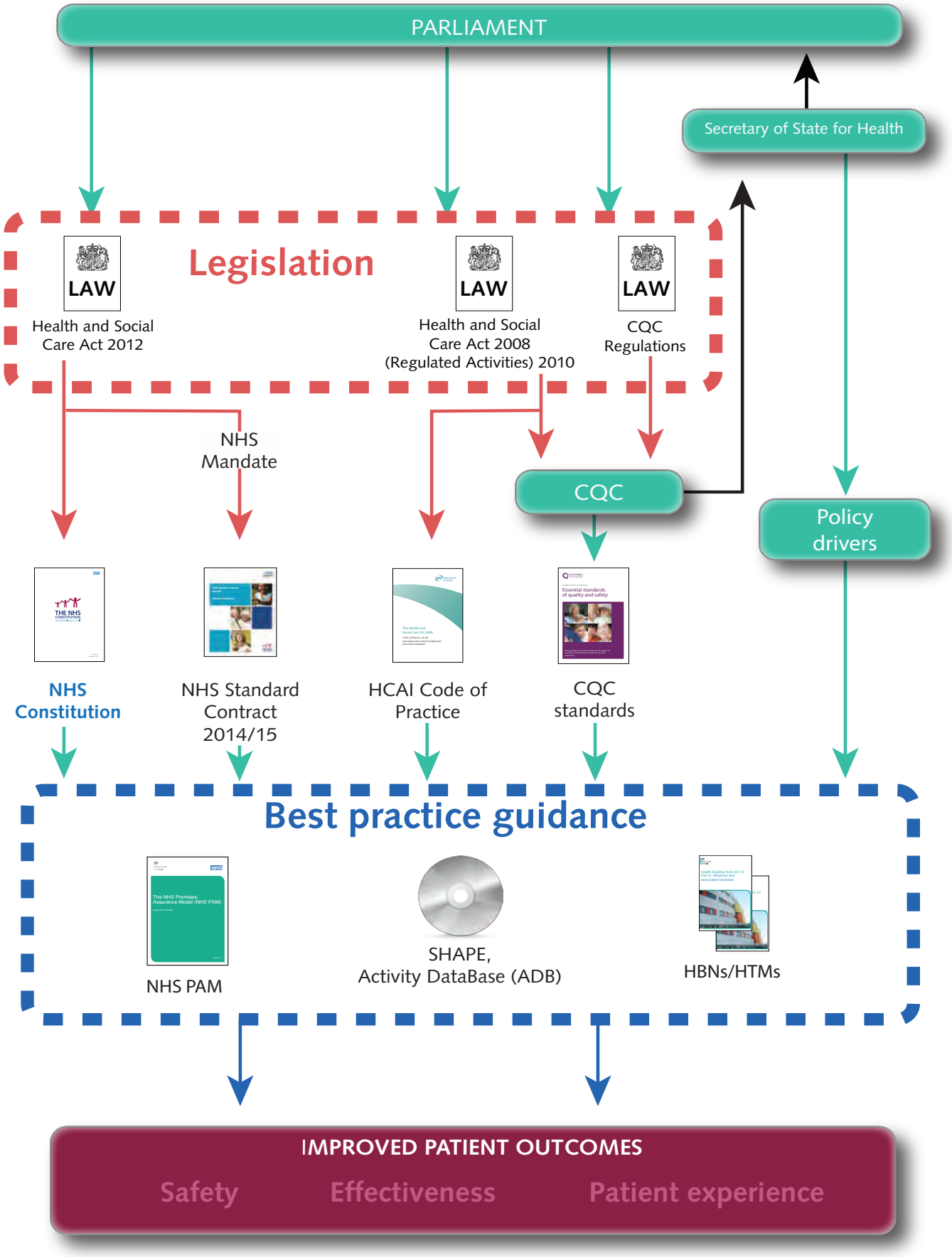


Figure 1 HBNs and the legislative framework

Part 2: Strategic and master planning

3. Strategic planning

Note

Part 2 on strategic and master planning should be read in conjunction with HBN 00-08 – 'Estatecode'.

3.1 Evashwick and Evashwick (1988) define strategic planning as "the process for assessing a changing environment to create a vision of the future; determining how the organisation fits into the anticipated environment based on its institutional mission, strengths, and weaknesses; and then setting in motion a plan of action to position the organisation accordingly".

3.2 In essence, strategic planning should attempt to answer and address the following questions:

- Where we are now?
- Where we are going?
- How we will get there?
- How we will know we are achieving our goals?

These questions will form the backbone of an estates strategy.

3.3 In healthcare, strategic planning needs to acknowledge that core services will change and flex as care models and service priorities evolve. In other words, healthcare organisations have to be responsive to the changing needs of the local population they serve and to the people who provide the service, with the focus constantly being on improving patient outcomes. The objective of strategic planning is to control these changes and to use them as an opportunity to redeploy resources in order to improve the overall quality and balance of healthcare provision.

3.4 For successful strategic planning, healthcare organisations will need to understand disease prevalence, existing and potential demands for services, and commissioning intentions, and what impact these issues will have for the estate. They will therefore need to have discussions with clinical commissioning groups (CCGs) to ensure that any assumptions made about capacity and activity modelling are consistent with commissioners' five-year plans and annual operational plans (see also NHS England's 'Everyone counts: planning for patients 2014/15 to 2018/19'). As a result, healthcare organisations will be able to determine which services they are best able to provide sustainably and identify the most efficient and effective way of delivering them in order to maximise quality of care.

3.5 Discussion and consultation should also take place with patients and the public from the very beginning of the process. This could be achieved though planning meetings, interviews, questionnaires, patient stories, design workshops, care pathways workshops and regular meetings that discuss the design and the functional content of the proposed development. Events can be publicised through local patient and public involvement groups or public notices.

3.6 Factors that are influencing the delivery of care and which are changing most rapidly are:

- demographic trends (in particular, an aging population and the projected prevalence of dementia);
- shorter lengths of stay;
- an increase in ambulatory care and surgery via community settings; and
- technological advances (for example, in surgical techniques and diagnostic imaging).

3.7 Activity can be modelled forward using a predictive modelling tool such as Strategic Health Asset Planning and Evaluation (SHAPE) (see Figure 2). This is an evidence-based application that informs and supports the strategic planning of services and physical assets across the health economy. For example, it can:

- help to compare the population needs and demographics for existing or proposed sites;
- map existing health services and look at how they would cope with increases in population;
- inform the exploration of the efficiency and effectiveness of current service models and help project future capacity requirements;
- assist the strategic estates planning process and link it to the commissioner's service planning.

3.8 Another useful tool is Activity DataBase (ADB). This software assists in the construction, briefing development, design and alteration of healthcare facilities. Room data sheets provide an activity-based approach to building design and include data on personnel, planning relationships, environmental considerations, design character, space requirements and graphical layouts (see Figure 3). Spaces designed using ADB data comply with the planning guidance in HBNs and HTMs (see Preface for contact details).

3.9 An opportunity to build a new department/ facility or refurbish an existing one may only

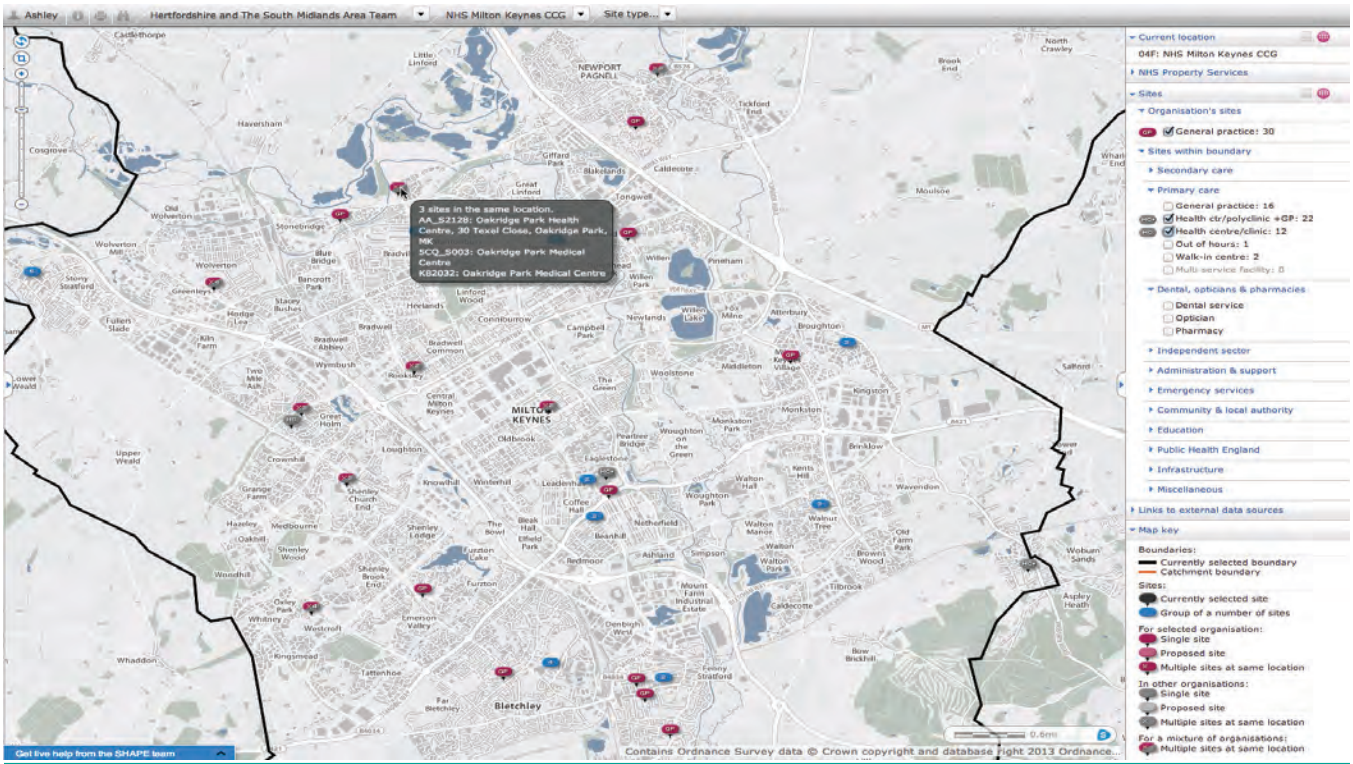


Figure 2 SHAPE boundary and sites: location of primary care sites within a CCG boundary. Spatial distribution of primary and community facilities can establish whether there are any gaps in service delivery in relation to local needs.

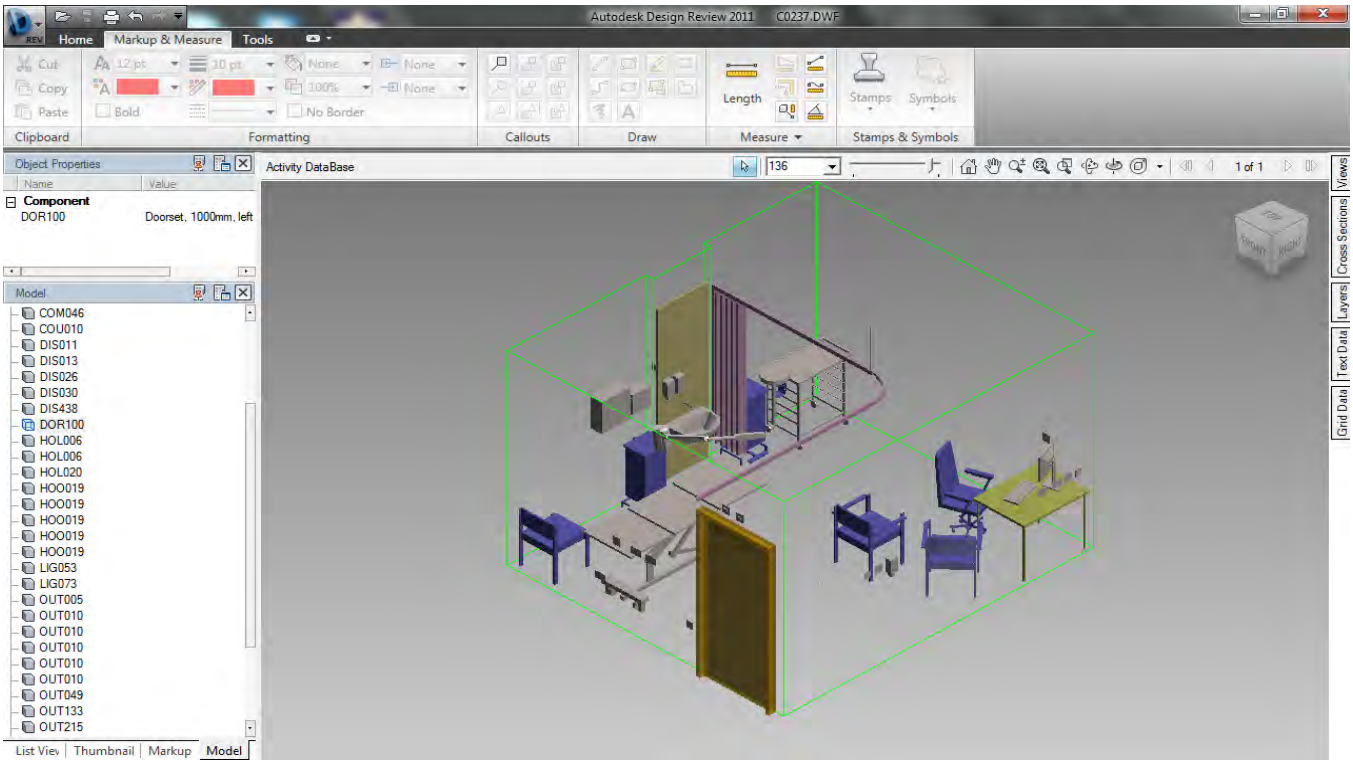


Figure 3 ADB graphical representations of room layout drawings, room elevations and three-dimensional drawings to 1:50 scale

happen occasionally but when it does, it provides the opportunity to design a modern department that inspires and intuitively supports safe, effective and efficient patient care, with the flexibility to meet future developments in healthcare, technology and patient needs. Great attention therefore needs to be focused especially during the strategic and initial project phases on the range and depth of input required from specialist skills. Often the studies undertaken at the strategic planning and evaluation stages are highly interactive, complex and demand high levels of creative thinking. It is therefore essential that this activity is properly addressed and resourced as the outcome forms the basis for all that follows. In terms of added value it holds prime position.

4. Master planning and development control plans

4.1 If the strategic planning phase reveals that a new element of clinical service is to be provided, or an existing one altered, extended or relocated, the options for housing these clinical needs must be appraised before a specific scheme is identified. This should be encapsulated in a strategic master plan and its associated development control plan (DCP). The main aims of these plans are to set out and define the particular qualities and attributes of a place and illustrate how to make the best use of them.

4.2 A master plan enables a proper appreciation of the capacities of the site as well as the buildings. It should show how much of the current clinical use can remain and the extent of any new construction that may be required. Options will usually involve:

- no building work at all (including the decommissioning and potential demolition of existing buildings);
- relocating or reassigning functions within the existing fabric of the building;
- refurbishing existing buildings;
- new developments.

Key considerations behind the development of a master plan

Shared vision

4.3 The master plan has to address the needs and desires of the patients, staff, managers and the local community to provide a clinical vision that can be supported through the delivery stage and future phases.

Ease of access and navigation

4.4 The master plan should be integrated with existing transport solutions, both public and private, as well as providing site-wide intuitive wayfinding.

4.5 Strong, simple organisational concepts will aid the relationship of the external layout to the clinical departmental adjacencies and the internal wayfinding strategy.

Maximising opportunities

4.6 As the core purpose of the master plan is to make best use of land and buildings, it will need to:

- achieve the preferred clinical solution and functional zoning; and
- address:
  - the requirements of circulation and commercial activities;
  - site disposal; and
  - regeneration opportunities.

Understanding the constraints

4.7 To achieve a sustainable master plan, the potential constraints and existing infrastructure need to be understood. This will include roads, access, below-ground services, existing

servicing hubs, plantrooms and the potential limitation that they will have on proposals.

Context and physiology

4.8 A master plan needs to consider its connection and relationship to the neighbouring community and should not be designed in isolation. It should establish the three-dimensional massing, shown in context with adjacent structures and open spaces, and set out floor-to-floor relationships, the best use of the site's topography, orientation, site boundaries, sun paths, views, landscape and building faces.

Flexibility and future-proofing

4.9 The plan needs to allow for adaptation, change and future planning, including strategic infrastructure decisions (roads, access) that minimise restrictions for future development.

Deliverability

4.10 The proposals need to be affordable and achievable (that is, addressing potential development restriction such as town planning). Consideration needs to be given to the phasing of works to allow clinical functionality to be maintained so as to minimise any potential disruption that the building work may have on existing services.

The result – a linear process

From this, a clear site strategy should emerge, defining access, building location and mass, orientation, car-parking and landscape design. The resulting design should be coherent and legible, allowing users of the building to understand how it is put together and organised as they approach it – a linear process (see Figure 4).

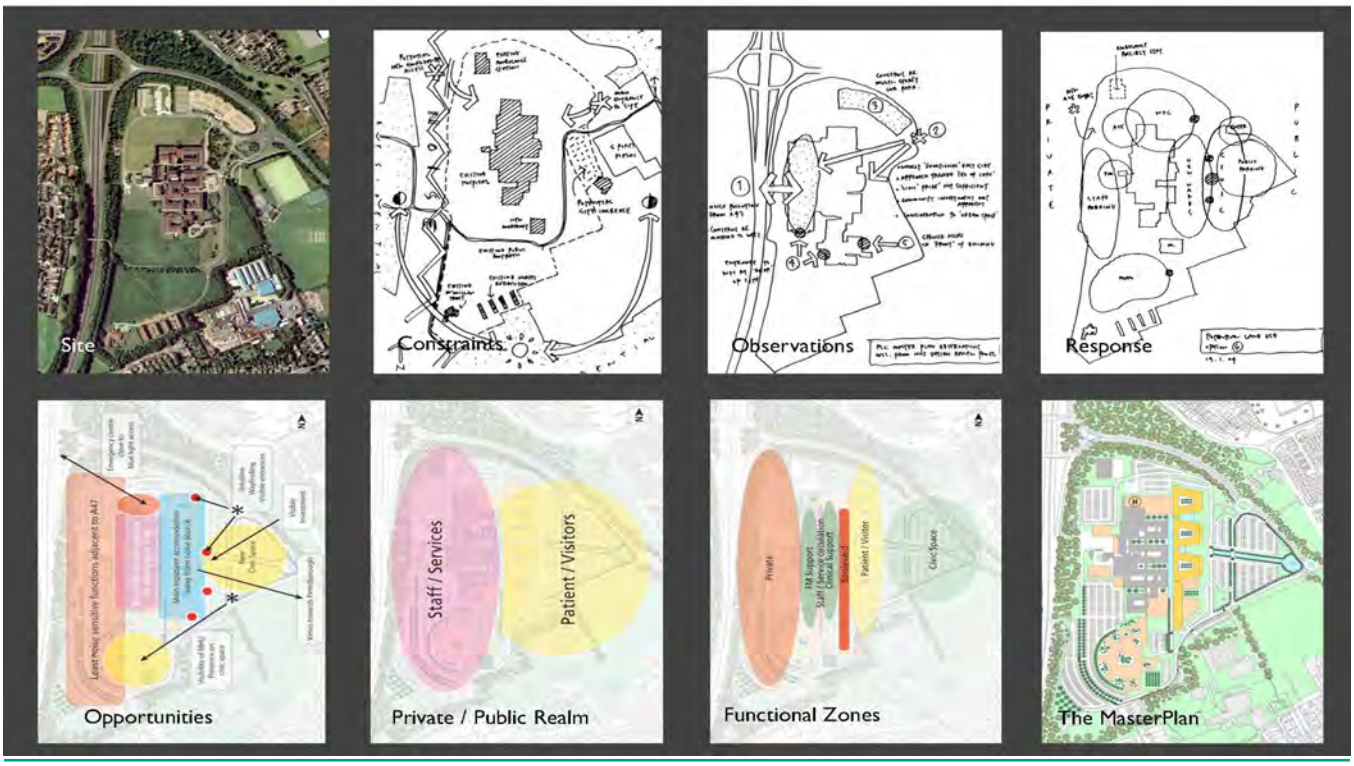


Figure 4 Masterplan development – the linear process. (Enniskillin Hospital, Courtesy of Aukett Swanke)

Summary of key considerations for the development of a master plan:

- **site information:**
  - site photos, aerial photos and key plan
  - site levels, topography
  - access and existing roads
  - existing services
  - ground conditions including hydrological conditions
  - existing trees, landscape
  - existing transport access – rail, road, other linkages
  - future/planned transport access
  - existing infrastructure/services
  - future/planned infrastructure services.
- **regional context:**
  - local area plan
  - future changes in the surrounding area
  - existing developments in surrounding area
  - existing landscape/green space/development context
  - potential for new uses on site
  - regional demand for new uses
  - competing projects
  - quality/standards/examples.
- **environmental considerations:**
  - potential noise mitigation requirements (roads, rail, air, industry etc)
  - ecological issues
  - existing and potential areas of environmental value.
- **existing buildings:**
  - clinical functionality and adjacencies
  - building and services conditions and backlog maintenance requirements
  - structure (is the structural grid suitable for the proposed function/new function?)
  - connectivity
  - accessibility
  - fire safety and strategy
  - security
  - flexibility, adaptability and future need.

Development control plan (DCP)

4.11 The master plan would, in turn, inform the DCP. This sets out the long-term development of a healthcare organisation's estate and is an essential requirement for the submission of the phase 1 full business case (FBC).

4.12 The DCP shows in diagrammatic form the major changes taking place on the site (see Figure 5):

- existing and proposed site boundaries;
- all existing and proposed buildings and services;
- phasing including the first phase and any immediately subsequent phases of development in detail;
- location and access for later phases, with indications of strategy for main communication routes and site-related infrastructure/engineering services;
- location and function of disposal sites.

Development context and external influences

4.13 The master plan and DCP need to be considered in the wider context of the healthcare organisation's policies.

4.14 The project team will need to address which services should remain on site and which services could potentially be located off-site or be provided by third-party service providers (for example, sterile services and catering).

4.15 Other external influences may define the potential value of the real estate on the open market against less valuable sites.

Examples of typical site-wide design considerations

4.16 At the master planning stage, there are certain design requirements that need to be considered as they apply across the whole site.

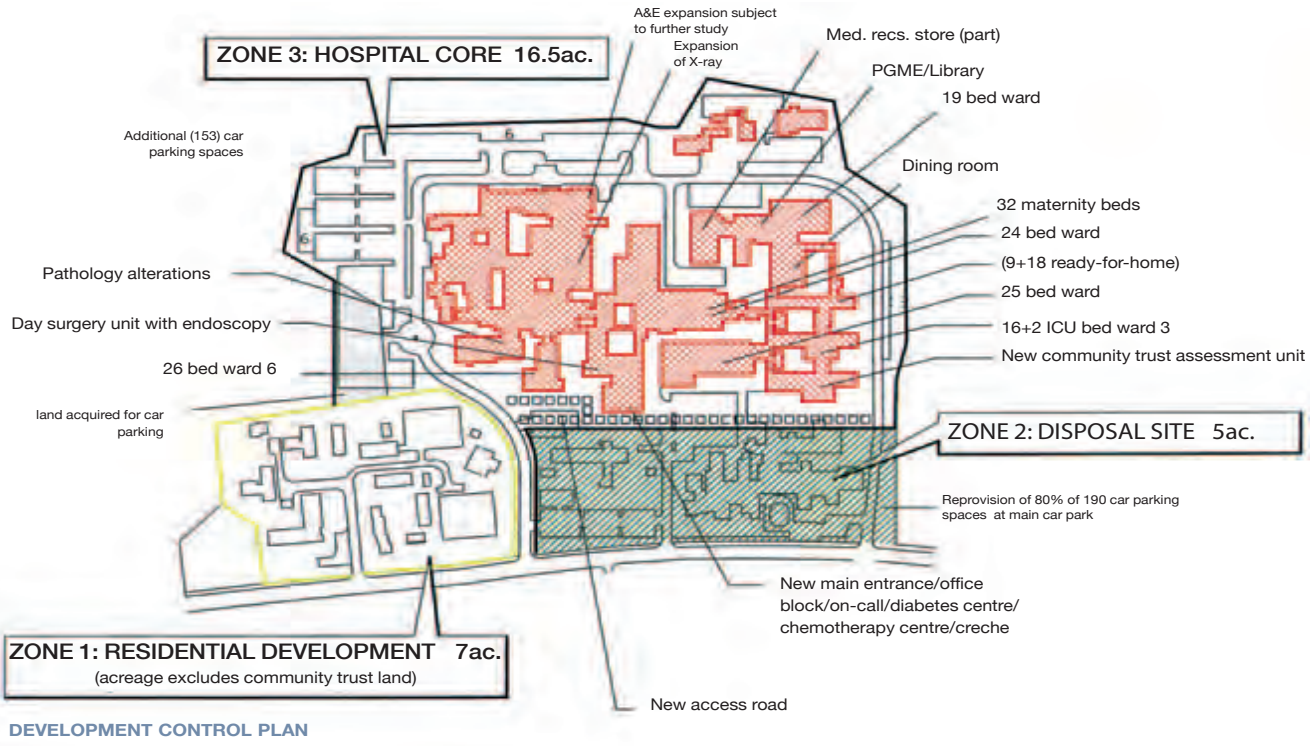


Figure 5 Example development control plan

Access

4.17 The site of any healthcare facility should be convenient both to the community and to service vehicles, including fire appliances, ambulances and other emergency vehicles. Consideration should be given to:

- access and easy circulation for patients, staff and visitors (both non-disabled and disabled) on foot, on bicycles, in cars or on public transport (sustainable transport considerations should be encapsulated in a transport plan);
- dedicated blue-light routes;
- a discrete, segregated access for goods vehicles to receiving and delivery areas.

Liaison with the local highway authority should also take place.

Flexibility, adaptability and future need

4.18 Healthcare buildings need to be adaptable and allow for changes in layout, function and patient volume. It is important therefore that the design process takes account of flexibility and continuous change (see Table 1).

4.19 One of the ways of allowing flexibility is to standardise space and components as much as possible. As well as improved patient outcomes, this will also help to achieve cost reductions.

4.20 To better understand possible future need, the project team should consider a future-planning workshop with stakeholder groups using a scenario planning approach: the potential change over a five-, ten- and 20-year period, which the facility may need to respond to.

4.21 The team should take into account lessons learnt from previous changes in service requirements, the accuracy of previous predictions and the cost of not meeting these changes.

4.22 The multidisciplinary team should consider questions such as “What if?” and “What happens if?”

Servicing

4.23 The earlier in the project the servicing options and strategies are considered, the lower will be the financial impact of changes to these services.

4.24 Understanding the location of existing services is essential to the development of any master plan, for example:

- Below-ground services may well have a no-build zone.
- The public infrastructure provision of drainage, gas and electricity may be at capacity, and additional substations etc could be cost-prohibitive.

4.25 Hospital facilities are IT-dependent and, as with the other services, it is vital that connectivity is addressed.

4.26 Hospital-specific services such as medical gases and vacuum form part of these complex master-planning considerations.

4.27 Servicing has an even bigger impact on the phasing and decant strategy of works within the retained estate.

Fire safety

4.28 The requirements of the Firecode suite of DH guidance must be considered throughout the design process. In particular, HTM 05-02 – ‘Guidance in support of functional provisions for healthcare premises’ gives guidance on functional provisions such as means of escape and access and facilities for the fire service. Clients must ensure that there is close collaboration between all those who have an interest in the fire safety provisions of the proposed premises at the earliest stage in the design and be satisfied that all such premises comply with all statutes bearing upon fire safety. The potential for trade-off between the needs of

Site	Consider additional land in the purchase of the site to allow for future expansion (parking or horizontal additions) Adjacent properties can also provide potential future options for expansion
Planning	Prepare for future scenarios by ensuring that the master plan documents physical expansion options
Adjacencies	Use zoning to separate public, treatment and staff functions for improved internal circulation and privacy Design horizontal and vertical circulation to encompass future expansion options
Access	Locate the site near public transport routes Consider purchasing adjacent or nearby land for expansion of surface parking Structured parking infrastructure (garage) can be designed for future vertical expansion where horizontal expansion is not practical
Building layout	Design a modular grid system to allow plug-and-play development of spaces and room types
Conflicts between building elements (open building)	Design to minimise conflicts between building elements Primary systems (life cycle: 50–100 years; long-term investment; unchangeable) Secondary systems (life cycle: 15–50 years; medium-term investment; adjustable) Tertiary systems (life cycle: 5–15 years; short-term investment; changeable) Ensure tertiary systems are easy to maintain and replace separately
Emergency exits	Design egress stairs and hallway widths to satisfy current regulations and standards for several different building purposes
Room design	Use universal designs and standardisation (size and equipment) to allow multiple uses for room functionality Consider large rooms/spaces to function for multiple purposes such as community events, education, classes etc For additional flexibility, incorporate conference-centre-style room dividers to create variability in space needs
Internal walls, doors and windows	Design connections for walls, doors and windows that are easy to mount and take down Use minimum technical installations in walls Standardise connections
Loading capacity (dead load)	Design floors to handle extensive dead loads (storage)
Loading capacity (live load)	Design floors to handle extensive live loads (community activity centre)
Mechanical/electrical	Consider green and sustainable energy sources to reduce long-term costs Design additional capacity for HVAC and electrical systems (20% over-capacity in HVAC and 30% output of electrical power)
Furniture	Ensure that furniture can easily fit into parts of the building, can be adapted to technical installations (modular systems) and can be easily moved
Equipment	Standardise equipment to permit movement into different areas for flexibility of function Use portable equipment where possible; when equipment must be fixed, design for other functions in room to maximise use

Table 1 Design considerations for adaptability and flexibility (Adapted from: Taylor et al 2010 (www.chcf.org)

the security and fire-safety strategies and policies should be recognised and risk-assessed at an early stage in the design process.

Security

4.29 Measures should be incorporated into the design of all healthcare buildings to help protect the safety of patients, staff and visitors and the security of the premises. These measures include the use of access control, CCTV and alarms. (See also the HSE's guidance on violence in health and social care.)

4.30 Project teams should discuss security with the local police crime prevention officer and the healthcare organisation's nominated local security management specialist (LSMS) at an early stage in the design process. The LSMS will be able to identify specific security risks and offer advice on measures that can be implemented to reduce them. Any plans to install a new security system or expand an existing one should be discussed with the LSMS.

4.31 The local fire officer and LSMS should be consulted concurrently to avoid the possibility of the demands of security and fire safety conflicting.

4.32 Project teams will need to account for lockdown capability in the planning and design of any building or refurbishment projects and how this impacts on evacuation plans. (The ability of healthcare organisations to lockdown their site or buildings fits in with their statutory responsibilities as category 1 responders as defined by the Civil Contingencies Act 2004.)

For further information, refer to the following guidance:

Managing NHS land and property:

- HTM 00 – 'Policies and principles of healthcare engineering'
- HBN 00-08 – 'Estatecode'
- HTM 07-02 – 'Encode - guidance on the procurement and management of energy in the NHS'
- HTM 07-03 – 'Transport management and car parking guidance for NHS Trusts'
- HTM 07-07 – 'Sustainable health and social care buildings'

Fire safety (Firecode) guidance:

- HTM 05-01 – 'Managing healthcare fire safety'
- HTM 05-02 – 'Guidance in support of functional provisions for healthcare premises'

Security:

- NHS Protect's (2013) 'Standards for providers 2013/14: Security management'
- NHS Protect's strategy document 'Tackling crime against the NHS: a strategic approach'
- NHS Protect's (2009) 'Lockdown guidance'
- The Association of Chief Police Officers (ACPO) 'Secured by Design – Hospitals'.
- Information Commissioner's Office (2008) 'CCTV code of practice'.

Part 3: Building design

5. The design brief

5.1 The design brief is one of the important elements that form part of the overall process in creating a healthcare project. It is essential that the brief is developed in the context of the total lifespan of the project. The brief will:

- describe clinical service needs and design vision/objectives;
- define environmental quality and sustainability objectives, whole hospital policies and departmental policies; and
- detail technical requirements and schedules of accommodation.

Strategic design issues

5.2 Some key decisions that need to be made early at the design briefing stage revolve around:

- sustainability; and
- infection prevention and control.

Sustainability

5.3 In healthcare, themes that need to be considered when designing a sustainable healthcare facility are:

- innovative design;
- creating a therapeutic environment;
- responding to future change;
- whole-life costs; and
- carbon rating.

5.4 The design brief should contain statements on the organisation's desired approach to sustainability. Integral to the design and procurement process, a commitment to sustainable design can bring real benefits in terms of reduced running costs and quality of environment for users. (General guidance on achieving sustainability in construction is set out in HTM 07-07 – 'Sustainable health and social care buildings'. For a list of British Standards on sustainability, see the References.)

Infection prevention and control

5.5 Of particular importance in the context of healthcare buildings is the need for the design brief to incorporate policy, guidance and best practice in relation to reducing healthcare-associated infections (HCAIs). It is vitally important to have a clear understanding of how the briefing, planning, design, procurement, construction, commissioning and ongoing maintenance of healthcare property can contribute to the prevention and control of HCAIs.

5.6 Guidance to ensure that prevention and control of infection issues are identified, analysed and planned for at the earliest stage of the provision of new or refurbished healthcare facilities is contained within HBN 00-09 – 'Infection control in the built environment: design and planning' (see also paragraphs 1.20–1.22).

Example design brief issues

5.7 Information in a design brief should be structured using the categories set out in

Appendix 1. This contains prompts for healthcare organisations to explore particular design issues and it can act as a checklist against which to organise briefing work. The value of this framework is that it not only sets out the briefing agenda but also identifies quality requirements and aspirations.

5.8 Some of the design issues listed in Appendix 1 are expanded upon below.

Note

Inadequate briefing for, or indecision by, the project team will result in delay and/or an unsatisfactory outcome for patients, staff, visitors and the NHS as a whole.

Model of care

5.9 The shape and size of the healthcare facility are determined by the services it tries to deliver. Therefore, the "model of care" is a fundamental building block of the design brief (see Figure 6). The model of care will reflect national and local priorities and good practice on service models and configurations. A description of how services are to be arranged on the site in the context of the overall model of care should be given, together with an impact assessment in terms of infrastructures, staffing issues, capacity and technology.

Functional requirements of the project

5.10 Once the model of care has been agreed, the next key stage in producing the design brief is to develop operational principles and policies. Operational principles describe how each service will function. They are a way of testing the impact of the overall model of care on each element of the scheme. These policies also describe how rooms and spaces for that service relate to one another so that the department can be planned in a functional way.

5.11 As mentioned in paragraphs 5.5–5.6, policies for the prevention and control of infection have a significant impact on the provision and design requirements for accommodation. See HBN 00-09 – 'Infection control in the built environment' for further guidance.

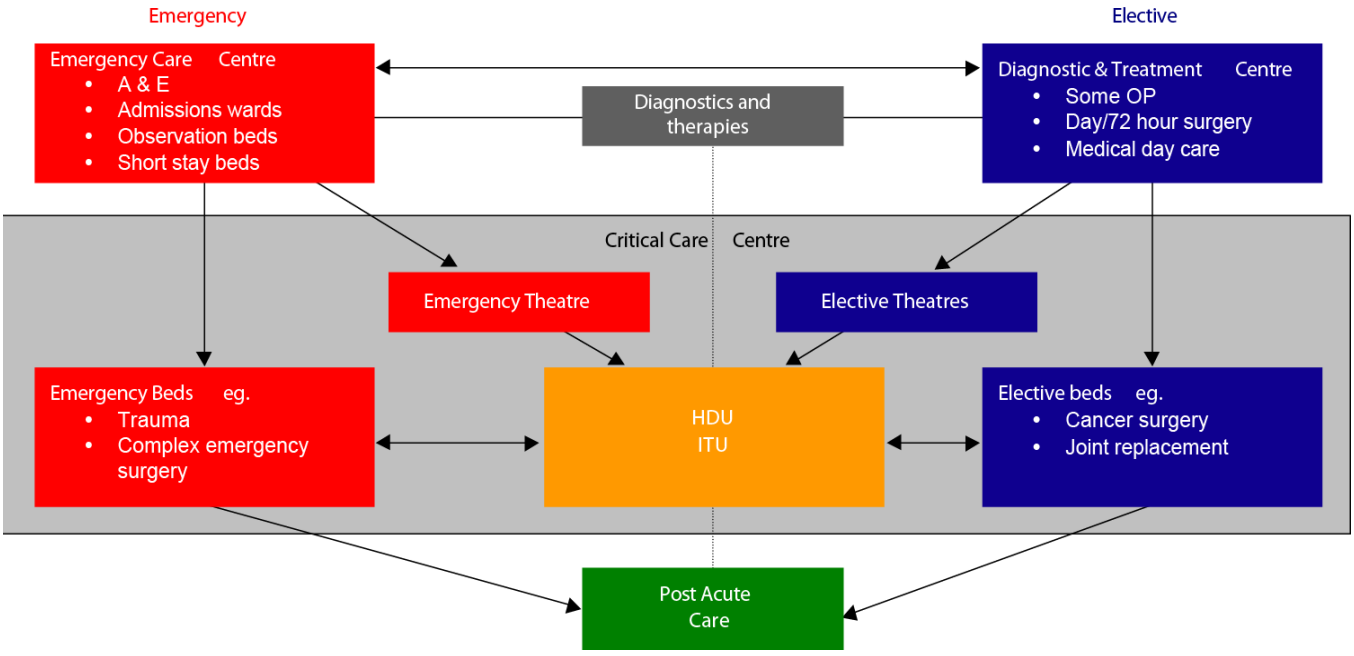


Figure 6 Example acute model of care

Adaptability

5.12 The likelihood of changes in service provision should be explored in the design brief and the requirements for expansion and flexibility prioritised as essential or desirable. The specification may be departmentally based as well as generic.

Security and ease of control

5.13 The design implications of the organisation's security and safety policy as outlined in paragraphs 4.29–4.32 should be discussed and essential requirements of the brief specified.

Access

5.14 Non-clinical support operational policies, such as access and car-parking referred to in Chapter 4 should be highlighted and supplemented as necessary with specific requirements, including those of the local authority and local highway authority with regard to transport and town planning. Access is a key issue for patients, staff and visitors, and due regard should be given to stakeholder involvement in determining policies.

Accessibility

5.15 The design brief must take account of the provisions of the Building Regulations (including Approved Document M – 'Access to and use of buildings') and the Equality Act 2010. Where there are diverging requirements with HBNs, these should be acknowledged and the chosen path clearly stated.

5.16 Design teams should refer to BS8300 and HBN 00-04 – 'Circulation and communication spaces' for additional guidance.

Space

Functional content and space requirements

5.17 Functional content is a list of departments within the scheme and their key functional unit room requirements. At the early option appraisal stage of the outline business case, functional content may be based upon guidance outlined in HBNs. The layout of individual spaces may initially be determined using Activity DataBase (ADB) (see paragraph 3.8).

5.18 However, any information on the size of rooms and circulation space within departments as provided in HBNs and ADB should be thoroughly reviewed by the clinicians and users – including patients and the public – together with technical advisers to establish the organisation's brief for the spatial requirements.

Adjacencies

5.19 Specific requirements for clinical adjacencies between specialties and clinical departments should be outlined. Priorities should be noted, with essential and desirable relationships established.

Best practice guidance on planning and design

5.20 The brief should be specific and precise about the status of guidance, distinguishing between mandatory and desirable standards. Blanket statements should be avoided.

5.21 Space recommendations in relation to room layouts are determined by reference to the space required for activities undertaken in the room and the components that aid them. Typical layout plans and elevation views are given in ADB. These serve as a starting point only and should be adapted to meet project-specific needs.

Space utilisation

5.22 Attention should be given to the use of facilities over time and the potential to share accommodation. The brief should make clear the parameters within which the design team should work. For example, two departments may each have a seminar room as part of their schedules of accommodation, but in practice they could share the same room provided the design team were able to achieve a mutually accessible location.

Generic spaces

5.23 Generic rooms are designed to accommodate a range of activities rather than being tailored for a single function/speciality or narrow range of functions. Clinical and clinical support rooms should be generic wherever possible to maximise flexibility in use. Generic rooms make up a high proportion of the spaces within healthcare buildings (see HBN 00-03 – 'Clinical and clinical support spaces').

Storage

5.24 The need for sufficient secure storage should not be underestimated. Many plans start with sufficient storage, but this space is often lost to other areas during the design process. This can have implications for both clinical practice and infection control.

Privacy and dignity

5.25 The Department of Health's delivering same-sex accommodation (DSSA) programme aims to all but eliminate mixed-sex accommodation from hospitals. Although DSSA is primarily an operational issue, the design and layout of healthcare facilities should help support the provision of same-sex accommodation.

5.26 In clinical and waiting areas, planning decisions should take account of patient culture and preferences in terms of privacy, modesty and same-sex accommodation. Preservation of patients' privacy and dignity, particularly at points of transfer between changing, sub-waiting and treatment facilities, should be given high priority, and in some cases men and women should be segregated. This may be achieved operationally, by providing separate facilities or by designing for flexibility.

5.27 For further information, reference should be made to the letter (PL/CNO/2010/3) from the Chief Nursing Officer and Director General NHS Finance, Performance and Operations.

Inclusivity

5.28 Providing a suitable environment involves recognising and respecting the diverse needs, values and circumstances of each patient, including their race, religion, gender, age, sexual orientation and any disability. These are the protected characteristics set out in the Equality Act 2010.

5.29 Designs should be:

- responsive, taking account of what people need and want;
- flexible, so that different people can use them in different ways;
- convenient, so that everyone can use them without too much effort or separation;
- realistic, offering more than one solution to help balance everyone's needs and recognising that one solution may not work for all.

Internal environment

Falls prevention

5.30 A patient falling is the most common patient safety incident. A risk assessment of the internal environment should be carried out to determine whether patients are at risk from slips, trips or falling from heights.

5.31 HBN 00-10 Part A – 'Flooring' gives guidance on the performance requirements of different types of flooring in healthcare facilities.

5.32 HBN 00-10 Part D – 'Windows and associated hardware' provides guidance on how to assess the risks of patients falling from windows and the resultant control measures.

5.33 Where assessment identifies that patients are at risk of falling from balconies, then sufficient protection should be provided to prevent them from accessing balconies or climbing over the balcony edge protection. This should take into account furniture or features with footholds which may allow access over the

barrier (for example, chairs, tables, plant pots, walls etc). For further information, see guidance from the HSE:

- slips and trips
- risks of falling from windows
- flooring selection tool
- hygienic cleaning of floors in hospitals settings

Finishes

5.34 Materials and finishes should be selected to minimise maintenance and be compatible with their intended function. Building elements that require frequent redecoration or are difficult to service or clean should be avoided. Special design consideration should be given to entrances, corners, partitions, counters and other elements that may be subjected to heavy use.

5.35 Wall coverings should be chosen with cleaning in mind.

5.36 The choice of finishes should form an integral part of the design process and be coordinated within the overall design scheme. The selection of colours and reflectances can have a significant impact on the lighting within the room and will need to be coordinated with the lighting design.

5.37 Finishes should be functional and compatible with the need for comfort, cleanliness and safety. Cleaning regimes should be considered when materials are selected. See:

- HBN 00-10 Part A – 'Flooring' and Part B – 'Walls and ceilings'
- HBN 00-09 – 'Infection control in the built environment'.

5.38 See the 'Revised Healthcare Cleaning Manual' for best practice cleaning methods, which should influence the choice of finishes. The advice of the infection prevention and control team should be sought on this matter For HSE guidance, see paragraph 5.33.

Visual and colour contrast

5.39 Visual contrast is as important as colour contrast, since some people with visual impairments confuse different colours of similar tone. Monochromatic colour schemes should therefore be avoided.

5.40 Approved Document M of the Building Regulations defines visual contrast by referring to a difference in light reflectance values. Where this document refers to visual contrast, reference should be made to the latest values in Approved Document M.

5.41 Floor colours should contrast visually with wall colours.

5.42 Fittings should contrast visually with the surface to which they are fixed and the surface against which they may be viewed.

5.43 For detailed information on the use of colour and visual contrast, see:

- Approved Document M and BS 8300;
- Dulux Trade 'A design guide for the use of colour and contrast to improve the built environment for visually-impaired people';
- Bright et al (1997) 'Colour, contrast and perception – design guidance for internal built environments';
- the Royal National Institute for the Blind (1995) 'Building sight'.

Natural lighting

5.44 Scientific evidence indicates that daylight has beneficial effects on patients (see Rubin et al (1998)), visitors and staff. It has been shown to reduce psychological problems and improve patient outcomes, and increase morale and reduce sickness levels among staff.

5.45 An external view – even if limited – has also been proved to be beneficial. Windows with no significant view are preferable to no natural light or window at all.

Natural ventilation

5.46 Use of natural ventilation is encouraged wherever possible (but see paragraphs 4.29–4.32 on security issues, and HBN 00-10 Part D – 'Windows', which discusses window restrictors and safety issues).

5.47 The use of natural cross-ventilation (reliant on window openings on opposing sides of the building) is in line with reducing carbon footprints but may conflict with requirements for acoustic privacy. Project teams should consider this issue on an individual scheme basis, balancing specific privacy requirements against the capital and revenue cost benefits, as well as the improved sustainability profile, that a naturally ventilated solution can offer.

5.48 Building orientation and design and the use of designed-in background noise can be used to mitigate the potentially adverse effects of natural cross-ventilation.

5.49 Natural ventilation should not be considered where it could jeopardise control of infection issues.

5.50 For further guidance see:

- HTM 07-02 – 'EnCode'
- HTM 07-07 – 'Sustainable health and social care buildings: Planning, design, construction and refurbishment'
- HTM 08-01 – 'Acoustics'.

Wayfinding

5.51 The use of colour and art to identify particular routes and rooms can help to reduce the number of signs required. Certain doors, for example fire-exit doors, will require specific labelling.

5.52 Reference should be made to 'Wayfinding: effective wayfinding and signing systems. Guidance for healthcare facilities'.

Art

5.53 There is sufficient evidence to demonstrate that appropriate art and decor reduces the physical and emotional stress of patients and staff. It can also be used to assist wayfinding and should be always integrated within the whole design.

5.54 On larger projects it may be beneficial to appoint an arts coordinator at an early stage to ensure that a comprehensive arts strategy is established and that artwork is properly integrated into the building's fabric. The possibility of involving the local community in the production of artwork should be actively explored.

5.55 The following documents provide useful guidance on the use of art in healthcare premises:

- Arts Council England (2007) 'A prospectus for arts and health';
- NHS Estates (2002) 'The art of good health – a practical handbook';
- NHS Estates (2002) 'The art of good health – using visual arts in healthcare'.

5.56 The Arts Council may be approached for advice on funding.

Design issues for a dementia-friendly internal environment

5.57 For a dementia-friendly environment, the design brief should take account of the considerations in Table 2.

Easily accessibility to outdoors space: visible and easy to access, transition from internal, safe and secure, attractive and meaningful, with choice of activities.
Way marking/navigation: Landmark objects, building features, signage, personalisation, localisation (maps), light orientation.
Room/space adjacencies: toilet accessibility, linkages (for example, lounge/dining/ kitchen, bedroom en-suite/shower/WC, separate services zone, indoor/ outdoor links).
Visibility/permeability: room dividers, open-planning, avoid directly facing doors, use glazed screens to indicate activities, better lighting (top factor), and signs at an inappropriate level.
Scale: domestic versus non-institutional, single-storey preferential, more spaces rather than larger, best suited to activities of daily living, short or no corridors.
Privacy/sociability: sequence of public to private, separate living space from services, define the "front' door", personal possessions, age appropriateness (1950s, no mirrors), end-of-life and extreme frailty, importance of views.
Sensory enhancement – vision: design for the aging eye (loss of visual acuity), lower contrast sensitivity, poor colour vision, less spatial awareness, poorer perception of depth.
Sensory enhancement – hearing: design for the aging ear, loss of higher pitch range, less able to differentiate sounds, less sensitivity, tinnitus, less sensitive balance.
Sensory enhancement – smell: design to acknowledge that the process of smelling takes the longest to reach the brain, and once you do smell the smell lasts longer than other senses; think about ways to tap into the olfactory sense to spark occupant behaviour, thought, emotion and intellect.
Sensory enhancement – taste: design for the basic tastes (sweet, salty, sour and bitter) and to address problems which range from distorted taste to a complete loss of the sense of taste.
Sensory enhancement – touch: design for exploration by hands to lower blood pressure, decrease pain, improve mood, reduce agitation and decrease stress-related cortisol and heart rates, but use care to avoid catastrophic reaction.

Table 2 Design issues for a dementia-friendly environment

Evidence-based design

5.58 The project team should refer to the growing body of research material indicating that the design of the healing environment impacts on patient recovery and on staff, and that good quality environments impact positively on patient care and vice versa. Further guidance is given in the next chapter on evidence-based therapeutic design ideas for the design brief.

6. Evidence-based design ideas for a therapeutic environment

"Environments are considered therapeutic (with healing qualities) when there is direct evidence that a design intervention contributes to improved patient outcomes." (Chapter 12 of 'Investing in hospitals of the future' (WHO, 2009))

6.1 Healthcare facilities should provide a therapeutic environment in which the overall design of the building contributes to the process of healing and reduces the risk of healthcare-associated infections rather than simply being a place where treatment takes place.

6.2 Healthcare buildings exist primarily for the patients and other people who use them. As mentioned, there is a growing body of evidence that if the design is right, satisfaction levels improve as do patients' health outcomes and staff productivity.

6.3 When starting to design appropriate healthcare spaces, rather than begin with the functions of rooms, research by the University of Sheffield found that it was more beneficial to concentrate on the needs and activities of all users – patients, staff and others.

6.4 Examples of activities that occur in healthcare premises include:

- arriving;
- moving around the building;
- waiting;
- resting in in-patient facilities;
- consultation, diagnosis, undergoing tests, examination and treatment;
- socialising and meeting;
- shopping;
- bathing, showering, washing, toilet and grooming;
- counselling/sanctuary.

6.5 The following sections represent the standardisation of activities/processes that are shared between clinical pathways. It has been conceived and developed by the University of Sheffield as a way of using the latest research evidence to generate design briefs (see 'Key UK references on evidence-based architectural healthcare design').

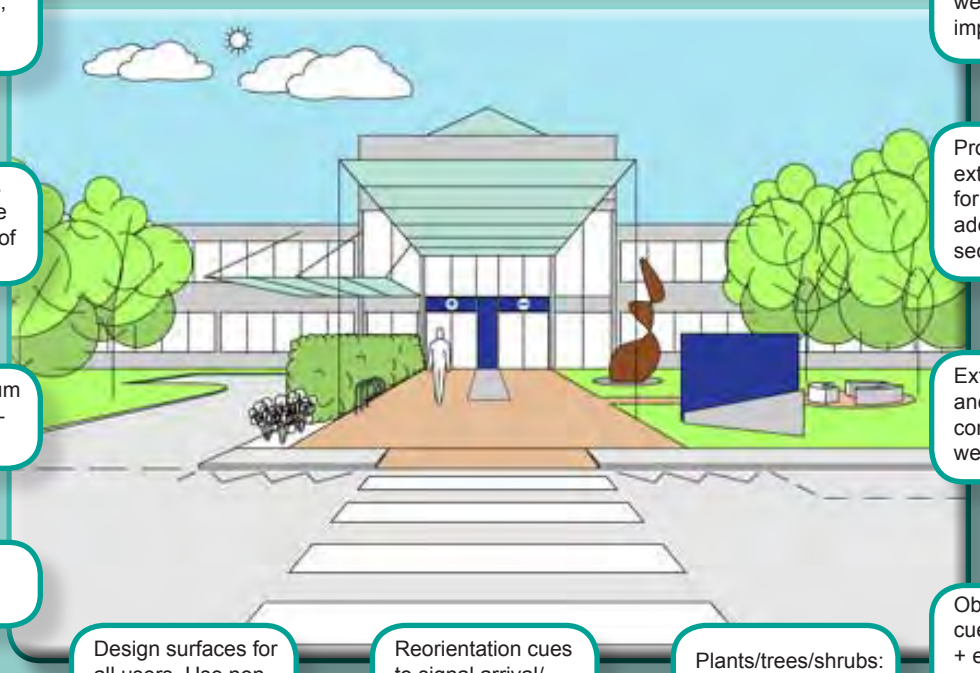
The illustrations or pictograms on the following pages are not intended to give an actual representation of the physical environment but rather the elements or design features that may be considered to aid the development of a design brief. Photographs provide precedents, i.e. good examples of design ideas.

Typical layout plans and elevation views are given in the room graphic sheets that form part of ADB's library of information. These serve as a starting point only and should be adapted to meet project-specific needs (see Chapter 3).

Arriving (outside)

Evidence	Design considerations
Evidence from many post-occupancy evaluations confirm that people like unambiguous entrances that are logically positioned in relation to the points of arrival onto a site and that are usefully indicated by the whole shape and form of the building.	• Introduction of character to the main entrance helps people identify it more readily and can create a sense of uniqueness, friendliness and individuality for buildings that often seem institutional or faceless. • Innovation at the main entrance could be in many forms: art, sculpture, landscaping, planting, fountains, architectural features etc – all of which add to a sense of modernity and progress, and provide interest.
The site as a whole should not introduce further stress by being ambiguous about where the entrance is. Surveys of users in healthcare buildings confirm that multiple entrances are confusing, are a source of security concerns, increase stress levels in patients and staff, and should be avoided. Where this is either necessary or deemed desirable, clearly locating them, making them architecturally apparent and signposting are helpful measures.	• High and generous entrance ways feel welcoming and uplifting. • Low or narrow entrances are claustrophobic and oppressive, not easily identified and can cause uncertainty. • The perceived height of the entrance way will be relative to the building rather than people, so this should be accounted for when the main building is several storeys. • Generous space leading up to the entrance further confirms its presence, projects confidence and creates an easily identifiable meeting point. • Entrance areas should provide a number of meeting points and places for people to rest or wait.
Research indicates that the extent to which both staff and patients can see out of and around the building has many benefits such as reducing stress, alleviating anxiety and adding recovery.	• There should be uninterrupted and clear views of the entrance from the approach to the site. • Low level signs and planting help maintain a clear view to the entrance way. • Interesting views can be created for people waiting or resting near the entrance.
Research findings note that patients experience positive outcomes in an environment that incorporates natural light, elements of nature, soothing colours, meaningful and varying stimuli, peaceful sounds, pleasant views and a sense of beauty.	• Protection from the elements should be provided around the entrance. • Structures such as canopies and landscaping (with trees and bushes) shelter an entrance from sun, rain, wind and, increasingly in city centres, noise. • Nature and greenery around the entrance is reassuring and calming.

Arriving (outside)



Provide canopy for shelter from wind, rain + sun on arrival/departure

Lighting creates welcoming cheerful impression

Well-lit entrances feel safe + secure but must be free of hazards

Provide monitored external seating for waiting with adequate lighting + security

Provide a minimum of essential directional information

External appearance to inspire confidence + well-cared-for look

Easy drop off/ collection point

Design surfaces for all users. Use non-slip colour contrast materials + drop kerbs

Reorientation cues to signal arrival/ departure & recognise different modes of arrival/ departure

Plants/trees/shrubs: inspire confidence, security, safety + modernity but must be well-kept

Obvious visual cues for wayfinding + easy transition (signage, art & sculpture)

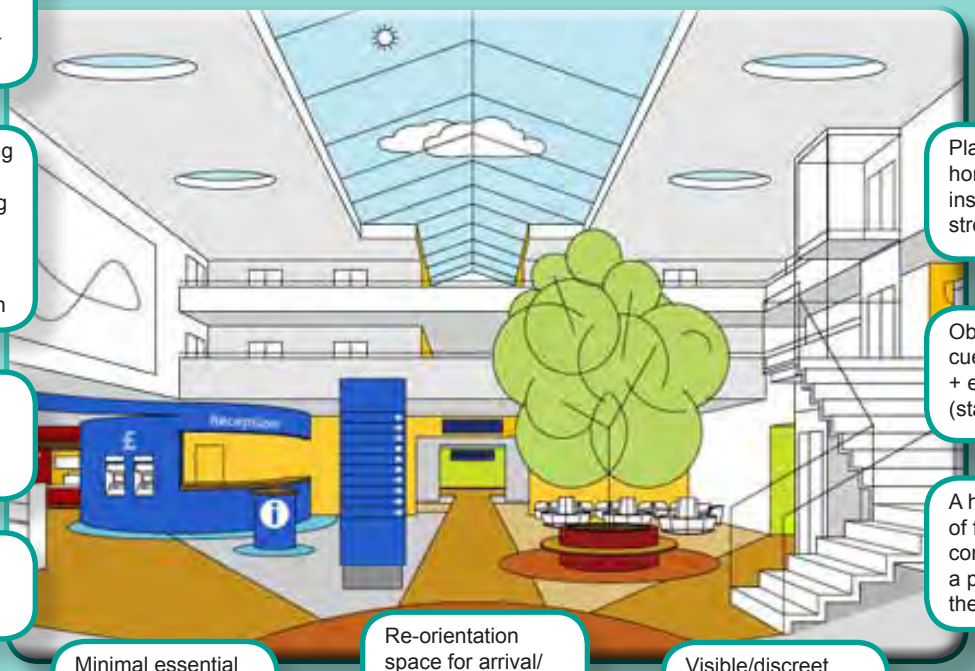
Darent Valley Hospital
(Architect: IBI Nightingale).
©Charlotte Wood

Royal Manchester Children's Hospital
(Architect: Stantec).
©Gregory Harding

Arriving (inside)

Evidence	Design considerations
Research notes that patients experience positive outcomes in an environment that incorporates natural light, elements of nature, soothing colours, meaningful and varying stimuli, peaceful sounds, pleasant views and a sense of beauty.	• Colour can be used to further brighten the entrance and make it a refreshing place. • Colour in the entrance should be bright, light, fresh and natural. • Dark, dull and cold colours should be avoided as they will make an entrance seem inhospitable and austere. • Too much colour here will detract from important signs. • Colour can be used on floors to help identify routes. • Destinations such as the reception, waiting area or a café could be further identified through the use of an associated colour.
Patients and staff like to be able to control their privacy and their interaction with others. In buildings and places where they are able to do so, people report increased satisfaction with their environments.	• Quick and discrete routes into clinical areas should be created for patients who may have arrived in ambulances or be injured or distressed. • There should be no views from the entrance to patient areas.
Research indicates that the extent to which both staff and patients can see out of and around the building has many benefits such as reducing stress and anxiety and adding recovery. People want to be able to see and to know what is going on.	• The entrance is a transitory place that people pass through on their way to other areas, so views around and beyond the entrance should be clear and uninterrupted. • The reception, information or help desk should be immediately apparent but not prevent people seeing the rest of the space or become an obstacle in itself. • People should be able to see and read signs even when the entrance is very busy. • Being able to see shops, cafés, toilets, cash machines and other facilities from the entrance makes people aware of them and reduces the need for signs. • Being able to see staircases and lifts from the entrance helps people find their way more quickly.
Post-occupancy evaluations confirm that the extent to which users of a building can come and go affects utilisation and is helpful to the morale of both patients and staff.	• There should be a clear, uninterrupted route to the reception or help desk. • Generous pathways prevent bottlenecks and confusion. • Variation in materials on the floor can create pathways and help people move around a busy space in a more organised manner.

Arriving (inside)



The Arches Community Treatment and Care Centre, Belfast (Architect: Todd Architects/Penoyre & Prasad).
©Penoyre & Prasad

Peterborough City Hospital (Architect: IBI Nightingale).
©Simon Warren

Circulation

Evidence	Design considerations
Evidence from scientific studies show that not only comfortable conditions but the ability to control levels of comfort for oneself in the different types of places are very important in reducing stress and alleviating anxiety.	• Recessed seating areas along corridors provide places for patients and staff to meet and rest. • Seating that coincides with views from corridors to the outside offers beneficial respite for patients, staff and visitors.
Design reviews indicate that a successful building has clarity of design intention, and that this is appropriate to its purpose. This intention is reflected in the way it lifts the spirits of those who work in it and are being treated in it as well as those who visit. It communicates a strong positive image of the NHS throughout all the various places such as arriving, circulation, waiting etc.	• Creating character within these spaces demonstrates a commitment to human values beyond the simply functional needs of moving around. • Corridors and circulating spaces are an opportunity to introduce design features that may not be practical or suitable in other areas of a hospital. • Innovative use of design in these areas can help healthcare organisations communicate non-functional or non-clinical information and enhance people's experience of the facility.
Post-occupancy evaluations indicate that where there are significant numbers of similar places (such as corridors, wards), less significant changes of character perhaps through colour, texture or material enable people to feel located meaningfully.	• Typical routes along corridors can be suggested by materials and colours on walls and floors. • Flooring colours and/or materials in large open circulation spaces can create pathways. • Projecting signs are easier to see when walking down a corridor than signs fixed flat against the wall. • Signs can be hung from the ceiling or fixed above transverse bulkheads in a corridor. • Introducing fake bulkheads and thresholds at junctions helps signal decision points. • Placing signs ahead of key decision points helps people to be prepared. • Repeating directions down long corridors gives reassurance. • Changes in flooring can help suggest preferred routes and also "no entry" areas. • Creating landmarks with art, sculptures and design features helps navigation.
Patients and staff like to be able to control their privacy and their interaction with others. In buildings and places where they are able to do so, people report increased satisfaction with their environments.	• Views from circulating spaces into bed and patient spaces should be limited.

Links

HBN 00-04 – 'Circulation and communication spaces'

HBN 00-10 Part A – 'Flooring' and Part B – 'Walls and ceilings'

Dalke et al 'Lighting and colour for hospital design'

The HSE's flooring selection tool

Circulation

Design day/night lighting to make passage a pleasant + safe experience. Minimise “tunnel” effect in corridors

Provide rest seating at convenient locations in long corridors

People need to be able to find their way around by building their own mental map

Distinguish major nodes that form intersections of routes from minor ones

Provide seamless handrails to be grasped by the hand for stability + support

Obvious visual cues/anchors for wayfinding + easy transition (signs, art + sculptures)

Surfaces: colour + contrast, cushioned flooring to reduce impact of falls

Re-orientation cues for passage that recognises different modes of movement and traffic flows

Plants/views can help create an environment of warmth, peace and function

Laguna Honda Hospital, San Francisco
(Architect: Stantec).
©David Wakely Photography

The Redwoods Centre, Shrewsbury
(Architect: IBI Nightingale).
©Richard Chivers

Waiting areas

Evidence	Design considerations
This includes all locations where waiting takes place. However, such places should, as much as possible, be combined with other activities. People do not normally choose to wait. The challenge is to make places that do not emphasise the emptiness and purposeless nature of waiting. Making people comfortable and giving them other distractions is a prime objective. In healthcare buildings many people may be anxious, so gentle rather than frantic distraction is recommended. Consider where possible linking these places with retail, refreshment and performance places. Consider using patient call systems that allow people to move around and choose where to wait. Patients and staff like to be able to control their privacy and their interaction with others. In buildings and places where they are able to do so, people report increased satisfaction with their environments and in turn with their treatments.	• Waiting areas must provide as much privacy as possible, especially as people may be injured or distraught. • Defined and separate personal space is of crucial importance in a waiting area. • Seating arrangements should allow for relatives and friends to sit together, but keep other parties separate. • Seating arrangements that cause people to sit next to strangers can exacerbate stress, anxiety and irritation. • Seating should allow for people on their own as well as small groups.
Research indicates that the extent to which both staff and patients can see out of and around the building has many benefits such as reducing stress and adding recovery. What people can see is important and relates to their current activity and condition.	• It is crucial that people can see the reception/staff area. • Outside views are calming, provide distraction and reduce claustrophobia. • Views of nature are beneficial to reducing anxiety while waiting.
Research studies show that not only comfortable conditions but the ability to control levels of comfort for oneself may be very important in reducing stress. Allowing patients control over their environment is desirable and may also reduce demands on reception and staff. Stress and heart rates have been proved to rise in noisy hospitals.	• Comfortable seating is a prerequisite if people are waiting a long time. • Views of reception and staff are crucial to feeling in control. • View of a clock and being able to keep track of time helps people feel in control. • Access to communications (telephone, internet etc) helps people feel in control and connected. • Refreshment should be readily available and close to the waiting area.
Patients prefer toilets to be near and to be clear about their location with the actual door not in full view of many other people. They also would like toilets and bathrooms to have a degree of sound privacy and not to cause smells. Patients would like to be able to freshen up, be clean, shave and be presentable.	• The location of toilets should be immediately apparent and within convenient reach. • Entrances to toilets should be discrete and not in view of the waiting area.
Post-occupancy evaluations indicate that users have fewer complaints when they are able to perform their duties and to operate the healthcare systems and facilities housed in the building.	• Reading matter should be available, interesting and up to date. • There should be plenty of tables provided on which to place drinks, books and belongings.

Links

HBN 04-01 – 'Adult in-patient facilities'

HBN 00-09 – 'Infection control in the built environment'

HTM 08-01 –'Acoustics'

Dalke et al 'Lighting and colour for hospital design'

See also other specialty-specific HBNs

Waiting areas

A mix of sociopetal seating arrangements
©Bryan Lawson

The Redwoods Centre, Shrewsbury
(Architect: IBI Nightingale).
©Richard Chivers

In-patient rooms

Evidence	Design considerations
Activity studies have been conducted and have established minimum sizes of the space around the bed.	• Carers must have access to at least one side of the bed. • Doorways and circulation space must allow for trolleys and wheelchairs.
Evidence suggests that where adequate provision is made for relatives to stay with the patient there are many benefits including reductions in nurse-call button activity, in patient falls etc.	• Creating zones for patients, visitors and carers within the bed place helps each feel a greater sense of ownership and belonging. • Providing a sofa or sofa bed for visitors to sleep on encourages them to stay with the patient for longer periods. • Providing facilities (such as a desk) for visitors while the patient may be resting encourages them to stay. • Every bed place should have handwashing facilities.
Patients and staff like to be able to control their privacy and their interaction with others.	• Personal space and a feeling of privacy is crucial to avoiding distress, discomfort and upset to patients in bed. • Visual and audible privacy for patients undergoing treatment are crucial to maintaining patient dignity. • Single patient bedrooms provide the highest levels of privacy and dignity. • Furniture, screens and the positioning of beds can create a more personal space in multi-bed rooms. • Providing opportunities for displaying pictures and other personal possessions is important.
Studies show that when daylight is available, many building occupants like to reduce artificial lighting to allow the daylight to take effect. During the day, the seasons' natural light levels vary enormously and people generally like to be aware of this. Patients and staff express the need to be able to arrange for a range of lighting effects to avoid glare, to offer bright light for reading, to dim lights for night-time rest etc. They dislike direct and institutional lighting provided by high even levels of fluorescent lighting.	**Daylight** • All bed places should ideally be exposed to daylight. • Daylight is important for confined patients to maintain a sense of time and natural body rhythms. A lack of daylight will depress confined patients and could add to despondency. • Direct sunlight should be avoided or shaded as it can be uncomfortable and irritating for patients in bed who cannot avoid it. Bedside controls of blinds and curtains helps reduce frustration and restores a sense of independence. **Artificial lighting** • Patients should be able to control their own lighting. • Artificial lighting should be of a variety of types and levels to provide for different activities. • Low level task lighting should be provided for reading and watching TV. • Soft indirect lighting is comforting.

Links

HBN 04-01 – 'Adult in-patient facilities'

HBN 00-09 – 'Infection control in the built environment'

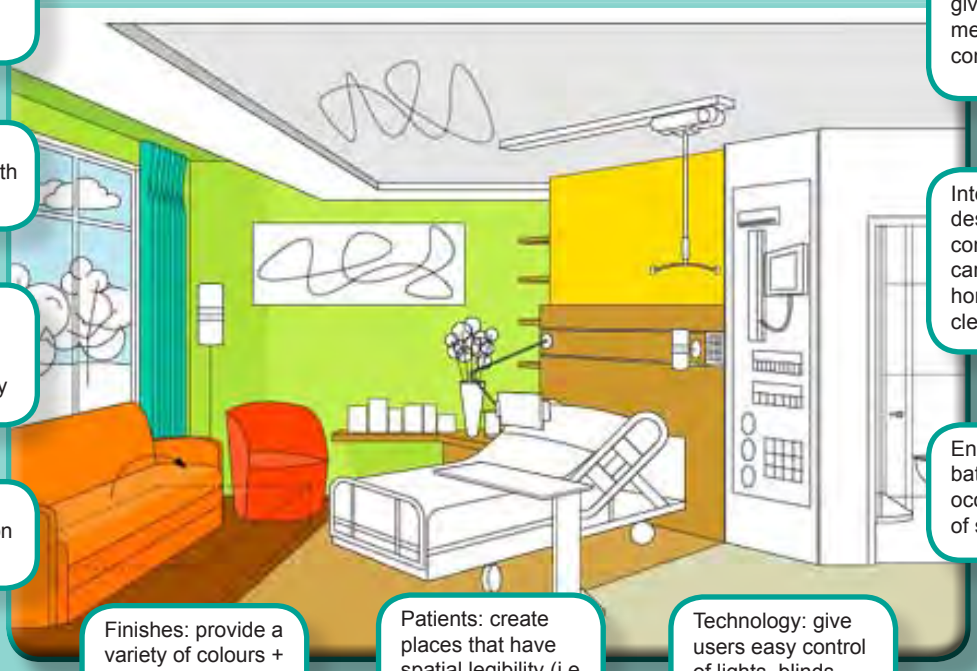
HBN 00-04 – 'Circulation and communication spaces'

HTM 08-03 – 'Bedhead services'

HTM 08-01 – 'Acoustics'

Dalke et al 'Lighting and colour for hospital design'

In-patient rooms



Brent Birth Centre, London
(Architect: Barbara Weiss Architects).
©Gareth Gardner

Alder Hey Children's Health Park,
Liverpool
(Architect: BDP).
©BDP

Consultation

Evidence	Design considerations
While being the most medically technical of all our places, these rooms should nevertheless be designed as much to make the patients feel at ease as for the efficiency of operation by clinicians. Research shows that scenes of nature whether actual or reproductions help to reduce stress.	• In places where patients may be undergoing stressful or lengthy treatment, art and views can offer calm distraction.
Patients are increasingly in dialogue with the consultant rather than just receiving information. The consultant is very likely to interact with a computer and may want to show the screen to the patient at times. It may feel discourteous to patients if the consultant has to turn away to work at a computer.	• Being able to see computer screens and look at images will make the patient feel more comfortable.
Patients show general consensus, as do staff, about wanting light and airy hospitals. This can be achieved by the use of materials, colour, natural light and artificial light.	• Domestic-style materials, finishes and décor help patients relax and feel more at ease. • Soft materials help absorb sound and reduce noise. • Natural materials such as wood feel more reassuring and human. • Hiding, disguising or designing-in the necessary medical equipment makes it less obtrusive and unfriendly and prevents a feeling of clutter and disorganisation.
Research shows the benefits of views when people spend long periods of time in a space.	• Being able to see the sky and nature gives people a feeling of wellbeing. It can even counteract the feeling of being temporarily cut off from the normal world. This will also be important to consultants who may spend long periods in these spaces.
Research shows that people not only like to feel comfortable but also like to control their environment.	• Patients may sometimes feel vulnerable or faint. Being able to open windows, change lighting and shut out background noise are important.
Links HBN 00-03 – ‘Clinical and clinical support spaces’ HBN 09-02 – ‘Maternity care facilities’ HTM 08-01 – ‘Acoustics’ HBN 00-09 – ‘Infection control in the built environment’ Dalke et al ‘Lighting and colour for hospital design’	

Consultation

James Cook University Hospital, Middlesbrough
(Architect: Stantec).
©Stantec

Royal Alexandra Children's Hospital, Brighton
(Architect: BDP).
©BDP

Socialising/meeting

Evidence	Design considerations
This covers a wide range of places from those that are for specific meetings or events to those that are places simply to go to find company. The former need to be designed quite functionally whereas the latter are often more successful if they provide other reasons for being there (such as views, refreshment, reading materials etc). By contrast televisions often tend to kill the social qualities of places. Research has shown that a richer quality of life can be led by less mobile patients when tables are immediately next to seats enabling them to keep magazines, books, knitting and other materials close to hand without having them tidied away. This saves them having to call for help or leave their seat. Research shows that rooms with all movable seating tend to be controlled by cleaners who habitually arrange seats in rows or around the edge creating an unsympathetic environment. People prefer a protected back with a view of what is going on.	• Create seating arrangements that bring people together (sociopetal) in appropriate sized groups. People further than 3 metres apart are likely to feel communication is unnatural or forced. • Formal meeting places will almost certainly require free-standing furniture to allow for many arrangements. Informal places can often be created more easily by using a combination of fixed and movable seating.
Research shows that chairs in informal social meeting places will inevitably be more popular if they are near windows with views out.	• In-patients and longer term residents may spend considerable amounts of time here and they generally express a wish for such places to feel “light and airy”. • For formal meeting places, avoid glare from natural light at either the front or back of the space. • Consider seating that feels located in the place and remains in the same location to create a sense of belonging. • Unless these places are for very large formal meetings, they should be at a domestic scale.

Links

HBN 04-01 – ‘Adult in-patient facilities’

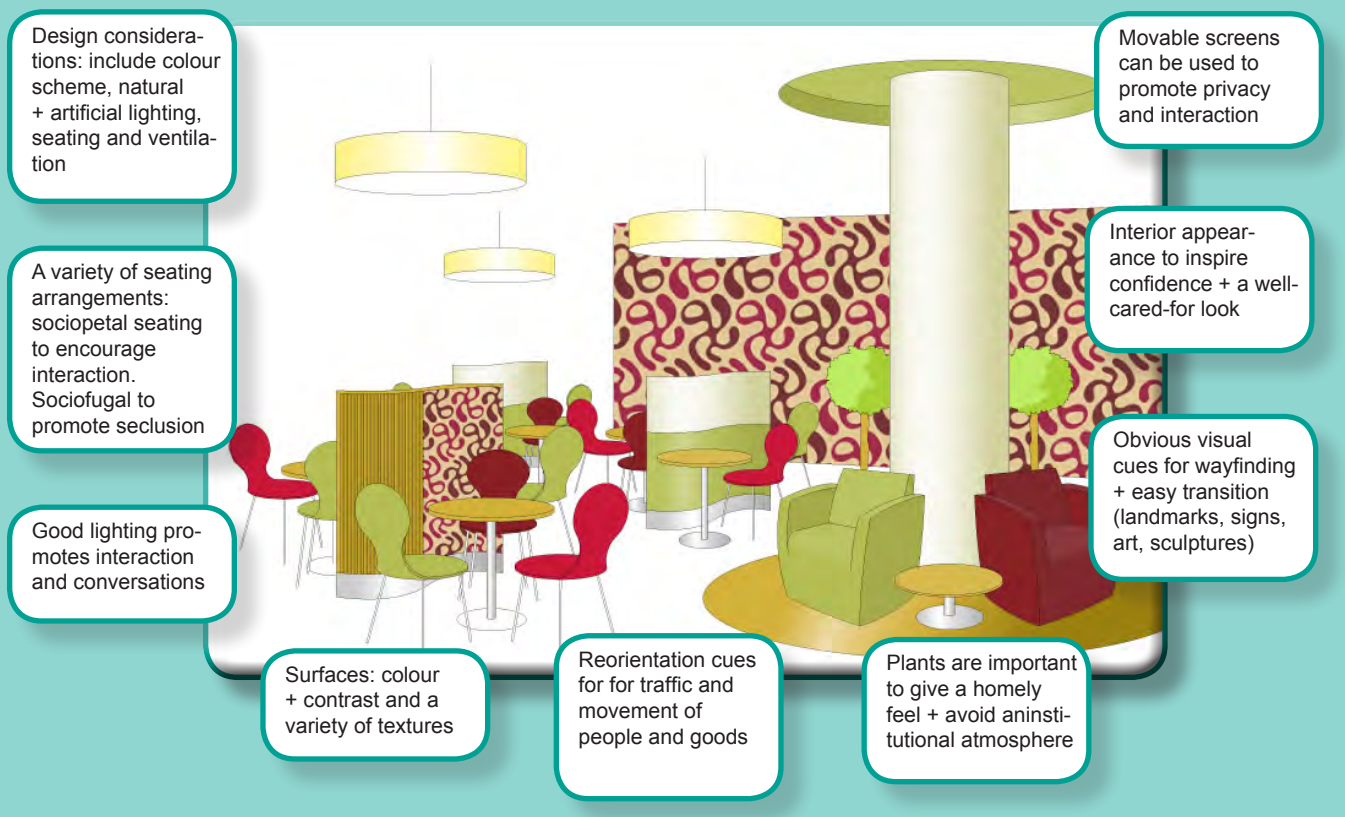
HBN 09-02 – ‘Maternity care facilities’

HBN 00-09 – ‘Infection control in the built environment’

HTM 08-01 – ‘Acoustics’

Dalke et al ‘Lighting and colour for hospital design’

Socialising/meeting



Octav Botnar Wing, Great Ormond Street Hospital (Architect: Stantec).
©Edmund Sumner

Mater Hospital, Belfast (Architect: Todd Architects/Stantec).
©Stantec

Vending areas

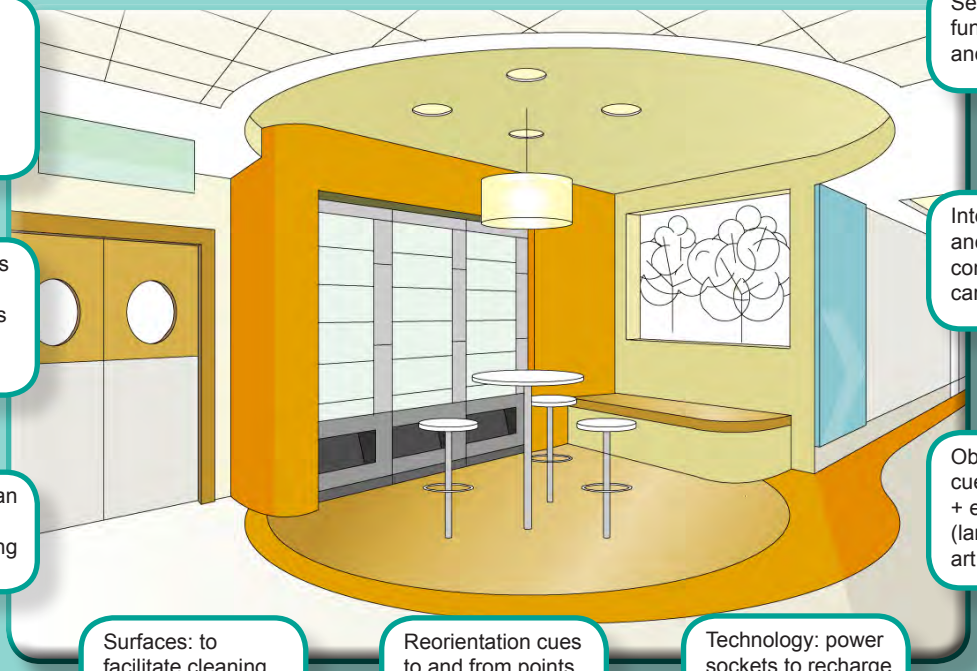
Evidence	Design considerations
This category includes all places where people conduct the essential transactions of normal life. There is no reason to see these places in healthcare facilities as being different from those that may be found in the normal public domain in towns and cities. The feeling of being in a normal place is likely to be helpful, especially to patients who may have long waits. However, a highly exploitative commercial atmosphere or one of hustle and bustle is to be avoided. People generally like places that are not uniform and homogenous but have variety and variation of scale. Having places to sit that are well protected and feel personal is particularly helpful in healthcare versions of these places. Being able to sit quietly and yet watch life going on is found to be calming and distracting.	• Arrangements of seating that are sociopetal but sociofugally separated are likely to be popular (that is, groups of seats that bring small numbers of people close together but separated by screens and orientation from other groups). This may not be possible with the density of seating used by some branded commercial operators. • To give a feeling of security, a proportion of seats should feel as if they are located in a particular place rather than floating free in space. Also planters, screens and other fixed features can help. • In high spaces, consider using line, form and colour to creating a smaller scale feeling in the seating areas.
Post-occupancy evaluations indicate that people use places such as these as landmarks to navigate around complex buildings. Giving them names and clear identities can help in this process.	• These places can also serve as landmarks for wayfinding in a complex building. • Consider linking them to other major circulation decision points such as entrances and information points. Also consider grouping retail, banking and refreshment places to create more interesting places overall. The route back to clinical areas must be clear.

Links

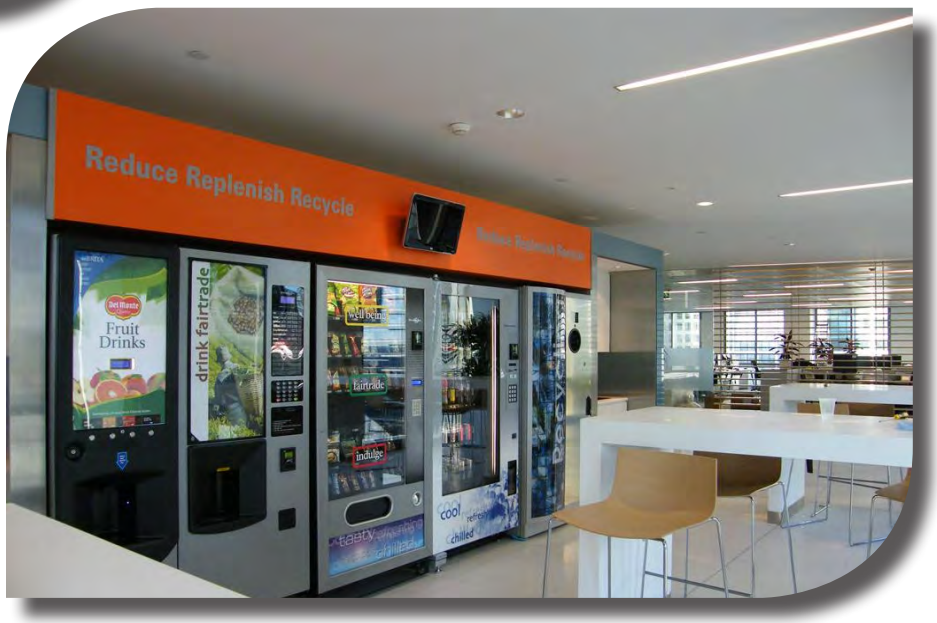
HTM 05-03 Firecode Part D – ‘Commercial enterprises on healthcare premises’

HBN 00-09 – ‘Infection control in the built environment’

Vending areas



Kidderminster Treatment Centre (Architect: Medical Architecture). ©Lisa Payne Photography



©Reverse Vending Corporation 2014

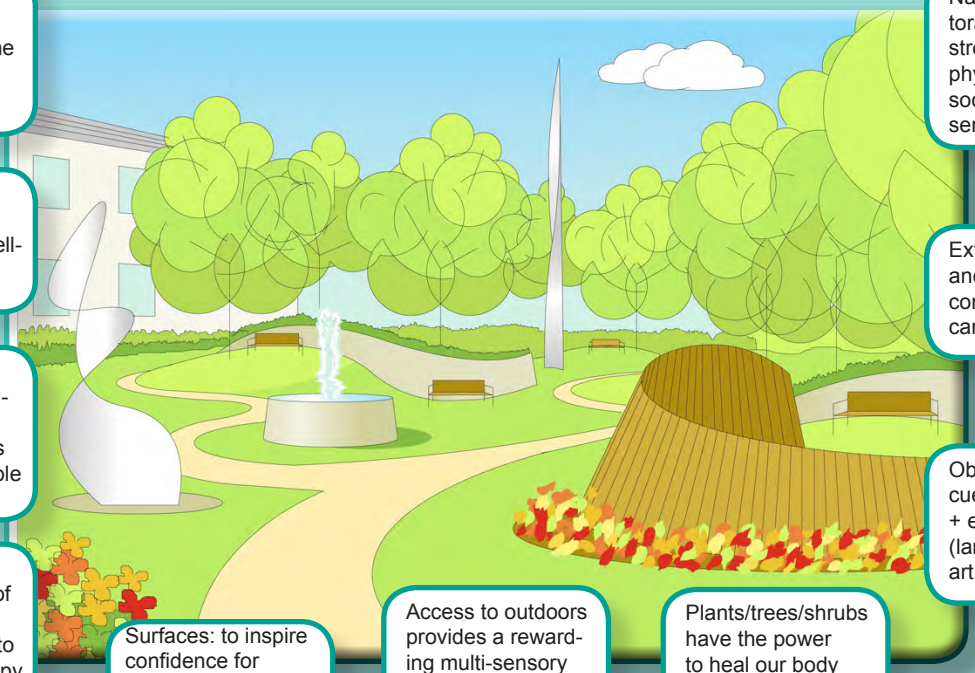
Sanctuary (outside)

Evidence	Design considerations
Nature and gently moving objects are shown to induce a sense of calmness.	• Simple calm forms and spaces can be very effective when complemented by a focus through colour and texture, either man-made or natural. • Avoid overt symbolism of a kind that speaks strongly of one religion or a set of beliefs unless this is offered in various alternatives in parallel. • Forms that are calm and orderly and yet invite subtle interpretations help to create a sense of quiet wellbeing. Carefully chosen art can be helpful.
Just as people want to sit quietly, so wandering slowly down an unfolding route is an aid to contemplation.	• A route that reveals itself progressively may be more rewarding.
Scenes of nature are found to induce calm if it is not possible to see the real thing.	• Gardens have been shown to be highly therapeutic.
People like to sit with a protected back and watch gently changing scenes of nature and life going on.	• An interesting but calm view helps therapeutic contemplation.

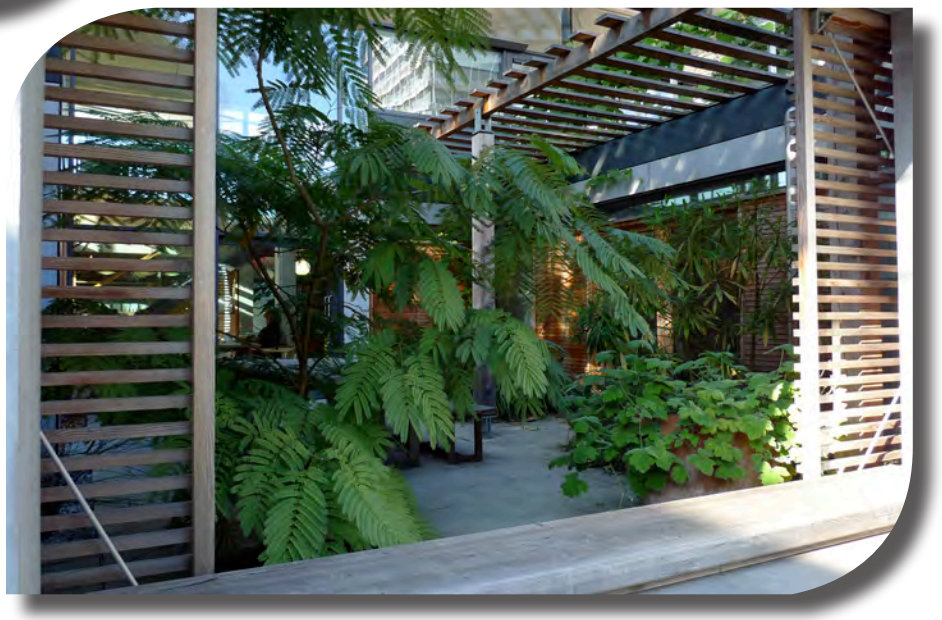
Links

King's Fund 'Enhancing the healing environment'

Sanctuary (outside)



Kirkwood Hospice
(Architect: IBI Nightingale).
©Paul White



Maggie's Centre, London
(Architect: Rogers Stirk Harbour + Partners).
©Huw Morgan/DPS

Toilets and washrooms

Evidence	Design considerations
Data shows a very large number of falls occur between the bed and the bathroom/toilet especially at night. This is true in domestic, resident and hospital environments.	• Ensure there is something to hold on to throughout the journey into and round the room. • Space must be left for patients to be assisted; in some cases, hoists may be needed. • Automatic movement-detected lighting should be considered.
Use materials that can look clean. The symbolism of cleanliness is important here as well as the normal hygiene requirements. People feel much better about themselves when in places that show evidence of being cared for by being clean.	• Use materials that can easily be cleaned and consider using flush rather than recessed joints.
Patients and visitors express a wish for places such as this to look clean as well as be clean.	• Places that make patients feel intimate and special are just as important in their own way as places of hygiene. Colour and texture should be used to give this sense of intimacy while ensuring this does not conflict with hygiene.

Links

HBN 00-02 – 'Sanitary spaces'

HBN 00-10 Part C – 'Sanitary assemblies'

HBN 00-09 – 'Infection control in the built environment'

HSE's slips and trips website

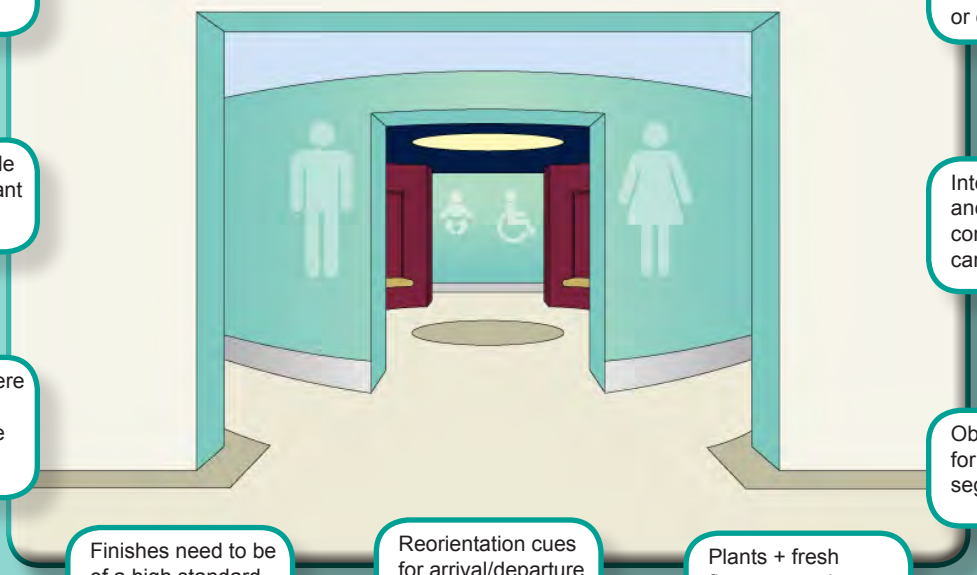
BS8300. Design of buildings and their approaches to meet the needs of disabled people. Code of practice.

Dalke et al 'Lighting and colour for hospital design'

Note

The guidance in HBN 00-02 is based on ergonomic studies, including a mock-up trial of the en-suite shower rooms. In places, the guidance differs from that provided in Approved Document M (2004) and BS 8300:2001 (2005 edition). Where this is the case, the reasons for the variations are discussed.

Toilets/washrooms



Finding the nearest available toilet can often be a critical situation

Clean + accessible toilets are important to everyone

Locate toilets where they are needed most + accessible to everyone

Finishes need to be of a high standard for durability + frequent cleaning

Reorientation cues for arrival/departure that recognises different modes of movement, disabilities + families with young children

Plants + fresh flowers may be helpful in distracting from odours/smells

Obvious visual cues for gender segregation

Interior appearance to inspire confidence + a well-cared-for look

Provide seating for those who are likely to be waiting for a carer, partner or child

Birmingham Treatment Centre
(Architect: Sheppard Robson).
©Lisa Payne Photography

Cockermouth Community Hospital and Health Centre
(Architect: IBI Nightingale).
©Paul White

Sanctuary (inside)

Evidence	Design considerations
These places can serve several needs ranging from quiet personal contemplation through counselling to a formal religious ceremony. Patients or staff may wish to follow some personal religious rituals or obligations in private. Some religions may want to offer some small congregational ceremonial service. Nature and gently moving objects have been shown to induce a sense of calmness.	• Simple calm forms and spaces can be very effective when complemented by a focus through colour and texture, either man-made or natural. • Avoid overt symbolism of a kind that speaks strongly of one religion or a set of beliefs unless this is offered in various alternatives in parallel. • Forms that are calm and orderly and yet invite subtle interpretations help to create a sense of quiet wellbeing. Carefully chosen art can be helpful.
People like to sit with a protected back and watch gently changing scenes of nature and life going on.	• An interesting but calm view helps therapeutic contemplation.

Links

HBN 04-01 – ‘Adult acute in-patient facilities’

HBN 02-01 – ‘Cancer treatment facilities’

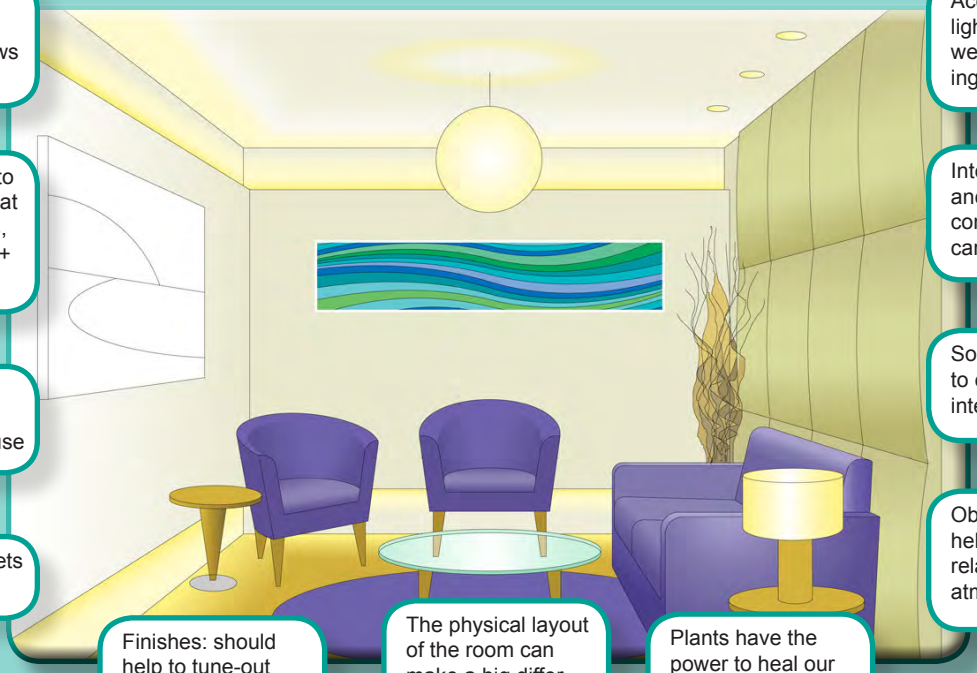
HBN 09-02 – ‘Maternity care facilities’

HBN 09-03 – ‘Neonatal units’

HBN 07-01 – ‘Satellite dialysis unit’

HBN 03-01 – ‘Adult acute mental health facilities’

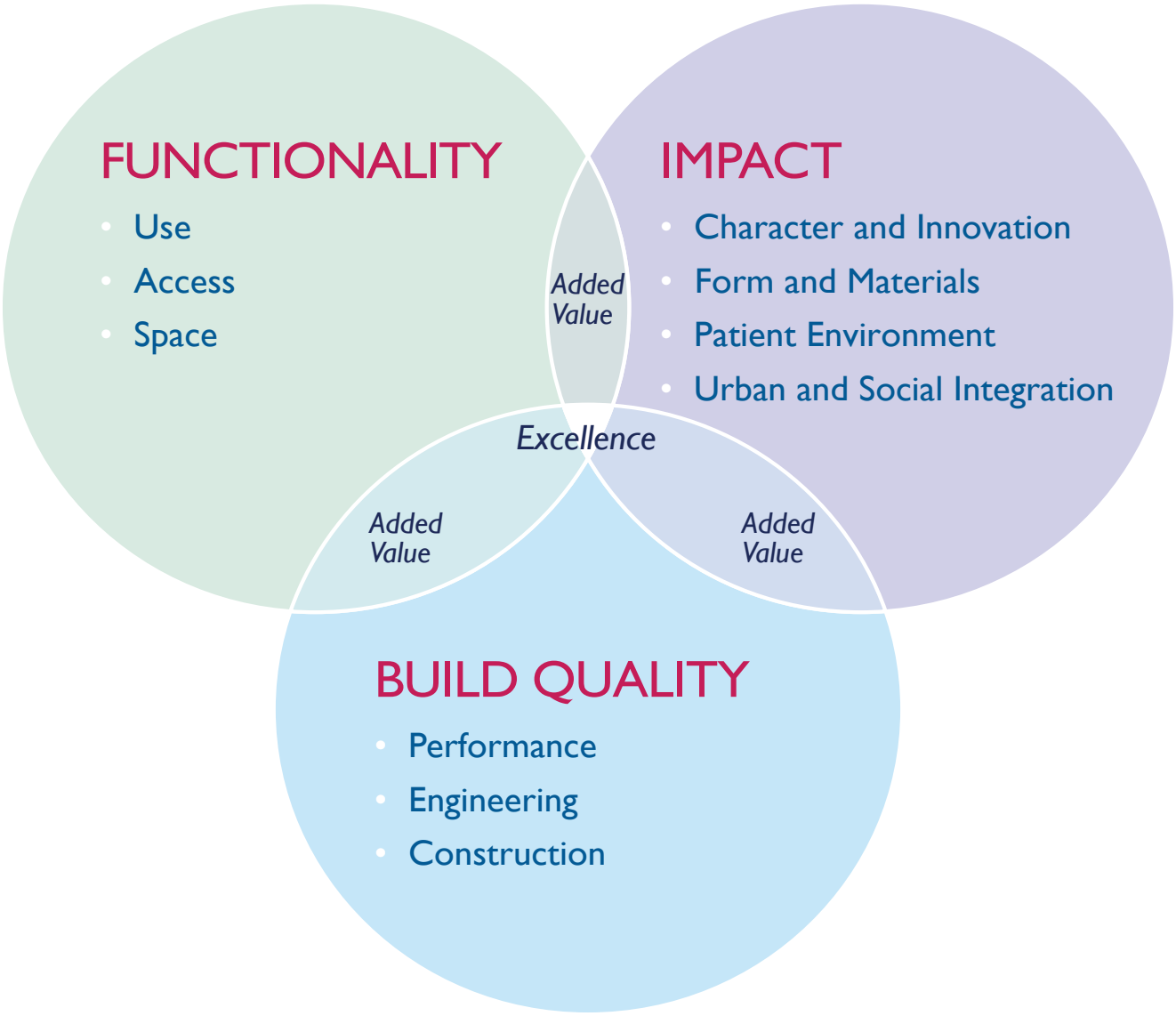
Sanctuary (inside)



Woodhaven Mental Health Unit, Southampton
(Architect: Broadway Malyan).
©Broadway Malyan

Coaching, counselling and psychotherapy room.
©Karin Peeters

Appendix 1: Example of the main components of the design brief for healthcare buildings


FUNCTIONALITY
Use
Access
Space
IMPACT
Character and Innovation
Form and Materials
Patient Environment
Urban and Social Integration
Added Value
Excellence
Added Value
Added Value
BUILD QUALITY
Performance
Engineering
Construction

FUNCTIONALITY

USE

The model of care and service philosophy

Describe the purpose of the building in detail with particular attention to patient, staff and visitor needs. Set out:

- the organisation's healthcare philosophy and design vision
- the organisation's model of care.

Functional requirements of the project

Set out:

- proposed operational policies
- the operational capacity that is being sought
- relevant future changes and projections.

The importance and dignity of individuals

The design of the building should consistently relate to patients, staff and visitors. Issues to consider:

- clinical, therapeutic and other services and complex diagnostic and specialist activities should be well integrated so that patients perceive a unified and seamless service
- information technology should be maximised to ensure that where possible information is shared efficiently between all providers in a patient-focused manner.

Work flows and logistics

Work flows and logistics within and between processes should be carefully thought through and optimised. Issues to consider:

Healthcare processes –

- departmental workflow should be direct and promote efficiency
- routes should be as short as possible
- inefficient or dangerous cross-flows must be avoided.

Logistics –

- movements of people, distribution of supplies, storage, and waste disposal should be carefully considered
- number, size and location of storage and holding bays should reflect the supply and disposal policy.

Adaptability

The building should be designed to be adaptable, to be flexible in use, to respond to change and to enable expansion.

Issues to consider:

- the design of the layout, the lighting and mechanical and electrical (M&E) controls should be versatile and flexible to allow everyday changes of use, activity and spaces
- the overall design should be capable of accommodating therapeutic, technological, organisational and formal innovations while retaining design coherence
- the structural design should enable adaptability and expansion with limited disruption
- the possibility of future change and expansion should be built into the design of all infrastructure and engineering systems
- space should be allowed for departments to expand (e.g. operating departments, wards, out-patient departments, kitchens, critical care units).

Security and ease of control

Set out the:

- security strategy and brief
- visitor monitoring strategy.

ACCESS

Access for vehicles

Set out access requirements for all vehicles, including on-site roads for ambulances, public transport, service vehicles, and fire appliances. Issues to consider:

- routes should be clearly marked
- roads, widths, turning circles etc should be safe and convenient
- the site design should encourage the use of public transport, having regard to the proximity or otherwise of public transport stops
- car-parks, access routes, loading docks and entrances should be well-lit.

Parking for visitors and staff

Set out car, motorcycle and bicycle parking requirements. Issues to consider:

- drop-off points should be appropriately provided at entrances
- signposting to parking areas should be adequate.

Goods and waste disposal vehicle segregation

Issues to consider:

- separate access routes should be provided where required
- service routes should be clearly signposted
- access and loading bays should be thought through in terms of safety and convenience.

External wayfinding and signposting

The external wayfinding and signposting strategy should be of high quality and fully integrated into the design solution. Issues to consider:

External wayfinding –

- the external appearance and site layout should support intuitive wayfinding
- distinctive landmarks (e.g. to signal the main entrance) should be incorporated into the design
- the hard and soft landscape design should support intuitive wayfinding.

Signposting –

- the signposting should be an integral part of the wayfinding strategy
- routes and signposting to and from parking areas and public transport points should be clear and obvious.

Pedestrian access

Issues to consider:

Pedestrian routes should be –

- obvious
- well-signposted
- safe from vehicles, with safe crossings
- free from obstacles
- pleasantly landscaped
- well-lit at times of darkness.

Accessibility

Issues to consider:

Internal –

- door widths into clinical spaces and clinical support spaces should generally allow for ambulant users, semi-ambulant users (including those using crutches, sticks and walking frames) and wheelchair-users;
- visual and colour contrasts should be provided for those with sensory loss.

External –

- pedestrian routes should be suitable for wheelchair users, and other people with physical or learning disabilities, and impaired sight or hearing
- there should be parking spaces reserved and marked for disabled people
- parking for disabled people should be provided close to entrances.

Integration with fire planning strategy

The fire planning strategy should be integrated to allow for ready access and egress. Issues to consider:

- compliance with Firecode guidance with provision for safe horizontal escape routes
- free access by fire-fighting appliances to the building perimeter.

SPACE

Functional content and space standards

Set out requirements for functional content and space standards. Issues to consider in addition to departmental areas:

- public and entrance areas
- social spaces for patients, staff and public
- children's areas
- scope for external franchises/commercial outlets and other add-ons
- storage
- circulation
- all relevant service requirements
- exterior terraces, play areas etc.

Adjacencies

Set out adjacency matrix indicating appropriate relationships between different functions derived from operational policies. Issues to consider:

- the interdepartmental relationships should be convenient and help efficient functioning and processing
- there should be clarity about the agreed priority of key relationships
- internal relationship within departments (main rooms, bays, storage, service rooms) should be convenient and help efficient functioning.

Best practice guidance on planning and design

Set out the guidance to be followed and, where necessary, provide the rationale for any departures from it.

- List specific Health Building Notes (HBNs), Health Technical Memoranda (HTMs) and other guidance to be adhered to. Avoid blanket statements.

Space utilisation

Issues to consider:

- spaces should be capable of being shared where appropriate – seen as a resource, not personal territory
- dual use of circulation space should be exploited where effective e.g. to encourage informal association and gathering.

Privacy, isolation and inclusivity

Set out:

- requirements of the Equality Act with regard to the diverse needs, values and circumstances of each patient.
- requirements of visual and acoustic privacy
- requirements for gender segregation (privacy and dignity)
- infection prevention and control policies and procedures including isolation rooms and beds.

Additional issues to consider:

- reception areas should enable confidential conversations without embarrassment
- the design should help to avoid unintended isolation, allowing patients to communicate with staff when needed.

IMPACT

CHARACTER AND INNOVATION

Lifting spirits and helping recovery

Issues to consider:

- the design of the building should aid therapeutic objectives
- the building should engender wellbeing and raise patients' and visitors' spirits.

Expressing excellence

Issues to consider:

- the design should express a safe, professional image of the health service
- the building should raise staff morale.

A clear vision

Issues to consider:

- the design should embody a clear and coherent vision confidently communicating its function and aspirations through its physical elements.

A stimulating design

Issues to consider:

- the design should have sufficient variety to stimulate the mind and the senses
- users and visitors should feel that the building has a positive character
- art should be integrated into the total experience of the building.

New knowledge

The design should explore with due rigour innovation in practice, technique and built form. Issues to consider:

- the development should clearly reflect the ability to adapt to new models of healthcare provision in the design
- the design should respond to best practice and innovation within architecture and the built environment
- where possible the design should develop new and transmissible knowledge about buildings for healthcare.

The value of good design

The building should in itself be a demonstration of the value of good design. Issues to consider:

- the building should show how good design can improve patients' and staff's lives and add value for the healthcare organisation over the building's lifetime.

FORM AND MATERIALS

Orientation

The building should be designed with consideration to its orientation. Issues to consider:

- sunlight and how it falls on the building
- prevailing winds and their effect, in conjunction with the building, on visitors
- how the building is entered in respect of natural points of arrival and local landmarks.

Scale and proportion

Issues to consider:

- the scale should be thought through in relation to adjoining buildings
- irrespective of the size of the building, the scale should be considered from the point of view of patients, staff and visitors so as to make them welcome.

Composition

The building's form should be pleasing and well-composed. Issues to consider:

- profile and skyline of the building from a distance and on approach
- the shapes the building is made up of
- the interplay of light and shade
- the relationship of the parts to the whole
- coherence of the parts and the whole
- consistency and attention to detail
- the integration of service elements such as rainwater pipes, flues, grilles, plantrooms, refuse bays.

External materials

Issues to consider:

- the choice of materials should be on the basis of enhancing the building as a whole
- the form and materials should be well-detailed
- the weathering, maintenance and durability of the materials should be thought through.

Colour and texture

Issues to consider:

- colours and textures where used should articulate and enrich the building's form and enhance its enjoyment.

PATIENT ENVIRONMENT

A pleasant, varied and stress-reducing environment

Issues to consider:

The internal environment generally –

- the main entrances and reception areas should be pleasant and welcoming
- the internal appearance should be calming and non-intimidating
- the building should have good acoustics
- temperatures should be comfortable in all seasons
- the air quality should be fresh.

Materials, finishes, textures –

- materials and finishes should work with the layout to create a set of varied places with degrees of privacy
- finishes, fittings, furniture and notices should be well coordinated and designed to reduce clutter
- design and selection of finishes and materials needs to take account of infection control issues.

Use of art to enhance the healing environment –

- art should be an integral part of the design of the interior
- the design should make provision for changing art displays
- the design should, where possible and appropriate, make provision for presentations of the performing arts
- the design should make provision where appropriate for art activities to take place for patients and staff.

Light and colour

Issues to consider:

Light and shade –

- light and shade should be used effectively to enhance the perception of three-dimensional space

Colour –

- the contribution of colour to providing continuity and variety, stimulation and calmness should be thought through
- colour schemes should assist wayfinding.

Daylight –

- daylight should be fully exploited to enhance the experience of patients, staff and public
- internal spaces and courtyards should be orientated for optimum sunlight penetration

Artificial light –

- lighting should be used creatively and sensitively to enhance the use and experience of the interiors.

Views

Issues to consider:

- there should be special attention to creating patient, staff and public areas with pleasant views.

Internal wayfinding

Issues to consider:

- the interior should be integrally designed to support intuitive wayfinding
- distinctive landmarks such as art and sculptures should be incorporated into the design
- where repetitious building forms are used, thought should be given to avoiding disorientation.

Spatial quality

Issues to consider:

- there should be a sense of spaciousness with overcrowding avoided
- spaces should be experienced as a sequence of attractive places with appropriate degrees of enclosure
- long, narrow corridors without daylight or views out of the building should be avoided
- circulation spaces and common areas should be designed as places in their own right – enjoyable rather than utilitarian.

URBAN AND SOCIAL INTEGRATION

A sense of place

The building should create a sense of place. Issues to consider:

- the building should be sited and designed with mind to its overall urban (rural) setting
- the building should enhance the civic qualities of its setting.

A good neighbour

Issues to consider:

- the building's height, volume and skyline should relate well to the surrounding environment
- in the design, thought should be given to what local residents and passers-by will think of the building.

A positive contribution to the community

Issues to consider:

- the design should promote a sense of belonging to and integration with the neighbourhood and wider community.

Fit with site

Issues to consider:

- the building should be well integrated with the site topography
- the spaces immediately outside the building should be pleasant
- the levels should be designed to be appropriate for entrances and access to outside spaces
- thought should be given to making land available for future development and expansion
- the design should take advantage of orientation.

Landscape design

Issues to consider:

- hard and soft landscaping, including courtyards, should be designed with regard to their therapeutic value
- the landscape design should maximise the security of pedestrians and avoid "no-go" areas
- the landscaping around the building should contribute to the neighbourhood
- the external grounds and gardens should be designed for the safety and security of all patients, staff and visitors.

BUILD QUALITY

PERFORMANCE

Daylight

Set out daylight standards to be achieved. Issues to be considered:

- there should be sufficient daylight in each area as required
- glare and solar gain should be controlled (e.g. with louvres and blinds).

Air quality

Air quality should be fresh for patients, staff and visitors. Issues to consider:

- quantity of space with natural/artificial ventilation and/or air-conditioning
- access by occupants to natural ventilation
- an appropriate level of control by occupants of heating and ventilation.

Acoustics and noise

Issues to consider:

- a good acoustic environment to deal with internally generated noise
- sufficient sound-proofing against external sound to provide comfort internally
- adequate sound insulation between rooms
- building acoustics to aid communication.

Passive thermal comfort

The design of the building fabric itself should help create thermal comfort conditions.

Issues to consider:

- passive summer cooling
- minimising solar gain
- high thermal insulation
- control of infiltration.

Durability

Issues to consider:

- the building should be able to withstand wear-and-tear in use
- the finishes should be durable.

ENGINEERING

Operational building and engineering management systems and controls

Issues to consider:

- engineering systems should be flexible, efficient and economic in use, and in use of resources
- local controls should be provided for use by staff and, where appropriate, patients
- engineering systems should operate quietly.

Specialist engineering systems

Set out the brief, requirements and standards to be followed for specialist systems including:

- medical gases
- fire engineering
- emergency generators
- batteries and standby power supplies including UPS
- nurse call, staff call and location systems
- theatre and other lighting
- cold water storage
- telephones
- ICT and other communication systems.

Standardised elements in engineering design

Consideration should be given to the use of standardised elements. Issues to consider:

- structural elements
- engineering plant and equipment
- light fittings and bed-head units
- sanitary installations
- others as appropriate.

Prefabricated elements in engineering design

Consideration should be given to the use of prefabricated elements. Issues to consider:

- structural elements
- standardised pods or modules
- plant pods or pallets
- sub-systems
- pre-wiring
- others as appropriate.

Artificial lighting

Set out quantitative standards for artificial lighting (in accordance with CIBSE Lighting Guide LG2). Issues to consider:

- energy consumption
- therapeutic benefits
- appropriateness and accessibility of control systems
- relative levels of background and task lighting.

Fire planning strategy

A clear fire planning strategy should be incorporated into the design, which should encompass the DH Firecode suite of guidance. Issues to consider:

- fire alarm and detection system
- high life risks potentially compromised by high fire loads.

Emergency backup systems

The emergency backup systems should be designed to minimise disruption. Set out emergency backup requirements and standards. Issues to consider:

- medical gases
- emergency generators
- batteries and standby power supplies including UPS

ENGINEERING

- nurse call, staff call and location systems
- heating
- theatre and other lighting
- hot water
- cold water storage
- telephones
- ICT and other communication systems.

Heating, ventilation and air conditioning systems

The heating, ventilation and air conditioning systems should be designed to operate efficiently and provide local control where appropriate and required. Set out thermal and ventilation requirements and performance standards. Issues to consider:

- maximising the use of natural ventilation
- minimising the use of heating
- minimising the use of cooling
- surface temperatures of radiators
- zoning and cut-off controls.

Energy and power systems

Set out requirements and performance standards. Issues to consider:

- optimising fuel consumption
- maximising flexibility.

Hot water and steam/operational engineering systems

Issues to consider:

- flexibility and efficiency of engineering systems
- economy in use of resources.

Note

Avoid the generation of steam unless absolutely necessary for processes.

Telecoms and IT systems

The telecommunications and data systems should be easy to operate and future-proofed as far as possible. Set out voice/data/comms brief and standards. Issues to consider:

- flexibility and efficiency
- ease of learning
- reliability.

Water and drainage system

Set out requirements and performance standards (refer to specific guidance as appropriate). Issues to consider:

- flexibility and efficiency
- minimising the use of resources
- capacity of the water supply system to provide safe potable drinking water
- adequacy of water pressures for clinical processes
- leak-proofing the drainage system plus the specific requirements of drainage systems (e.g. radioactive waste).

CONSTRUCTION

Phasing for planning or construction stages

Consider whether the project needs to be built in phases. Issues to consider:

- provision for future phases to be added with minimum disruption to the buildings in use
- consistency of phasing with the estate strategy and development control plan
- self-containment and operational quality for each phase.

Maintenance

The building should be able to be readily maintained. Issues to consider:

- the construction should be durable
- components in the building should be able to be readily cleaned, maintained or replaced when necessary.

Robust construction

Issues to consider:

- components and finishes specified should have sufficient strength and integrity for their functions or locations
- sound break out of potential nuisance to neighbours should be dealt with in the design.

Integration of engineering systems, structure and fabric

The structure, fabric and the engineering systems should be well integrated within themselves and with each other.

Health and safety

The building should be designed for health and safety in its construction and operation. Issues to consider:

- the building should support patients by conveying a feeling of safety, calmness and reliability
- clinical and other workplaces should be designed for compliance with all health and safety requirements
- the design should provide safe access and working conditions.

Standardised elements

Consideration should be given to the use of standardised elements where they promote efficiency, speed of construction, higher quality, sustainability or overall value for money.

Prefabrication/off-site construction

Consideration should be given to the use of prefabricated elements where they promote efficiency, speed of construction, higher quality, sustainability or overall value for money.

Considered construction

The methods and materials used in the building should be well thought through from the point of view of:

- efficiency
- impact on neighbours
- safety
- health.

Climate change

Sustainability and the effects of climate change should be considered in the design of the building.

Demolition and recycling

Consideration should be given in the design to the reuse of materials, recyclability and ultimate demolition.

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