HEALTH BUILDING NOTE 8

Facilities for rehabilitation services

2000

STATUS IN WALES

ARCHIVED

This document was superseded by
HBN 8 - Facilities for rehabilitation services

2004

The 2000 edition superseded
Health Building Note 8
Facilities for rehabilitation services

1991

For queries on the status of this document contact
info@whe.wales.nhs.uk or telephone 029 2031 5512

Status Note amended March 2013
Facilities for rehabilitation services
Facilities for rehabilitation services

London: The Stationery Office

NHS Estates
An Executive Agency of the Department of Health
NHS Estates guidance is prepared in consultation with representatives of the National Health Service and appropriate professional bodies, and is intended to give guidance on the briefing and design implications of Departmental policy. The guidance is aimed at multidisciplinary teams engaged in:

- designing new buildings;
- adapting or extending existing buildings.

Particular attention is paid to the relationship between the design of a given department and its subsequent management. Since this equation will have important implications for capital and running costs, alternative solutions are sometimes proposed. The intention is to give the reader informed guidance on which to base design decisions.

Buildings, whatever their type and nature of services, have a big impact on the environment. Our guides are designed to help those involved in their construction and operational management to understand the basic principles of green construction and refurbishment, and to help in dealing with designers, builders and other professionals.
Acknowledgements

NHS Estates gratefully acknowledges all contributions to this publication, with particular thanks to the following:

- Westway Centre, London
- Cannock Chase Hospital, Staffordshire
- Victoria House, Southampton
- Walton Centre, Liverpool
Executive summary

‘Facilities for rehabilitation services’ covers facilities for rehabilitation services provided within acute general hospitals as well as a range of community settings. It builds on and replaces Health Building Note (HBN) 8 ‘Rehabilitation – accommodation for physiotherapy, occupational and speech therapy’ (1991), which focused on services provided within acute general hospitals.

People who use rehabilitation services are not a homogeneous group; they have widely differing needs and require a range of services in a variety of settings. The guidance refers to accommodation for adults; where children are treated, significant adaptations will be needed. Facilities may range from a simple administrative base for an outreach team to wider-ranging facilities provided within acute general hospitals or community hospitals. Getting the balance of provision right is a difficult task which requires a thorough assessment of needs at local level, and good working relationships between healthcare services, social services and voluntary organisations.

This guidance adopts a modular approach to planning which describes facilities for separate elements of a general rehabilitation service that can be put together as circumstances dictate.

Recognition is given to the importance of decisions to be made locally, as close to the patient as possible. The involvement of service users and their representatives in the planning and design process is encouraged.

Schedules of accommodation are included, with approximate areas to enable designers to make an assessment of the sizes involved, but it is emphasised that the areas published do not represent recommended sizes, nor are they to be regarded in any way as specific individual entitlements.
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1.0 Introduction

What is rehabilitation?

1.1 Rehabilitation means different things to different people. ‘Rehabilitation – a Guide’ published by the Department of Health gives two quite different definitions:

- a process of active change by which a person who has become disabled acquires the knowledge and skills needed for optimum physical, psychological and social function;
- the application of all measures aimed at reducing the impact of disabling and handicapping conditions, and enabling disabled and handicapped people to achieve social integration.

1.2 In reality the term “rehabilitation” is used in a way that encompasses both of the above definitions. Rehabilitation can thus be defined as: a process that aims to restore personal autonomy in those aspects of daily living most relevant to service users and their families. Rehabilitation services should focus on the rights of individuals to control their own lives and make informed choices.

1.3 Rehabilitation involves the use of appropriate and available medical treatments, therapies, prosthetics, social and environmental supports, and is likely to require the collaboration of health, social services and other public agencies.

1.4 It is not limited to the role of the recognised rehabilitation professionals (physiotherapists, occupational therapists and speech and language therapists), and should involve users and carers in the planning and development process.

1.5 There is a consensus that “rehabilitation” is a continual process which encompasses acute interventions, where the aim is to cure, and long-term care, with its emphasis on maintenance.

1.6 Rehabilitation services need to be provided in a variety of settings:

- on a day-care basis in primary healthcare centres, local healthcare resource centres and local authority day centres – together with other community-based settings;
- on either a day-care, out-patient or in-patient basis in acute general hospitals and specialist rehabilitation units;
- community hospitals may provide primary or secondary care services;
- primary/community care services should also be available to individuals in their own homes.

1.7 For the users of services, rehabilitation may mean:

- reducing disability and impairment;
- acquiring new skills through which the impact of the impairment, disability or handicap could be minimised; and/or
- altering the environment, including the behaviour of non-disabled people, so that the impairment and disability no longer result in handicap.

1.8 Recent central policy and organisational changes have put greater emphasis on community-based services that focus on both the user and carer. Rehabilitation services are now seen as an integral part of health service provision and should be included in the care plans for individuals. The aim is to help restore the function and role of individuals, thereby enabling them to achieve independence and maintain self-esteem.

1.9 Rehabilitation services can help in the prevention of ill health through advice on healthy lifestyle and activity programmes. This is in line with the Government’s Green Paper ‘Our Healthier Nation: A Contract for Health’ which states: “Good health is not just about how long people live. It is about their quality of life and how well people are during those extra years, so that they are not robbed of their dignity and independence in later life.”

1.10 A key element of maintaining independence for many people lies in their ability to work. This is recognised in the joint National Priorities Guidance 1999/2000–2001/2002 issued in September 1998, which sets out as a key priority the Government’s commitment “to ensure the provision of services which help adults to achieve and sustain the maximum independence in their lives, including, for those of working age, their capacity to take up, remain in or return to employment”. The Government has also announced changes to the benefits system to provide new incentives and reduce disincentives to work. This challenging agenda will require closer collaboration between agencies concerned with providing rehabilitation and social care and those providing education, training and employment services.

1.11 Demographic changes over the last decade have meant an increased demand for rehabilitation services,
with the number of people aged 85 and above rising by 300,000. Over the next decade the NHS expects to provide services for a further 100,000 people in this age bracket. (Source: ‘The New NHS • Modern, Dependable’ published by the Secretary of State for Health.)

1.12 It is increasingly recognised that rehabilitation services offer opportunities for reducing unnecessary and inappropriate residential home and nursing home placements. They offer support for the short-stay policy operated by acute general hospitals and contribute to the NHS’s commitment to a continuum of care as outlined in the Department of Health document ‘NHS Responsibilities for Meeting Continuing Health Care Needs’.

1.13 Co-ordination and co-operation in the development of rehabilitation services is being encouraged at all levels, including:

- at national and regional levels for policy development;
- at regional and local levels for service planning and development, including specialist facilities;
- locally across traditional service boundaries, including the voluntary and private sectors, to create a user-friendly, seamless service.

Scope of the document

1.14 This document gives guidance on the planning and design of facilities, to meet the needs of people who require a wide range of rehabilitation services. These services may be provided in a variety of locations, for example acute general hospital or community-based, according to local planning and provision. They will be provided by a multidisciplinary team, often with multi-agency co-operation. Community-based services range from those provided within a community hospital to a simple administrative base for outreach workers.

1.15 The intention of this document is to provide ideas and guidance for separate elements of the service which, by a process of mixing and matching, can be put together to achieve good management and value for money in capital and revenue terms. Chapter 6 discusses in detail facilities for separate elements of the service. These elements may vary according to local needs. Appendix 1 gives a range of innovative models for rehabilitation services.

1.16 The discussion within this document is based on known examples of good practice as documented in two publications: ‘Rehabilitation – a development challenge’ published by the King’s Fund; and ‘Trends in Rehabilitation Policy – a review of the literature’ jointly published by the King’s Fund and the Audit Commission. Cost and clinical effectiveness will be a prime consideration for those planning the service.

Further guidance

1.17 For further guidance concerning the accommodation for rehabilitation services provided at community hospitals, this document should be read in conjunction with the forthcoming NHS Estates publication ‘Community hospitals’. For further guidance on rehabilitation services provided within local healthcare resource centres and primary healthcare centres, this document should be read in conjunction with HBN 36 – ‘Local healthcare facilities’ (under review).

1.18 Other guidance about rehabilitation services is contained in HBN 35 – ‘Accommodation for people with mental illness’ and Design Guide – ‘Day facilities for people with severe learning difficulties’.

Exclusions

1.19 This document does not contain specific guidance concerning the accommodation for rehabilitation services provided at:

- a. local authority day centres;
- b. schools for children with special needs;
- c. centres providing artificial limbs and wheelchair services – Disablement Service Centres.
2.0 General service considerations

Organisation of the service

2.1 The Government’s policy on healthcare as outlined in the White Paper ‘The New NHS • Modern, Dependable’ states: “Partnerships between secondary and primary care clinicians and with social services will provide the necessary basis for the establishment of programmes of care, which will allow planning and resource management across organisational boundaries.”

2.2 Rehabilitation is not an isolated process. It begins at diagnosis and assessment, and continues through treatment/acute care, respite care and continuing care. Thus the service should be organised in such a way as to create partnerships between service providers that cross traditional boundaries of care.

2.3 The multidisciplinary and multi-agency nature of the rehabilitation function and the flexibility needed to support care plans tailored to individual needs do not lend themselves to tightly defined management structures. Service providers need to identify appropriate management structures and assess the clinical and cost-effectiveness of each.

2.4 Services can be organised at three levels:

- primary care/community-based services provided by all the members of the care team including the voluntary and private sectors. Local health authorities commission long-term service agreements that rely on multi-agency co-operation;
- secondary care – units in acute general hospitals and community hospitals. The multidisciplinary care team provides a range of services – including physiotherapy, occupational therapy, speech and language therapy – on a day- or out-patient basis. Some patients will be in-patients. These units also serve as a base for outreach and community service workers;
- tertiary care – specialist units based in hospitals or stand-alone units within planned regional and supra-regional services. These units tend to concentrate on particular conditions and provide expertise for patients with recognised specialist needs, for example the Spinal Injuries Centre at Stoke Mandeville Hospital, and the Stroke Unit at Northwick Park Hospital.

2.5 A balance needs to be struck between the development of centralised services on acute hospital sites, where economies of scale can be achieved, and local community-based services which provide easier access for users. Specialist units need to be developed to maintain the necessary skills and expertise, which may mean that they are not so readily accessible to users.

Service providers

2.6 Although the NHS is likely to continue as the main provider of rehabilitation services, many others will play a crucial role. The voluntary and private sectors are developing a wide range of services for people with disabilities:

- by acting as pressure groups they are helping to articulate the needs of users and involve them in planning and developments;
- by increasing the variety of settings from which services are provided. These services have not always been well co-ordinated but rather have developed from a perceived gap in statutory provision. They often focus on specific conditions (for example Headway), specialist skills and equipment (for example the British Epilepsy Association) and the needs of carers (for example Care for the Carers);
- voluntary organisations, particularly in the residential home and nursing home sector, are developing services for non-residents in the local community; for example, physiotherapy services for young disabled people at a Sue Ryder home in a rural area are also available to non-residents wishing to purchase them.

2.7 All providers of services will need to co-operate and agree on goals and strategies in order to create a cost-effective, seamless clinical service. This requires good communications and working relationships within and across all levels of care – from NHS acute general hospitals and specialist in-patient units to local authorities in day-care provision and education. Open access to care plans is needed to enable support programmes to be developed for use at home and in the community.

2.8 The Carers Act 1995 recognises the needs of carers who provide or intend to provide a substantial amount of care on a regular basis. Under the Act a carer is entitled, on request, to an assessment when a local authority carries out an assessment of the person cared for in respect of community care services. The results of the carer’s assessment should be taken into account when the local authority is making decisions about services to be provided.
provided to the user. Local and health authorities will need to ensure that hospital discharge procedures take account of provisions of the Act and that carers are involved once planning for discharge starts.

2.9 Primary care staff, including GPs and community nurses through their contact with users and carers, are in a good position to notice signs of stress, difficulty or rapidly deteriorating health, particularly in carers. When making a referral for a user’s assessment they should inform the carer that they also may have a right to request an assessment.

2.10 The strategies of healthcare organisations in developing primary service plans will be to achieve clinical and cost-effectiveness within the framework of national policy. Service plans will be based on assessments of the needs of the populations being served, through demographic studies and morbidity data.

2.11 Mapping of facilities in the locality will provide a picture of what is available and identify gaps and overlaps which need to be addressed when creating new facilities or upgrading current ones. Inevitably there will be some degree of overlap between general and specialist services.

Assessment of requirements

2.12 Patients’ needs change as they progress through their treatment programme – from acute/specialist rehabilitation to the ultimate goal of achieving total (or some degree of) independence – and these changing needs should be catered for. Appendix 2 gives a patient’s perspective on receiving rehabilitation treatment.

2.13 Assessment of patients’ abilities and setting goals for their rehabilitation, based on a holistic approach, will help identify the range of services needed. Rehabilitation is a continuous process and includes:

- assessing physical and cognitive abilities and any perceived impairment;
- support for independent living, including physical changes to the environment and aids to daily living;
- psychological support and counselling.

A co-ordinated programme of rehabilitation will include psychological, social and environmental dimensions. Re-assessment will be necessary as and when an individual patient’s needs change.

2.14 Rehabilitation is best undertaken in a similar environment to that in which the new skills, or knowledge, will normally be used. Activities of daily living can be developed in a variety of settings, from a specialist occupational therapy unit, to an in-patient unit, to a community clinic or the individual’s home. However, actual home, work and public areas continue to be preferred to “artificial” settings in many cases.

2.15 A wide spectrum of services can be provided on an out-patient or day-care basis. Outreach teams operating from acute general hospitals, community hospitals or healthcare resource centres will be able to meet some of the needs in the community. Drop-in centres can also be particularly valuable as a community resource.
3.0 Environment and design

The right environment

Achieving better designs for healthcare facilities

3.1 Particular attention is drawn to the NHS Estates publication ‘Better by design – pursuit of excellence in healthcare buildings’ issued in 1994. This substantial and authoritative guide provides answers to the questions:

- Why bother with good design?
- What are the principles of good design?
- What are the key elements of good design?
- How can we commission high-quality buildings?
- How can we produce buildings that work?
- How can we incorporate art?

3.2 A quote from the introduction by Lord Sainsbury notes that: “Good design may not cost less but it need not cost more.” That being the case, “good design” should be the norm, not the exception. New facilities should thus:

- function well;
- look attractive;
- improve the locality;
- aid rapid recovery;
- motivate staff;
- minimise running costs;
- build the image of the NHS as modern and dependable;
- take into account the requirements of sustainable development and the environment, in line with the Government’s Green Paper ‘Our Healthier Nation’.

3.3 Project teams and planners should be aware of the requirements of the Environmental Protection Act 1990, other associated legislation and regulations, and the increasing emphasis placed through European protocols and Directives on taking sustainable development and environmental issues on board at the earliest stage in any design process. Operational policies (see chapter 5) should also reflect these needs.

3.4 ‘Better by design – pursuit of excellence in healthcare buildings’ also contains several useful appendices, including:

- a checklist of design pointers;
- developing the brief;
- a design competition case study and guide;
- a model two-stage consultant commissioning process.

Specific design considerations

People with disabilities

3.5 It is essential to ensure that suitable access exists to every type of health building for people who have mobility or orientation problems or other special needs. This category includes people who are wheelchair-bound, those who for any reason have difficulty walking, people with a sensory disability such as visual or hearing impairment, people with learning difficulties, and those whose first language is not English. Project teams are reminded of the need to comply with the provisions of:

- The Chronically Sick and Disabled Persons Act 1970;
- The Chronically Sick and Disabled Persons (Amendment) Act 1976;
- The Disabled Persons Act 1981;
- The Disabled Persons (Services, Consultation and Representation) Act 1986;

Legislation applicable in Northern Ireland:

- The Chronically Sick and Disabled Persons (Northern Ireland) Act 1978;
- As (a) above;
- Disabled Persons (Northern Ireland) Order 1982;
- Disabled Persons (Northern Ireland) Act 1989;
- Technical booklet R to The Building Regulations (Northern Ireland) 1994.

Legislation applicable in Scotland:

- The Chronically Sick and Disabled Persons (Scotland) Act 1972;
3.6 It must be remembered that people with disabilities may be patients, visitors, staff or volunteers.

3.7 Attention is drawn to BS 5810: 1979 ‘Code of Practice for Access for the Disabled to Buildings’ (under review). One of the effects of The Disabled Persons Act 1981 is to apply this British Standard to premises covered by The Chronically Sick and Disabled Persons Act 1970, which includes those open to the public. Practical guidance for complying with the building regulations is issued by the Department of the Environment under Approved Document M: ‘Access and facilities for disabled people’. See paragraph 3.5(e) above.

3.8 Project teams should refer to HBN 40 – ‘Common activity spaces’, a set of four volumes which includes guidance and ergonomic data sheets on access, space and equipment relating to disabled users of health buildings. HFN 14 – ‘Disability access’ and HFN 20 – ‘Access audits of primary healthcare facilities’ may also be of interest to project teams. In Scotland refer to SHPN 40 – ‘Common activity spaces’. In Northern Ireland refer also to PEL(96)56 and PEL(95)17. ‘Disabled People Using Hospitals’, published by the Royal College of Physicians in 1998, includes guidelines on the design of hospital buildings that meet the needs of disabled people. It also describes how a hospital’s provision for disabled people – including the physical environment – might be audited.

3.9 It is recommended that project teams consult local representatives of disabled people, or the Centre for Accessible Environments, with regard to the planning of spaces used by clients and visitors. The contact details for the Centre for Accessible Environments are as follows:

Nutmeg House
60 Gainsford Street
London SE1 2NY
Phone: 020 7357 8182
e-mail: cae@globalnet.co.uk
website: http://www.cae.org.uk

3.10 In locations where public telephones are provided, the need for access to a telephone by people in wheelchairs must be considered, and a telephone should be mounted at a suitable height. Fitting the handset with an inductive coupler will assist anyone using a hearing aid. A text-phone should be provided for deaf people, and staff should know how to operate it. Organisations should be registered with Typetalk to enable hearing people to communicate with text-phone users through an operator. All telephones should be clearly signposted. See also HBN 48 – ‘Telephone services’. In Scotland refer to SHPN 48 – ‘Telecommunications’.

3.11 If a deaf person communicates by means of signing it is important that any interpreting is done by fully qualified personnel. Staff who are interested can be given the opportunity to learn British Sign Language, but it must be remembered that in the medical field misunderstandings due to incorrect interpretation can be dangerous.

3.12 It is recommended that project teams consult with the Royal National Institute for the Deaf, which offers communication services (signers, lip-readers and speech-to-text transcribers) and training in sign language.

3.13 It may be necessary to make specific adaptations to the accommodation for a person with a disability. However, if that person’s support needs change and they need to move, the specially adapted accommodation may be less suitable for another person. A more flexible solution might be to offer a person in their own home varying levels of support according to their needs – from occasional monitoring visits to full 24-hour crisis care.

3.14 Where residential accommodation is being provided for a person with a disability, any modifications to the building will be specific to the needs of that person. In this situation there is a distinct advantage in the use of flexible support to the person in their own accommodation rather than the person being required to move each time their support needs change.

3.15 As well as patients and staff, the needs of carers should be taken into account when designing new healthcare buildings or refurbishing existing ones. Architects and service providers are advised to consult The Carers Act 1995 in respect of this matter.

Natural and artificial lighting

3.16 Sunlight enhances colour and shape, and helps to make a room bright and cheerful. Wherever possible, spaces to be occupied by patients, visitors or staff should have natural daylight with an outside view. Bay windows that allow seating in comfort may be suitable. Consideration should be given, however, to the need for privacy.

3.17 The harmful effects of solar glare and heat gain can be dealt with by architectural detailing of window shape and depth of reveals, as well as by installing external and internal blinds and curtains. Treatment to the glass such as coatings may also reduce the effects of overheating and glare.

3.18 Artificial lighting, as well as providing levels of illumination to suit particular activities, can make an important contribution to interior design. Designers should develop a lighting scheme that will help to promote a high-quality image of the service being offered and a non-clinical, soft environment in as many spaces as possible. Levels of artificial light can be varied easily by the use of dimmer switches.
3.19 Artificial light should minimise glare and shadow to allow facial expressions to be seen more easily and to aid communication, particularly lip-reading.

3.20 Fixed luminaires should not be sited immediately above positions where people lie in bed or on a couch. This applies to residential areas and all spaces where patients are examined or treated.

Internal rooms

3.21 The use of internal rooms, other than for en-suite facilities and storage areas, should be avoided if possible. Lack of natural light over prolonged periods is detrimental to physical and mental health.

3.22 “Racetrack” corridors around internal rooms should be avoided, as they can hinder staff trying to observe patients.

Ventilation

3.23 Natural ventilation is preferred unless there are internal spaces or clinical reasons that call for mechanical ventilation or comfort-cooling systems. See also HFN 27 – ‘Refurbishment for natural ventilation’.

3.24 Mechanical ventilation and comfort-cooling systems are expensive in terms of capital and running costs; planning solutions should be sought which take maximum advantage of natural ventilation. Mechanical ventilation costs can be minimised by ensuring that, wherever practical, core areas are reserved for rooms whose function requires mechanical ventilation irrespective of whether their location is internal or peripheral, for example sanitary facilities.

Noise and sound attenuation

3.25 Any unwanted sound is a noise and may disturb patients and staff. Noise-sensitive areas should be located as remotely as possible from internal and external sources of unavoidable noise. Consideration should be given to the provision of an induction loop system to enable those users with a hearing aid to listen to sound sources, such as a television or public address system, without background noise or distance from the source being a problem. The Royal National Institute for the Deaf provides “loop” stickers to indicate that an induction loop is available.

3.26 Speech privacy is essential in spaces where personal and confidential discussions are held, such as patient bedrooms, interview rooms and consulting/examination/treatment spaces; it should not be possible to overhear any discussions taking place in adjoining spaces when the conversation is at a normal volume.

3.27 Particular care should be taken to avoid conversations being overheard where the adjoining spaces are waiting or quiet sitting areas.

3.28 Sound transmission can be reduced by the use of sound-attenuating partitions and doors. The use of soft floor-coverings, provision of curtains, and acoustic treatment of walls and ceilings (where aesthetically and hygienically acceptable) will improve sound absorption in a space.

Art in health buildings

3.29 Works of art can make a significant contribution to the environment. Specialist advice should be sought regarding the effect of different types of art on the emotional state; for example, landscapes and seascapes are generally considered to be relaxing, while close-up views of animals looking directly at the observer are thought to increase stress. Viewers in a seated position should be considered when determining the height at which works of art are displayed.

3.30 When installing art in health premises, especially residential premises, it is always advisable to consult with users of the facility to increase the level of acceptance. Display of art created by the users themselves should be encouraged.

3.31 Advice should be sought from experts on:

   a. obtaining grants. In some cases, regional arts boards or charitable trusts with a local interest may offer grants to add money within a capital scheme which is set aside for art or craft works. The Royal Society of Arts offers bursaries for collaborations between architects and artists. The King’s Fund “Art in Hospitals” programme may be a valuable resource;

   b. obtaining sponsorship. Local industries may be prepared to support an arts project. Links with local art colleges could result in low-cost commissions.

Colour

3.32 Decor colours should be light and pleasant, with sufficient contrast to help partially-sighted people distinguish obstacles. “Warm” colours are preferable. Some colours are considered to be relaxing and others stimulating, so clinical advice should be taken as to the appropriate use of colour.

Finishes

3.33 The quality of finishes in all areas should be to a high standard. Finishes should be capable of being patch repaired in the event of damage. Guidance on the selection of finishes is given in the relevant Health Technical Memoranda (HTMs).
Floors

3.34 Floor-coverings and skirtings should contribute to the provision of a non-clinical environment and be hardwearing. HTM 61 – ‘Flooring’ should be consulted for advice on user requirements and performance selection.

Doors and frames

3.35 Except in sanitary facilities there may be a requirement for all doors to areas occupied by patients to have vision panels. In the interests of privacy and safety, panels should be capable of being obscured.

3.36 All patient area doors must be capable of being opened outwards in an emergency.

3.37 Where necessary, doors should be capable of being fastened in the open position, subject to fire safety restraints. Magnetic door retainers should not restrict the movement of traffic. Refer to HTM 58 – ‘Internal door sets’.

Windows

3.38 In addition to the various statutory requirements the following aspects require consideration: natural lighting and ventilation; insulation against noise; user comfort; energy conservation; the prevention of glare; and the provision of a link with the outside world. Windows should have a pleasant outlook if possible. The use of low window sills enables views from the window even when seated. Any windows that staff/patients/visitors are allowed to open should be designed such that this can be done easily, including from a seated position.

3.39 The specification of all windows and internal glazing, including vision panels, light fittings, pictures and mirrors, should consider safety. The minimum standard for any glazing is given in BS 6262 – ‘Code of practice for glazing in buildings’ 1982 and its subsequent revisions, but higher specifications should be considered because of the nature of the risks.

3.40 Upstairs windows should have restricted opening to prevent people climbing out. There have been a number of incidents involving people falling from windows, mainly from hospitals (see EPL(95)27). The restrictors should be tamper-proof. In Northern Ireland refer to PEL(95)53.

3.41 The design should ensure that it is possible for window cleaners to have easy access to the windows. The outside of windows should be cleaned from the outside whenever possible. General guidance on windows is available in HTM 55 – ‘Windows’.

Maintenance and cleaning

3.42 Materials and finishes should be selected to minimise maintenance and to be compatible with their intended function. Finishes, fittings and fixtures should be attractive and sufficiently robust to withstand heavy use and abuse.

3.43 Maintenance will generally be undertaken as part of a planned maintenance routine. However, some repairs may need to be carried out promptly on an “as-needed” basis, as there is evidence to suggest that leaving vandalism or damage unrepaired leads to further degradation of the environment.

3.44 Building elements that require frequent redecoration or are difficult to clean should be avoided, but a compromise is sometimes necessary between items that have a low acquisition cost but are expensive to maintain and those with a high acquisition cost which are nevertheless relatively inexpensive to maintain. The lifecycle cost of the building elements, in these instances, should be analysed and used to assist the project team in their decision-making process when there is a choice of product available.

3.45 Special consideration should be given to corners, partitions, counters and other elements which may be subject to heavy use. Wall coverings should be chosen with cleaning in mind. Guidance on these aspects is given in HTM 56 – ‘Partitions’, HTM 58 – ‘Internal doorsets’, HTM 61 – ‘Flooring’ and HTM 69 – ‘Protection’.
4.0 Other general functional and design requirements

Introduction

4.1 This chapter contains additional guidance on aspects of function and design common to all healthcare buildings.

Statutory and other requirements, including Crown immunities

4.2 The guidance takes account, as far as possible, of all statutory and other requirements in force at the time of publication. However, health authorities and trusts are reminded of their responsibility for ensuring compliance with all relevant statutes, regulations, codes and standards, in particular the Construction, Design and Management (CDM) Regulations.

4.3 With the general removal of Crown immunity, building and planning law are legally enforceable on the NHS. Guidance on the removal of Crown immunity is given in Circular HN(90)27/LASSL (90)15 (in Wales, WHC(91)4), in respect of a wide range of legislation. In Northern Ireland refer to ESD 15781/92.

Building components

4.4 The Building Components Database consists of a series of Health Technical Memoranda (HTMs), 54–70, which provide specification and design guidance on building components for health buildings which are not adequately covered by current British standards. No firms or products are listed. The numbers and titles of the relevant HTMs are listed in the ‘References’ section at the end of this document.

Upgrading or adaptations of existing buildings

4.5 The standards set out in this guidance essentially apply to the provision of accommodation by new building. However, the principles are equally valid and should be applied, so far as is reasonably practicable, when existing accommodation is being upgraded or new accommodation is being constructed within an existing building which may previously have been used for other purposes. Compromises may have to be made between Health Building Note (HBN) standards and what is possible.

4.6 Before a decision is made to carry out an upgrading project, consideration must be given to the long-term service and estate strategies for the service, the space required for the new service, and the size of the existing building. Regard must also be paid to the orientation and aspect of the building, whether or not key HBN requirements can be met: for example, the need for accommodation with ground-level access or lift access, and the adequacy and location of all necessary support services.

4.7 If a prima facie case for upgrading emerges, the functional and physical condition of the existing building should be thoroughly examined. The check of physical and other aspects of existing buildings should include:

- availability of space for alterations and additions;
- type of construction;
- insulation;
- age of the buildings and condition of building fabric – for example, external and internal walls, floors, roofs, doors and windows – which may be determined by a condition survey;
- life expectancy and adequacy of engineering services, adequate water pressure, ease of access and facility for installation of new wiring, pipework and ducts, if required;
- the height of ceilings. High ceilings do not necessarily call for the installation of false ceilings, which are costly and often impair natural ventilation;
- changes of floor levels, to obviate any hazards to disabled people;
- fire precautions;
- physical constraints to adaptation, such as load-bearing walls and columns.

4.8 When comparing the cost of upgrading or adapting an existing building to that of constructing a new building, due allowance – in addition to the building cost – must be made for the costs of relocating people, demolition, salvage, disruption of services in a phased project, and the temporary effects on running costs of any impaired functioning of areas of the building affected by the upgrading works.

4.9 The cost of upgrading work should conform to the guidelines which were originally promulgated in the Department’s WKO letter (81)4 (in Wales, refer also to (81)8), and more recently referred to in NHS Estates’...
Quarterly Briefing. In Scotland refer to SHHD/DS (82)19. Those guidelines take into consideration the estimated life of the existing building and the difference in cost between upgrading a building and constructing a new building.

Smoking

4.10 NHSME circular HSG(92)41, entitled ‘Towards smoke-free NHS premises’, required NHS authorities and provider units to implement policies so that the NHS became virtually smoke-free by 31 May 1993. The circular advises that a limited number of separate smoking rooms should be provided, where necessary, for staff and for patients who cannot stop smoking. In Scotland, refer to MEL (92)24 and in Northern Ireland to HSS (OPI)2/93.

4.11 The Government’s Green Paper ‘Our Healthier Nation’ pinpoints smoking as one of a number of environmental factors that can have a detrimental effect on people’s health, and suggests that efforts should be combined to tackle health and social problems as a whole.
5.0 Operational policies

5.1 This chapter outlines general operational policies for hospitals and other healthcare premises.

Health and safety

5.2 Normal health and safety risk assessments will need to be made. Some units may choose to relax controls in the “activities of daily living” (ADL) flat to create a more domestic environment. For example:

• hot water temperatures – hot water in patient areas in hospitals is controlled at 43ºC to prevent scalding. This is significantly lower than the hot water temperature in most domestic households;
• catering hygiene – hygiene standards in hospital kitchens are higher than would be expected in a normal household.

See chapter 6 (paragraphs 6.98–6.107) for further details on ADL flats.

5.3 Where it is felt that there would be some advantage in departing from current guidance in order to prepare a person for more independent living, the extent of any such relaxation should be based on a thorough risk assessment and agreed by all members of the multi-agency team. Each of the enforcement agencies must be satisfied that the action is within the limits of discretion allowed by the relevant legislation. Under no circumstances is it acceptable to lower fire standards. It is suggested that the ADL flat should be fitted with emergency call facilities.

Fire safety

5.4 It is essential that project teams familiarise themselves with the guidance contained in the Firecode suite of documents, which contain the Department’s policy and technical guidance on fire precautions in hospitals and other NHS premises. In particular, the need for structural fire precautions and means of escape from the whole accommodation must be taken into account at the earliest possible planning stage. In areas which cannot be adequately staffed (for example toilets and lifts), fire alarms should have visual facilities as well as audible signals to cater for the needs of deaf people.

Control of substances hazardous to health (COSHH)

5.5 As well as the normal risk assessment of each potentially harmful substance, it is important that the risk associated with particular patients having access to them is assessed. Supervision may be required.

Personal safety

5.6 All users of a facility – including patients, carers, visitors and staff – may be vulnerable to violence, and may need to be protected not only from violent patients in the facility but also from the risk of violence and attack from people in the wider community.

5.7 Project teams are reminded that where violent incidents are foreseeable, employers have a duty under Section 2 of the Health and Safety at Work etc Act 1974 to identify the nature and extent of the risk, and to devise measures which would provide a safe workplace and a safe system of work. Such measures should reflect the guidance given in the Health Services Advisory Committee report ‘Violence and aggression to staff in health services’, issued in 1997.

5.8 Although violence is not as prevalent as some public perceptions suggest, operational policies should minimise the risk of violence and security problems by allowing for:

• good observation – direct and unimpaired visual contact with colleagues is important;
• good communication systems taking account of the perception of staff towards their own levels of security. Consideration should be given to alarm call systems for use by clients and staff. Alarm call points should be situated so that they can be operated if the door or exit is blocked.

5.9 As well as operational policies, the design of the building will play an important role in reducing the risk of violence and security problems. Consideration should be given to the creation of a pleasant environment (see chapter 3 on the importance of good design for healthcare buildings) as well as the need to allow for good observation.

Security

5.10 Theft of property, including personal property of patients, carers, visitors, volunteers and staff, is a major and increasing concern. Vandalism is also a problem that

5.11 Project teams should also consult HFN 5 – ‘Design against crime’. This recommends that only after making buildings as safe as possible by means of a number of design processes should consideration be given to the provision of security systems, such as electronic locking devices, closed-circuit television and other items of hardware. Consideration needs to be given to how the security of the building will interact with the therapeutic atmosphere.

5.12 Security may be achieved by temporarily locking doors. Care must be taken to ensure that such arrangements do not contravene safety requirements such as fire regulations.

5.13 The project team should discuss security with the officer-in-charge of the local crime prevention department and the trust’s security officer or advisor at an early stage in the design of the building. Fire and security officers should be consulted concurrently, as the demands of fire safety and security are sometimes in conflict. The attention of planners is drawn to NHS Management Executive circular HSG(92)22 (in Wales, WHC(92)86) on security, and the revised NHS Security Manual to which it refers. In Scotland, planners should refer to MEL(1992)35.

Environmental policies

5.14 Environmental issues have the same status as health and safety and fire safety issues. The project team should undertake an environmental/risk assessment, identifying the performance management/audit review process, and keep appropriate records.

Materials handling: supply, storage and disposal

5.15 Project teams should give careful consideration to supply, storage and disposal systems. The quantity and distribution of storage space can only be specified in terms of known policies. Space will be required for various types of waste, allowing for proper segregation procedures as outlined in HTM 2065 – ‘Healthcare waste management – segregation of waste streams in clinical areas’. It will be necessary to have dedicated secure storage if clinical waste is created.

5.16 Project teams need to consider the frequency of deliveries, whether supplies are bought from local shops or ordered through a central system. The amount and type of storage space required is directly related to the frequency and size of deliveries. Consideration should be given to the use of materials that are made from, or rely on, resources that are renewable. For example, timber should be procured from sustainable sources.

5.17 Consideration also needs to be given to the types of delivery, the delivery point, and whether vehicular access is required. Where possible, any delivery by road should be timed to avoid peak commuter periods, thus avoiding delays and wastage of time in traffic jams, and minimising the impact on traffic congestion and pollution. At the point of delivery, engines should not be left running whilst the delivery is being made. Suppliers should be encouraged to adopt good transport management principles as outlined in the Government’s White Paper ‘New Deal for Transport: Better for Everyone’. This includes route planning, full load delivery and driver training.

5.18 Some items, for example pharmaceuticals, have specialised storage requirements.

5.19 Control of stock, which even in small premises may require computer support, increases efficiency and can effect appreciable or even substantial reductions in costs. The value of a stores management system will be enhanced if it can be linked to an existing service-wide handling system.

5.20 Organising an efficient and economical system for supply, storage and disposal across a range of disparate and dispersed premises is demanding and complex. Systems and timetables for ordering supplies, delivery and disposal should be devised and agreed with the managers of the relevant service elements, including any central services. Good working relationships and communications with other parts of the service are of fundamental importance.

5.21 Any waste generated in any of the premises should only be held temporarily before being taken to the appropriate hold area to await collection. Healthcare premises should adopt the three principles of waste management – reduce, re-use and recycle – in order to minimise disposal costs and the environmental impact. Suppliers should be encouraged to reduce any unnecessary or excessive packaging.

5.22 Disposal of pressurised containers requires special attention – see SAB (88)79 ‘LPG Aerosol Containers: Risks arising from storage, use and disposal’. Specially constructed containers (see BS 7320) should be used for “sharps”, particularly needles. The use of sharps
containers minimises the risk of injury to staff, especially those involved in their disposal.

5.23 Further guidance on materials management is contained in HFN 29 – ‘Materials management (receipt, storage and distribution)’.

**Domestic services**

5.24 The domestic cleaning arrangements are likely to be different according to the type of premises involved. For those that are based on a hospital site or not open 24 hours a day, it is probable that a domestic services or facilities manager will be responsible for organising the cleaning services. In these situations most of the work will be carried out by domestic services staff regularly attached to, or based in, the premises. Less frequent major cleaning work will probably involve staff of contract services brought in for the purpose, and may involve equipment not normally held on the premises. In premises which provide residential accommodation, some of the cleaning may be done by the residents with appropriate levels of assistance. This has implications for the degree of access to cleaning materials which the residents will have. In some situations residents will have full independent access, while in others it may be more appropriate for access to be supervised. The choice of cleaning materials/detergents used will be based on COSHH procedures to identify not only health and safety risks, but also environmental risks.

**Catering facilities**

5.25 The more independent service users will prepare their own meals, and many premises will have facilities for teaching people to prepare their own meals, or at least prepare snacks. However, in some facilities people will need to have their meals prepared for them. These could be prepared on the premises from basic ingredients, but as this tends to be expensive in terms of labour costs it is assumed that in most of these cases meals will be prepared elsewhere and bought in.

5.26 The method of delivery and arrangements for ensuring that meals are served at the correct temperature will depend on local policy. The more common systems are either heated meals delivered in insulated heated trolleys or “cook-chill” meals delivered in cold insulated containers and regenerated in regeneration kitchens or delivered in regeneration trolleys.

5.27 Whatever the chosen system it is important that patients have a choice of meal and that any specific dietary needs, including cultural or religious requirements, are catered for.

5.28 Local policy will need to determine the arrangements for washing pots, cutlery and crockery. If this is to be done locally, dishwashers will be required.

5.29 Further guidance on catering is contained in HBN 10 – ‘Catering department’.

**Education and training**

5.30 Staff education and training is a vital ongoing activity. In cases where it is not practical to provide full training facilities, for example in small premises, staff should at least have access to seminar and library facilities located elsewhere.

**Health records service**

5.31 There needs to be a clear operational policy on the storage of, and access to, health records. Records may be stored by the healthcare provider, electronically or on hard copy, or held by the patient.

**Information management and technology**

5.32 Information management and technology (IM&T) is fundamental to the successful operation of a comprehensive rehabilitation service. The system selected should offer a wide range of facilities, and be consistent with local and NHS IM&T strategies. These may be obtained from the Publishing Department, DH Health Distribution Centre, PO Box 410, Wetherby LS23 7LN, phone: 01937 840250/2. A national overview of the networking systems is contained in ‘A strategy for NHS-wide networking’ which may be obtained from the NHS Executive. More detailed guidance on local area networks (LANs) is contained in the NHS IT Standards Handbook Volume 2, which may also be obtained from the NHS Executive. For IM&T strategies in Northern Ireland readers should consult with HPSS Directorate of Information Systems, Centre House, 79 Chichester Street, Belfast BT1 4JR.

5.33 The IM&T strategy must operate for the whole rehabilitation service.

5.34 Developments in telemedicine, and in computer-supported diagnostic packages, may produce a requirement for the transmission of video images between general rehabilitation services and centres of specialist expertise.
5.35 The choice of systems, and matters such as the location of computer terminals, the functions to include on the system, and the levels of access to information, should be decided locally. Examples of data handling needs which could be met by the installation of a comprehensive IM&T system include:

- within the rehabilitation service:
  1. operating a patient administration system;
  2. maintaining the appointment system for day patients and out-patients;
  3. providing management information, including clinical audit;
  4. managing materials, including health and safety and environmental audits;
  5. managing statistical information, including feedback from patients, GPs and community nurses;
  6. the exchange of information between community nurses and other appropriate professionals;
  7. storing reference material;
- with other health service departments/hospitals:
  1. operating a patient administration system;
  2. making out-patient appointments;
  3. receiving results from pathology departments;
  4. receiving radiology reports;
- with GPs:
  1. advising on admission;
  2. advising on attendance and/or requesting follow-up visit;
  3. advising on discharge and confirming post-discharge care plan.

5.36 Project teams should:

- consider the IM&T needs of the service at an early stage;
6.0 Facilities for general rehabilitation services

Introduction

6.1 People who use rehabilitation services are not a homogeneous group; they have widely differing needs and require a range of services in a variety of settings. Getting the balance of provision right is a difficult task given the number of different agencies involved and the variations in resource availability. Facilities may range from a simple administrative base for an outreach team to wider-ranging facilities provided within acute general hospitals and community hospitals.

6.2 This chapter describes facilities for separate elements of a general rehabilitation service that can be put together as circumstances dictate. NHS Estates’ HBN 36 – ‘Local healthcare facilities’ (under review) makes specific reference to rehabilitation services within primary healthcare centres and local healthcare resource centres. For other community-based services refer to ‘Community hospitals’ (in preparation). A range of innovative models for rehabilitation services is given in Appendix 1.

6.3 Facilities for rehabilitation will vary depending on the medical conditions being treated. It is essential that architects consult with the appropriate professionals and users to determine the necessary range of facilities.

General planning issues

6.4 Two particular space planning and functional issues require special mention: the flexibility of functional spaces, and accessibility for those people requiring rehabilitation. These issues apply to rehabilitation services provided within community settings and acute general hospitals. As well as accessibility into and around any healthcare premises, consideration should be given to transport options for patients, visitors and staff to and from the facility. Healthcare providers should contact their local authority transport service to discuss the level and type of service it is able to provide.

Flexibility

6.5 The need to create flexible healthcare environments has never been greater, and nowhere is this more appropriate than in rehabilitation facilities.

6.6 Many space utilisation and functional suitability studies have reviewed rehabilitation “departments” and found them to be under-used or over-sized and, frequently, very expensive to adapt for alternative uses.

This is despite a continuing and growing need for rehabilitation services.

6.7 The revenue costs of owning, operating and staffing these facilities are considerable, and increase in direct proportion to the quantity of floor space provided. It is therefore incumbent on the planners and designers of rehabilitation services and facilities to ensure that they are as flexible and as fully used as is practicable.

6.8 It should be remembered that many general multi-purpose spaces may be suitable for providing rehabilitation functions with little or no modification. This approach meets requirements of sustainable construction, saves money from expensive redevelopments, and maintains service provision. Similarly, specialist rehabilitation facilities should be designed to maximise the opportunities for the flexible use of those areas for alternative functions at different times.

6.9 Flexibility can be increased by using:

- “open-plan” construction systems;
- proprietary demountable partition systems;
- standard-sized consulting and examination rooms, interview and counselling rooms, seminar/training rooms etc;
- locations which have space to grow laterally (either internally or externally) – for example, located next to “soft areas” which can be easily moved elsewhere;
- locations which have hardstandings adjacent for “mobile” facilities.

6.10 Just-in-time (JIT) stock systems can also be employed to alleviate floor space pressures and to unlock seemingly inaccessible and inflexible spaces.

6.11 The need for flexibility should be balanced with the need for patient privacy and confidentiality, as well as practical issues such as storage space for equipment.

Accessibility

6.12 The Disability Discrimination Act 1995 states that disabled people must not be discriminated against by additions and adaptations to the built environment. Much guidance has been produced by many agencies (see References) to clarify what is required to fulfil these obligations, and planners of rehabilitation facilities must clearly follow these requirements. However, the special
nature of rehabilitation facilities means that there is an even greater obligation to ensure accessibility into and around these spaces. For example:

- Simple wheelchair accessibility is not sufficient. Many people using rehabilitation services will have specially extended and adapted wheelchairs. These should be able to negotiate the corridors, lifts and doorways, and turn within the facility.
- Similarly, rehabilitation facilities frequently feature mechanical lifting hoist and tracks so that, for example, a patient may be transported from a bed to a bathroom/WC. Such requirements will affect the room dimensions, internal layout and ceiling specifications.
- A significant amount of space is required for storing equipment. Space will often be required for equipment whilst it is in use, and for its storage elsewhere when not in use. Equipment which is used in an inappropriate space or stored inappropriately rapidly becomes viewed as an accessibility issue and has health and safety implications.
- If ramps cannot be avoided, they should be constructed to a gradient suitable for people in self-propelling wheelchairs, with hard-standing, non-slip surfaces, and wide enough for the accompanying carer. A continuous handrail along the ramp should be provided for ambulant users.
- If lifts are to be installed they will need to be spacious enough to accommodate large mobile hoists or a wheelchair user and carer, and be able to be operated by sitting users or those with sensory impairments. Lifts should be fitted with visual, as well as audible, alerting systems in the case of fires or other emergencies. Systems need to be in place to inform a deaf person, when pressing a lift alarm, that help is coming.
- Arrangements may have to be considered to enable dogs (whether guide dogs for the visually impaired or hearing dogs for those with hearing impairments) to attend with the patient. A canine relief facility should be introduced at a location close to the entrance and waiting area.

Further guidance on access is given in chapter 3. See also HFN 14 – ‘Disability access’.

6.14 The facilities required for general rehabilitation can be broken down into a series of spaces as follows (paragraphs 6.15–6.142).

Parking spaces

6.15 Dedicated parking spaces for people with disabilities who are able to drive, should be as near as possible to the entrance and wide enough to enable an independent wheelchair transfer. Such spaces should be clearly identified by adequate signage. Consideration should be given to controlling the misuse of these facilities. Additional space may be required for driving assessment equipment. The distance between the car parking area for people with disabilities and the entrance should be level or sloped, of sufficient width, and of an appropriate surface. See also HFN 21 – ‘Car parking’.

Entrance, reception and waiting spaces

Entrance

6.16 Ideally the entrance should be a true, level access with wide, electronically operated, automatic doors. Depending on the size of the building, the entrance may include an entrance canopy, a draught lobby, a foyer and a reception desk. Whatever its size, the entrance should be well signposted and fully accessible to people with disabilities, including people on trolleys. There should be a two-way communication system at the entrance door for carers and patients to call for assistance as necessary. Communication systems should be accessible to people in wheelchairs, and those with cognitive learning difficulties, sensory impairments (including deaf people, for whom a voice transfer system will be inappropriate) and reduced manual dexterity.

Reception desk

6.17 The reception desk should be clearly signed and adequately illuminated and should provide a low, open, friendly facility that does not give any sense of a physical or organisational barrier. One section of the desk should be low enough for children and people in wheelchairs. Where security considerations dictate the use of window grilles (see paragraphs 5.6–5.9 on personal safety) or where the reception area is noisy, consideration should be given to the use of an induction loop and/or voice transfer system. Such systems should be clearly advertised and staff should know how to operate them.

6.18 This is the control point for access to the facility, and its position by the entrance facilitates the greeting of each patient on arrival. It should overlook the entrance lobby.
and the waiting area. Systems to alert patients that it is their turn to be seen should take account of those with sensory disabilities. Consideration should be given to visual, as well as audible, systems.

Waiting area

6.19 This area will cater for patients who need to wait with escorts prior to changing or proceeding to treatment areas. Patients may require walking aids or may be in wheelchairs. The area should contain a bay for the safe and secure parking of wheelchairs used for the internal transport of patients. It should also contain a selection of chairs of varying heights and types suitable for patients with varying disabilities. Consideration should be given to providing a selection of payphones (see paragraph 3.10) that are suitable for patients with varying disabilities.

6.20 The waiting area is a useful place to display information leaflets for people to take away and study. Any written material should take account of the needs of blind and partially-sighted patients.

WC

6.21 WC facilities should be provided for staff, patients and visitors. Their location should be obvious, to spare people the need to ask directions. They should be accessible for disabled people, and the route to them should be easy to navigate. Consideration should be given to providing left- and right-handed access WCs that will allow patients to practise transfers on each type. Consideration should also be given to providing automatic WCs which allow people to attend to their own hygiene needs. Because of the patient population, it may be prudent to provide more than the usual number of accessible WCs. These should be large enough to accommodate a mobile hoist, plus at least one nurse or therapist. Foot-operated waste bins are inappropriate in accessible WCs. Baby changing facilities may need to be considered.

6.22 Maintaining privacy is important. Individual toilets should be designated as single-sex, and users should be spared the need to go through or near to opposite gender areas when they are wearing nightwear or theatre gowns or are otherwise exposed. This may mean that each department needs its own WCs, although dependent upon layout it may be possible for facilities to be shared (for instance between different therapy areas). It is not usually necessary to provide separate staff WCs, except in staff changing areas.

Cloakroom

6.23 A cloakroom where patients and visitors can leave hats, coats etc may be provided. Coat hooks should be positioned so that people in wheelchairs can reach them.

Administration spaces

6.24 Office accommodation should be planned to be as flexible as possible. It may not be necessary to have a separate staff office for each discipline; in fact, sharing office space can improve communication and facilitate multidisciplinary team working. Open-plan offices with demountable partitions to create cellular offices are much more flexible than traditional cross-wall constructed offices. Consideration should be given to employees with physical and/or sensory disabilities to enable them to access their workstations without risk to their health. This will apply to all areas.

Office (single person)

6.25 A single-person office should accommodate a workstation with VDU and keyboard, seating for up to three other people, and storage for books and files.

Office (multi-person)

6.26 A multi-person office with office workstations is required for a variety of staff. The number of workstations will need to be determined locally.

6.27 Activities include the exchange of information by telephone and through a computer system, together with the written work associated with patient care and treatment. Care plans and assessment work can generate vast amounts of paper, so plenty of storage space for files will be required. Project teams will need to consider local arrangements for IM&T.

6.28 If the office also functions as a reception, it should be located so that staff in the office can see patients coming and going through the front door. This is particularly important in residential accommodation with an “open door” policy, when the main entrance is not locked and residents are free to come and go.

6.29 Community healthcare staff – for example community physiotherapists – who work mainly in the local community may need an office base where they can carry out administrative and clerical duties and communicate with colleagues. Consideration should therefore be given to the provision of a few “hot desks”. The number of hot desks required will vary depending on individual working situations.

Case conference room

6.30 A large room is required for staff meetings, case conferences etc. Furniture and equipment may include semi-easy chairs, upright stacking chairs, bookcases, a wall-mounted whiteboard and display panel, and facilities for storing various items. Consideration should be given to
the provision of an induction loop and/or voice transfer system.

6.31 Project teams should consider the options for using this room as flexibly as possible. Case conferences are likely to be limited to office hours. With judicious choice of furniture, floorings and lockable storage, the space may be useful for general meetings, seminars, one-to-one interviews, counselling and evening group activities.

Records store

6.32 The need for a records store will depend on the local operational policy for storing and accessing health records. The size of the store will be determined by the method of storage and the number of records to be kept, which in turn is dependent on the number of patients in contact with the service. The schedules of accommodation in chapter 8 list the records store as optional, as records may either be held by the patient or stored electronically.

Clinical and therapeutic spaces

Sub-waiting space

6.33 A small sub-waiting space may be required for patients who need to wait for treatment, or for any other purpose. Staff should be able to observe waiting patients.

Consultation/examination room(s)

6.34 A consultation/examination room(s) may be used for procedures of a clinical nature, as well as for pre-admission assessment clerking and examination of patients on admission. An office workstation that includes space for a VDU and keyboard should be provided in all consultation/examination rooms. Requirements for resuscitation equipment will vary depending on the nature of the facility.

Assessment/interview room(s)

6.35 A room is required in which patients who require privacy can be assessed and treated. Treatments include psychological assessment, perceptual training and the use of a personal computer. The room should also be used for general interviewing purposes and study. It should be carpeted.

Physiotherapy spaces

Patients’ changing facilities

6.36 Some patients will need to change for treatment. They will require the privacy of changing accommodation for this. Others may be directed into individual treatment cubicles or into the activity area. During treatment patients may need to move from one area to another. Adequate circulation space is also needed for the movement of patients in wheelchairs or using walking aids. A WC must be provided which is suitable for use by disabled people.

Activity areas

6.37 Active treatment of patients will be undertaken in the activity area, with individual patients or groups of patients whose treatment does not usually require privacy. The activities taking place generally need more space than is available in individual treatment cubicles.

6.38 The treatment may involve using equipment which needs an ample amount of space. Some items of equipment are free-standing, others are fixed. Some equipment will need all-round space, for example exercise tables, benches, parallel bars, weight systems and exercise ergometers. In addition to the space for free-standing equipment there must be room for patients to participate in group exercises, including activities using and throwing balls.

6.39 The overall space will need to accommodate a wash-hand basin, some chairs and a small desk/table for use by therapists. In planning the whole area, account should be taken of the diverse needs of patients using the facilities.

6.40 Two distinct activity areas may be required, described in this document as the “large” and “small” activity areas. Each area requires a direct entrance from the circulation corridor. In a small department a sliding folding partition between the “large” and “small” activity areas may provide flexibility of use. Equipment storage space may be common if the areas are adjacent.

6.41 The planning of both areas should take into account the need for supervision, from every point in the room, by therapists; the grouping of the equipment in relation to the open area; the avoidance of patient/staff cross traffic; the possibility of the two spaces communicating with each other; and the need to have access to an outdoor space to enable patients to take exercise in the open air. The main requirements for the layout of the equipment are for sufficient wall space, and enough floor space around apparatus for patients to be assisted by therapists from two, three or four sides depending on the piece of equipment being used. It is important to ensure free wheelchair circulation space between items of equipment. The space around equipment should be clearly identifiable by suitable visual, tactile and audible contrast.

6.42 As the overall space is likely to be relatively large, a minimum ceiling height of about 3.2 m is recommended so as to prevent the space becoming oppressive, and to provide sufficient height for some activities. At least some part of the “large” activity area will require a minimum
ceiling height of 4.5 m to allow patients to practise “over-shoulder” activities and to be accommodated on the top of practice stairs and exercise steps. The walls and floors need to be strong enough to take the load from equipment. As there will be a lot of movement, a hard, smooth, non-slip floor finish should be provided. The ceiling needs to have acoustic absorbent properties, and windows should be placed mainly at a high level, although some floor-to-ceiling glazing judiciously placed will improve the area visually. Lighting should be protected and recessed where necessary. In the “small” area, some carpeting may be needed to enable patients to practise mobility on different surfaces.

6.43 The activity area should be easily accessible from the sub-waiting area, the staff base, physiotherapists’ office and the patients’ changing accommodation. It should be adjacent to the individual cubicle area.

Treatment cubicles

6.44 Treatment in the cubicles may include traction and electrotherapy. This area should be easily accessible from the staff base, physiotherapists’ office and the patients’ changing accommodation. There should be access to hand-washing facilities and water for treatments in the cubicles. The Chartered Society of Physiotherapy produces guidelines which may be useful.

6.45 The cubicles will be formed by washable curtains hung from ceiling tracks, and require adequate space for a couch, chair, mobile equipment and a shelf for small equipment. Provision is required for the hanging of outer clothes. Some cubicles may need to be larger to enable traction apparatus or larger electrotherapy equipment to be used. A welded steel mesh may be required above, behind and/or alongside some of the treatment couches to provide a means of attaching pulleys or other equipment.

6.46 Adequate space is needed within the area to enable wheelchairs and trolleys to pass between the cubicles when the curtains are closed. Where necessary, mechanical ventilation should be provided, and interior designers should consider the need for ventilation when planning and specifying curtain tracks. If the location of the curtains is likely to affect the ventilation, the curtains should be provided with net headings.

Individual treatment room(s)

6.47 An individual treatment room or rooms will be needed for extra privacy, and for some treatments such as ultra-violet light, laser irradiation and respiratory therapy. Good ventilation, blackout, and hand-washing facilities are necessary. An oxygen supply and medical vacuum will be required for respiratory therapy. These may be provided by either portable apparatus or by terminal outlets from the hospital medical gases installations if the latter are located nearby.

Wax treatment and ice preparation

6.48 The use of paraffin wax and ice will require the provision of a room adjacent to treatment cubicles, and with easy access to the activity areas. This must have a washable non-slip floor from which wax, ice and water can be easily cleared. The area should be very well ventilated.

6.49 The ice-making machine will require appropriate plumbing. Storage space for wax, treatment towels and packs is essential, together with arrangements for drying towels. A sink which will also allow the safe filling of a foot bath and draining board are required. Facilities for the washing of patients’ hands and feet are also needed.

Splint preparation

6.50 The splint preparation room is required for the construction of made-to-measure splints. The room should be large enough to accommodate a patient on a trolley, and should ensure privacy for patients being measured and fitted with splints. Mechanical extract ventilation will be required because of the heat and dust. Adequate space for the storage of equipment and materials is required. If plaster is used, a sink with a drainage filter must be installed. A workstation for making wheelchair-pushing gloves or pressure garments for patients may be needed.

6.51 The facilities will be used by both physiotherapists and occupational therapists, and should be easily accessible from the physiotherapy and occupational therapy treatment areas. They may therefore be located within the occupational therapy spaces rather than here within the physiotherapy spaces.

Storage

6.52 In addition to the general store, secure storage is required for the various items of equipment likely to be used in the activity areas, including mobile equipment and walking aids. This space must be sited adjacent to or within the activity areas: it should be possible to move apparatus easily into and out of the storage space and to withdraw or replace individual items without disturbing other items. Secure storage is also required in the treatment cubicles area for small items of equipment such as portable electrotherapy appliances.

Hydrotherapy spaces

6.53 Hydrotherapy should take place in water heated to a temperature of between 34ºC and 40ºC. The suite should be a self-contained operational unit so that it can be
closed for maintenance or other reasons without affecting the rest of the physiotherapy facilities.

**Entrance**

6.54 The entrance consists of: a staff base; a bay for parking wheelchairs, stretchers, trolleys etc; and a sub-waiting area for transferring patients from ward stretchers to pool trolleys. The staff base should provide facilities for the storage of patient records, and administrative activities related to patient and pool management. It should have easy access to the whole of the hydrotherapy suite, with an overview of the pool entrance and rest area. Appropriate resuscitation equipment should be centrally located and immediately accessible. Consideration may be given to sharing the entrance facilities with other spaces.

**The pool**

6.55 There is no single pool design that will cater for the needs of all categories of patient with entire satisfaction. Consideration should be given to a wide range of available options of size, shape and depth at the planning stage. The requirements of prime users should be identified and met.

6.56 The pool arrangement is usually classified according to whether it is constructed above floor level with the water contained behind a parapet, or sunk below floor level.

6.57 A parapet pool needs a “freeboard” of at least 100–150 mm to prevent water escaping when the level is displaced by persons entering the pool. Scum channels should be positioned at this level to control the water depth and remove pool surface contaminants. A similar arrangement of scum channels should be provided in a sunken pool where the water level is below the surrounding floor level. An alternative arrangement can be considered for a sunken pool whereby horizontal gratings above channels are provided at the surround level so that the water surface is literally at floor (or “deck”) level. The surround would have drainage cross-falls to the gratings. The channels of a deck-level pool are wider than the conventional scum channels and have to be connected to an appropriately-sized balancing tank, usually installed under the pool surround, to cater for water displacement when persons enter the pool.

6.58 Access to and exit from a deck-level pool is often easier for patients with disabilities and in an emergency evacuation, but eye-level surveillance of patients in the water may be better in a parapet pool. It is possible to consider a deck-level pool which has a sunken staff access along one side only to provide supervision at parapet level. Occasionally the inherent geological or geophysical features of a particular site will inhibit the practicability of constructing a pool below existing ground levels.

6.59 Hydrotherapy pools generally need to be between 1.0 and 1.2 m deep, but no single pool depth can meet the optimum requirements for the treatment needs of all patients. Two different depths can be provided in one pool by constructing a “stepped” bottom, but it will be necessary to define clearly these different areas by means of contrasting pool floor and wall colours. No attempt should be made to lower the normal water level of a pool to accommodate different treatment depths, as this will negate the function of the scum or deck level channels, in association with the water recirculation and treatment system, in maintaining water quality including the removal of surface-borne contaminants.

6.60 Figure 6.1 illustrates a pool design which is considered to cover an acceptable range of potential usage by a variety of patients, including those who will need to enter and exit the water by means of an appropriately operated adjustable hoist. The use of rails and well-defined nosing to steps will improve access to the pool for patients not requiring a hoist.

6.61 The structure forming the hydrotherapy pool tank is usually reinforced concrete, but other forms of construction have been used for parapet-type pools. The cost allowances assume a reinforced concrete tank construction, finished with ceramic tiles using water- and chlorine-resistant adhesive and grouting. Tile finishes should be matte, and tiles for the floor should contrast with the walls.

**Pool services**

6.62 Continuous filtration and disinfection of the hydrotherapy pool water is essential to control water quality within acceptable limits. Details of the guidance on the chemical and microbiological aspects of the health risks to patients and staff, and of the engineering plant and chemical dosing equipment required, are given in Appendix 3. Detailed guidance on the microbiological aspects of the health risks and the advantages and disadvantages of the various options for chemical dosing treatments are given in ‘Hygiene for Hydrotherapy Pools’ (under review), published by the Public Health Laboratory Service.

6.63 The hydrotherapy suite air environment will be demanding because evaporation from the pool will produce an excessive chemically-aggressive humidity at a high ambient temperature. This will require appropriate ventilation and heating systems, for which detailed engineering design guidance is given in Appendix 3, and must also be taken into account in the design and choice of building materials and components.

6.64 The pool hall floor and all surrounding areas including changing facilities and toilets should be covered in non-slip, easy-to-clean materials. The area surrounding
Figure 6.1 Hydrotherapy pool
the pool should be free of obstructions, allowing access to
the poolside by a crash team with a resuscitation trolley to
attend a patient who is having a cardiac arrest. Cardio-
 pulmonar y resuscitation will begin at the poolside, but
patients should be transferred to an adjacent dry area
with a trolley (for example a changing room) before
defibrillation is carried out.

6.65 Natural lighting of the hydrotherapy pool hall is
desirable, but privacy and safety should be considered.
Double-glazing of windows will minimise condensation.
However, care must be taken to ensure that sunlight does
not reflect off the water’s surface, causing distraction or
glare. Similar considerations apply to artificial lighting,
which should be installed so that replacement of lamps
and fittings is not unduly difficult. Detailed engineering
design guidance for the pool lighting installation is given
in Appendix 3.

6.66 An emergency alarm call system should be provided,
and pull cords to activate it, both from within the pool
and from the surrounding area, need to be sited within
reach of the therapist. Guidance on alarm call systems is
given in more detail in paragraphs 7.67–7.70.

6.67 Essential features for the economical operation of a
hydrotherapy pool are the provision of energy recovery
plant for the pool hall ventilation system and a thermally
insulated, floating cover which should be in position at all
times when the pool is not in use. This cover should be
stored on a manually operated floor or wall-mounted
roller – usually located at the pool end remote from the
access steps to avoid obstruction. The cost allowance (see
chapter 8) is for a flexible floating pool cover constructed
from a high-density closed-cell core bonded to a woven
covering, and a heat pump unit integrated into the pool
hall ventilation plant for energy recovery (see chapter 8).

6.68 The diffusion of high air temperature and humidity
from the pool hall into the changing accommodation and
patients’ rest area should be mitigated as far as is
reasonably practicable. Precise control will be physically
impossible, but acceptable conditions can be achieved by
appropriate design of the ventilation systems (see
Appendix 3 for details) in conjunction with restricting the
number of access points into the pool hall. These should
be limited to standard door height openings, respectively
positioned in the walk-through showers and in the
partition separating the staff base from the pool. If the
latter opening does not give adequate supervisory
overview, the separating partition should be glazed.
It is anticipated that the pool hall will generally be of
substantially greater internal height than the adjacent
ancillary accommodation in the hydrotherapy suite. This
will provide a natural “canopy” above the pool which will
greatly assist the desired air movement control.

Pool counter-current unit (optional facility)

6.69 Some patients may benefit from a treatment
programme which includes sustained “swimming”.
This is not normally practicable within the relatively small
dimensions of a hydrotherapy pool. However, counter-
current generating units are available which permit
“swimming” to be undertaken without lateral or forward
motion. These consist of a local pumping assembly which
sucks water from the pool and then returns it to just
below pool water level via a nozzle which can be
regulated to give varying strengths of discharge jet. These
units must be securely fixed at the side of the pool and
are usually supplied with appropriate base plates and/or
strands suitable for bolting to the pool surround. They also
require a permanent electrical supply and controls which
comply with safety requirements (see Appendix 3). An
optional cost allowance is provided for this facility.

Patients’ changing

6.70 An area in which patients can change in privacy
with nearby lockers to securely store their clothing and
valuables is required. It should be adjacent to the showers.
Changing cubicles should be provided for use by
ambulant patients who need little or no assistance. It is
assumed that men and women will be treated in different
sessions – the cheapest solution for the provision of
single-sex changing space is a management one. Patients
who require help in dressing and undressing may change
in one of the larger cubicles provided in the adjacent
recovery area, or in the trolley access shower area.
Appropriate space will be required for the reception and
transfer of these patients, and for parking their bed or
trolley during treatment. Staff may use this area if
alternative suitable facilities are not conveniently located.

Patients’ rest area

6.71 An area where patients can lie down, rest and
rehydrate on couches after treatment is necessary.
The area should be adjacent to the patients’ changing
accommodation and may be combined with the changing
area if this is a practical option. Couches should be
provided in curtained cubicles, some of which should be
large enough to accommodate a patient on a trolley.
These cubicles would also be used by such patients for
changing. A drinking-water point and beverage station
should be provided in this area in accordance with whole
hospital policies. Such facilities should be accessible to
people with disabilities, including those with reduced
manual dexterity.

Showers

6.72 Shower facilities are required for all users before
entering and on leaving the pool. Consideration should be
given to the provision of a range of showers to suit
patients with varying disabilities (see also paragraph 6.104). Overhead tracking for the use of hoists may be necessary.

6.73 Adequate toilet accommodation is required to maintain patients’ privacy within this facility. See paragraphs 6.21–6.22.

Storage

6.74 Space is required for rinsed hydrotherapy equipment to be dried and stored while not in use. Storage space is also required for hydrotherapy suite cleaning materials and equipment, and the water testing materials and apparatus.

Laundry/utility room

6.75 Space and facilities are required for clothing to be rinsed and dried after use. Space is required for storage of fresh towels and towels in use, gowns, swimwear, pillows and linen required in the rest area, and also the storage of dirty linen items pending collection.

Plantrooms

6.76 Plantrooms will need to house the equipment for pool water treatment and ventilation. Detailed information is provided in Appendix 3.

Occupational therapy spaces

Activity areas

6.77 In small-sized accommodation it may be unnecessary to provide both light and heavy activity areas, and one large area may fulfil both functions. It is important that the layout of the room allow for heavy/noisy activities (see paragraph 6.87) to be at one end of the room, leaving the other available for cleaner, more clerical-orientated activities, as identified in paragraph 6.80. The room may also be used for group activities when its overall space availability will be important.

6.78 The safety of patients and the need to comply with all statutory regulations and protection requirements must be taken into account in the layout and design. It must be possible to switch off all electrically-operated therapy equipment in an emergency. All such equipment must be guarded and maintained in accordance with health and safety requirements.

Light activities area

6.79 The light activities area requires desk and table space, some of which will need to be at varying heights. Patients will sit or stand and can undertake:

- clerical and office tasks, for example writing;
- copying, typing, guillotining;
- educational work, for example mathematics;
- remedial games;
- various creative activities;
- light assembly work;
- work with a personal computer.

6.80 The activities detailed in paragraph 6.79 can be divided into those requiring space for:

- work tables for writing, playing board games and undertaking small assembly tasks. Sufficient space will be needed to allow a therapist to sit on one side of the table with the patient sitting opposite, as well as tables with space on either side of the patient;
- work tables with equipment requiring space on either side of the patient to undertake tasks, for example using a computer for therapeutic purposes;
- free-standing equipment;
- positioned activities, for example wall games.

6.81 The overall layout needs to take into account the space requirements of different activities such as printing press, driving assessment and so on. (If a printing press is installed an overhead mesh will be required.)

6.82 Changing philosophies relating to treatment of patients, for example early discharge from hospital and/or treatment, may affect the amount and choice of equipment required in the occupational therapy heavy and light activities areas.

6.83 The area contains equipment and apparatus which will assist patients to regain motor, cognitive and sensory skills. Some of the activities may be used to stimulate interest and concentration. Acoustic treatment of surfaces, screening and skillful illumination should be used by the designer to reduce distraction.

6.84 Adequate space will be required for attendance on patients by staff, for wheelchair access, and for flexibility in positioning patients and equipment.

6.85 The area requires a ready access to stores and needs to be easily supervised. An open, rectangular plan rather than an L-shape or long and narrow plan should be adopted. A hard and smooth floor finish is required. Walls should be washable and capable of taking adjustable wall fixings. Many of the activities will be intricate and will require a good standard of natural and artificial light as well as a pleasant external aspect to allow eyes to rest after a period of concentration. Adequate storage is necessary for equipment, materials and ongoing work.
**Heavy activities area (optional)**

**6.86** Heavy activities can include, and may require space for:

- sawing, hammering, drilling, sanding, light metal work;
- painting and varnishing;
- the use of hand or electromechanical equipment.

Benches and equipment may need to be at varying heights to accommodate wheelchair users and patients who may be sitting or standing.

**6.87** The general layout must take account of the varying space and environmental requirements (see also paragraph 7.33) of different activities. In addition, external access is desirable to enable direct delivery of materials to the heavy activity storage area.

**6.88** The layout of machines, benches and storage cupboards will be determined on individual merit depending on the shape of the room, position of entrance, position of windows and work to be undertaken. The spacing of equipment items should be such as to enable ease of supervision, arrangement and removal of benches, ease of servicing machines, the easy supply of materials, and ease of movement of patients in wheelchairs.

**6.89** Floor finishes should be non-slip, hard and impervious to oil spillages. The ceiling should be acoustically absorbent to reduce noise levels. A good standard of natural and artificial lighting is necessary. The latter should be well balanced between task and background lighting. Washing facilities are required within the area for washing and brush cleaning. Secure storage in cupboards will be necessary for small tools and items of equipment.

**6.90** The safety of patients and the need to comply with all statutory regulations and protection requirements must be taken into account in the layout and design. It must be possible to switch off all electrically-operated therapy equipment in an emergency. All such equipment must be guarded and maintained in accordance with health and safety requirements.

**IT therapy room**

**6.91** Access to IT systems has been found to have several benefits. It:

- develops new skills which can be used to obtain employment or for numerous leisure purposes;
- provides a welcome source of recreation;
- supports creative activities;
- frees up specialist staff and carers’ time.

The IT therapy room will include one (or more) computer bays which are accessible to patients in wheelchairs. A braille keyboard and/or keyboard with large function keys should be available for blind/partially-sighted patients, as well as speech facilities for those with reduced manual dexterity. The room could be adjacent to or part of a library/information centre.

**Storage**

**6.92** Designers should consider the possibility of combining activity areas and associated storage spaces where it is appropriate to do so, particularly in small-sized accommodation. Long lengths of timber, mostly mopstick handrail and large sheets of ply, will need to be stored. These can sometimes be accommodated down the long wall of the heavy end of the activity area, provided there is proper racking both to prevent warping and for safety reasons. For small departments, the timber and metal store and material and equipment store can probably be combined with additional storage space for loan wheelchairs. These are used by in-patients awaiting the arrival of their own chair and are not used for assessment. Attention should be paid to the storage of flammable items, to ensure compliance with statutory requirements. Security should also be adequate to minimise the risk of unauthorised entry and pilfering.

**6.93** A dry, ventilated room with racks and shelves is required for the secure storage of timber and metal (of varying lengths up to 5 m) used in the heavy activity area. Direct or easy external access for the delivery of such materials is essential, but it is equally important for the store to be sited so that materials can be manoeuvred easily to their point of use. Some room shapes and dimensions may preclude the buying of economical sizes of timber.

**6.94** Space is required in which to store patients’ ongoing work. Racking and shelving will be required. Easy access to both light and heavy activity areas is necessary.

**6.95** Secure storage is required for materials and equipment issued for use in patients’ treatments. Some equipment may also be loaned to patients. Some racking and shelving will be needed.

**6.96** Secure storage will be needed for equipment belonging to community services (usually social services departments) which can be issued to patients before discharge (raised toilet seats, walking frames, eating aids, dressing aids etc). If located outside the rehabilitation department, the store should be easily accessible and be sufficiently secure to ensure appropriate access only.
Space will be required for unpacking and sorting. It is assumed that records of these items will be maintained in the occupational therapy department. Returned equipment will need to be cleaned prior to storage. If this is done on-site, adequate cleaning facilities will be required.

6.97 Storage is required for a range of wheelchairs and accessories used for assessment purposes and for associated equipment and attachments. Space is required within the storage area to manoeuvre wheelchairs. Consideration should be given to security to ensure that wheelchairs are not moved away from the department and used for other purposes. This space needs to be associated with the light activities area and to be accessible to physiotherapists.

Activities of daily living

6.98 Wherever possible, patients should relearn and practise procedures of daily living in their own homes or in the real environment. Ideally, purpose-built facilities for “activities of daily living” (ADL) should only be used for more complicated tasks with specific equipment requirements.

6.99 These purpose-built facilities should aim, as far as possible, to simulate domestic environments. This will not be possible in the bathroom, where additional space is required for comprehensive assessments using equipment with which patients will need to practise. The kitchen will also need to be larger overall, but the design should allow the space to be divided into two areas – one housing an electric cooker, the other a gas cooker – which will reduce the workspace to more domestic dimensions.

6.100 ADL flats tend to be under-utilised. To prevent this happening, consideration should be given to designing the ADL flat as a multi-function space which may also be used at agreed times for meetings, counselling, evening classes etc. Care should also be taken at the planning stage to avoid duplicating facilities already available locally.

Bed sitting room

6.101 One room containing appropriate bedroom furniture is required to undertake the assessment and training of patients in dressing and undressing, grooming, bed-making and the use of bedroom furniture. Sufficient space should be allowed for patients to practise using a variety of chairs. Training and advice will be necessary in some cases in the use of lifting poles and manual or electric hoists. An electric hoist should be positioned in order to lift a patient – from sitting or lying position – over and into a bed. Two bedrooms may be required in the largest units due to the number of patients and the time taken to practise dressing and undressing. It is not necessary to equip the second bedroom with an electric hoist. A carpet floor finish is appropriate for the bedroom.

Bathroom

6.102 Some patients will need to learn new methods of bathing, washing and using the WC while therapists assess patients’ requirements with appropriate equipment. Space is required to enable patients with walking aids or in wheelchairs to approach the equipment in a similar manner as they would in their own homes. This space will also allow patients to practise with different pieces of equipment. Consideration should be given to the use of variable height washbasins to suit both ambulant and wheelchair patients.

6.103 The bathroom should accommodate the use of a mobile hoist by providing the necessary space beneath the bath. Practice with this type of equipment will be necessary for both patient safety and the instruction of relatives. A fixed hoist should also be provided. It should be positioned in order to lift a patient – from sitting position – into the bath or over the WC.

6.104 In view of the fact that many patients find it difficult to have a bath, it is recommended that a shower is also incorporated. This should have level access for wheelchair users and a thermostatically controlled water inlet. The shower controls should be within the shower but accessible from outside the shower area and positioned at a height appropriate for a wheelchair user. Controls should be easy to identify and operate. The bath, shower, WC and washhand basin should be fully operational. The WC should be accessible by wheelchair from either side, but otherwise should be of normal domestic type.

Kitchen

6.105 The kitchen will provide the area in which therapists assess and rehabilitate patients in the preparation and cooking of food, the serving and eating of meals, and washing up. Patients will be assessed in their use of eating utensils and their need for the prescription of appropriate equipment. Space should be provided to display the many items currently available. Storage is required for food, cooking utensils and disability equipment. Mechanical extract ventilation should be provided.

6.106 A gas cooker, an electric cooker, a microwave oven and a fridge-freezer should be provided and all should be fully operational. The two main cookers should be placed at opposite sides of the room to each other, allowing the room to be divided. This will reduce the actual workspace of each “kitchen” to more domestic dimensions. Controls to cookers and other kitchen appliances may have adhesive markings to assist those
with poor vision. A variable-height sink for use by areas that can accommodate both seated and standing users is recommended. This will maximise the assessment opportunity for therapists needing to recommend optimum sink heights for individual patients. Worktops, shelves and cupboards should be suitable for both ambulant and wheelchair patients. The front edge of worktops should enable equipment to be clamped onto them. A section of the worktop should have a lip to reduce the potential of spilled liquids falling upon the floor. There should be the provision of local lighting on the worktops to increase the visibility of objects. There should be a space for a normal height table suitable for at least four patients to eat meals.

Utility/laundry room (optional)

6.107 If a utility/laundry room is considered necessary, it should contain a domestic automatic washing machine, a tumble dryer and a domestic ironing board. All should be fully operational. Within this space, therapists will assess and rehabilitate patients in undertaking washing and ironing of personal clothing. Adequate space is required to enable ambulant patients, with or without walking aids, and wheelchair users to move around the space with the therapist.

Speech and language therapy spaces

Individual treatment room

6.108 This room should be large enough to accommodate a therapist and patient (who may be in a wheelchair) plus a family member and/or an assistant speech and language therapist. The room should have natural light. It must also be mechanically ventilated and acoustically treated, making it suitable for recording and sound-sensitive equipment. There should be storage for files, clinical materials and small assessment items. Hand-washing facilities and a full-length mirror, either fixed or free-standing, are also required. A large speech and language therapy section may require more than one individual treatment room. In large units it is good practice to separate office from clinical space. Where the therapist is single-handed, a combined office/treatment room may make more efficient use of space. For further information on acoustically treated rooms please refer to HTM 2045 – ‘Acoustics’.

Group treatment room

6.109 The group treatment room should be sufficiently large to accommodate up to ten patients (some of whom may be in wheelchairs) plus a therapist and two assistants. As groups of patients may attend for several hours, beverage making and hand-washing facilities should be provided.

Viewing facilities

6.110 In order to demonstrate treatment programmes to partners/carers and also for student teaching purposes, CCTV/video facilities should be installed in one of the treatment rooms. Alternatively, a one-way viewing window and wiring for sound may be used. This can be between the group and the individual treatment rooms or, to avoid putting one of the treatment rooms out of action, a small viewing room may be installed between the two rooms. Many therapists will also use the video/TV screen for reviewing videofluoroscopy films.

Storage

6.111 It is important that communication aids and other expensive micro-electronic equipment are securely stored and that there is adequate space for this storage.

Podiatry spaces

Patients’ changing facilities

6.112 Patients may share changing facilities with physiotherapy patients. Alternatively, the treatment room should include a curtained-off area to allow patients to change in privacy. The area should be large enough to accommodate a patient in a wheelchair and contain a chair for ambulant patients and a hook for coats.

Treatment room

6.113 The overall space will need to accommodate a wash-hand basin, a range of equipment (see paragraph 6.114) and a small desk/table for use by the podiatrist. It should be fully accessible to a patient in a wheelchair or a patient with physical and/or sensory disabilities. A height-adjustable chair/trolley that can recline into a horizontal position will be required for patients being treated. The podiatrist will be seated in a height-adjustable chair on castors and will require a good quality adjustable light. The room should be well ventilated and have vinyl flooring. Consideration should be given to a multi-purpose treatment room that is shared with other therapists.

6.114 Podiatrists need the following equipment:

- bench-top autoclave and ultrasonic instrument cleaner;
- vacuum cleaner;
- nail drill;
- trolley for transporting and storing equipment;
- bin for the safe temporary disposal of sharps (see paragraph 5.22).
Splint preparation

6.115 A splint preparation room may be required for the construction of made-to-measure splints (see paragraphs 6.50–6.51). This will usually be located within the physiotherapy or occupational therapy spaces and ideally should be adjacent to the podiatry spaces.

Garden/outdoor spaces

6.116 A garden or outdoor space is particularly useful for occupational therapy and physiotherapy. It should accommodate the needs of patients with sensory deficits as well as wheelchair users and the ambulant, and be sited close to the occupational therapy and physiotherapy spaces. Shared areas for occupational therapy and physiotherapy mobility assessments would ideally be sited here.

6.117 The construction of steps and stairs with handrails, as well as areas with a variety of surfaces, may be incorporated into the landscape. Consideration should be given to the safety of users, for example by use of toughened glass in the spacious greenhouse or conservatory, wheelchair accessibility, and variable-height work surfaces for potting and storage indoors and planting outdoors. Further detail is provided in HBN 45 – ‘External works for health buildings’.

Complementary therapy spaces

6.118 Space may be required for the provision of complementary medicines, for example acupuncture, aromatherapy and osteopathy. These services are likely to share treatment rooms with other therapies.

In-patient accommodation

6.119 In some hospitals, patients requiring rehabilitation are cared for in specialist rehabilitation wards. Standard design and building guidance will apply (see HBN 04 – ‘In-patient accommodation: options for choice’); however, rehabilitation wards do have some specific needs. In particular, it may be necessary to provide some or all of the following satellite facilities:

- a larger than usual treatment room;
- overhead tracking for hoists etc;
- a modest gymnasium;
- ADL assessment facilities (see paragraphs 6.98–6.107);
- a sound-attenuated room for speech and language therapy assessment;
- easy, level access to garden/outdoor spaces (see paragraphs 6.116 and 6.117);
- a larger than usual bed space to support patients learning wheelchair skills;
- storage facilities to accommodate a larger than usual number of wheelchairs and free-standing hoists;
- battery-charging facilities for electrically powered wheelchairs;
- accessible toilet and bathroom facilities which allow easy transfer from wheelchairs with or without assistance.

6.120 Specific requirements are heavily dependent on the needs of the patient population; it is essential that local professionals and service users are consulted from an early stage.

Staff accommodation

Rest room

6.121 A staff rest room is required where staff can relax and consume snacks and beverages. The rest room should have windows with a pleasant outlook, be comfortably furnished and include a telephone.

6.122 The rest room may include a beverage bay (see paragraph 6.128).

Staff changing

6.123 The design of the changing facilities will depend on the local operational policy for staff changing. In premises with centralised changing facilities, a small locker room should be provided within or close to the rehabilitation area for staff to hang coats and to keep personal items secure in small personal lockers.

6.124 In premises without central changing accommodation, full changing facilities are required. Provision should be made for the secure storage of outdoor clothing and personal items and for the temporary storage of damp clothes. It is assumed that uniforms will be collected from a central point such as a manned uniform store or an automatic dispenser.

6.125 The accommodation should comprise:

- full-length lockers for the storage of clothing, uniforms and personal items;
- space for changing and a curtained cubicle for those requiring privacy;
provision for the temporary (secure) change of wet clothes;
• a shower;
• washbasins.

WC

6.126 WCs and wash-hand basins should be associated with the staff changing accommodation. At least one WC should be accessible to disabled staff.

Training/seminar room

6.127 Access to a seminar room will be needed for informal conferences, discussions and tutorials. This room can also be used as appropriate for instruction to, or discussion with, groups of patients. This may be dedicated to the department or, with careful planning, might be a shared facility with an adjacent department.

Optional accommodation

Beverage bay

6.128 The rest room may include a beverage bay with facilities for preparing snacks and beverages, for washing and storing crockery and cutlery, for storing a limited quantity of dry goods, and for storing milk etc in a refrigerator. Equipment should include a stainless steel sink and drainer, an electric water boiler, a microwave cooker, a worktop with cupboards, and a wash-hand basin. The need for a dishwasher will depend on whether staff will be using crockery or disposable cups.

Library/information resources

Library/information centre

6.129 The need for rehabilitation can bring with it significant worries and stresses. Many patients find that these new concerns can be better managed if they have access to a broad base of information which starts to answer their questions. Information should be provided in formats which are suitable for blind and visually-impaired patients. Any video material should be subtitled.

6.130 A rehabilitation facility will therefore be improved by the addition of a modest library/information centre. This may or may not be staffed full-time, but will certainly need to be managed.

6.131 The library could provide information on:
• equipment;
• welfare benefits;
• employment;
• health and social services;
• voluntary organisations;
• transport and access;
• holidays and leisure.

The space might be part of a larger room or circulation space, or a separate room.

6.132 The floor area required will depend on the number and type of users, the range of information, types of source, whether it is staffed or unstaffed, whether the space is a room or an alcove, and so on.

6.133 The library could use a simple wall racking or shelving system, island units, tables, chairs and various modern technologies. Whatever furniture is provided, space will need to be allowed for wheelchair access. The space should be well illuminated and clearly signed.

Support spaces

Clean utility room

6.134 This room may be used to store clinical supplies and possibly medications. The room serves as the temporary storage point and testing area for specimens. A stock of colour-coded disposal bags for the bagging of waste materials should be kept here.

Dirty utility

6.135 The disposal room is the temporary storage point for all items of supplies and equipment which have to be removed for cleaning, reprocessing or destruction, for example linen and sterile services department items.

6.136 The waste disposal of used items should be consistent with the current hospital policy for the disposal of clinical waste. Adequate space should be provided for the storage of clinical waste. Where wheelie bins are used, the storage hold should be able to store wheelie bins between 360 to 1100 litres in capacity.

Disposal hold/bay

6.137 A disposal hold/bay should be located close to the service entrance. Adequate space should be provided for the storage of waste.
Domestic services/cleaners’ room

6.138 The domestic services/cleaners’ room is the base from which domestic service staff provide the immediate day-to-day cleaning service. A clinical wash-hand basin and bucket sink should be provided. It should include storage for cleaning materials and equipment in daily use, and facilities for the routine servicing and cleaning of equipment. The room should be well lit and ventilated; mechanical ventilation may be required. Bulky equipment has to be moved out of the room, and this should be taken into account in its location.

Storage

6.139 Adequate space should be provided for storage.

6.140 Adequate space should be provided for linen storage.

Optional specialist areas

Rehabilitation engineering

6.141 This discipline centres on workshops which provide engineering solutions to alleviate the problems of disability alongside rehabilitation therapies.

6.142 Rehabilitation engineering produces one-off devices – “bent metal sections”:

- electronic engineering (similar to medical physics devices);
- special seating (similar to wheelchairs);
- various miscellaneous “imaginative” components;
- plastic mouldings.

6.143 Workshops must be able to design and fabricate engineering devices and could be within either the NHS or private companies. They must comply with the Factories Act 1961 and the Health and Safety at Work etc Act 1974.

Orthotics

6.144 Orthotic devices can be defined as body-worn devices which aid mobility. Various types of boot, shoe and calliper fall into this category.

6.145 Many of these devices are manufactured and supplied by commercial companies, but they frequently use NHS premises to facilitate measurement and fitting, commonly in the physiotherapy department. However, fitting may involve multiple minor adjustments which in turn require a small workshop. Adaptations to wheelchairs and seating may also be undertaken in the workshop. Thus some trusts make a small workshop available (which must comply with the Factories Act 1961 and the Health and Safety at Work etc Act 1974). The workshop should be suitable for simple metalwork, plastic moulding etc. It may be combined with the splint-preparation room.
7.0 Engineering services

General

7.1 The guidance in this chapter is intended to apply to a wide range of buildings. The most appropriate engineering services for any particular facility should be determined locally, following discussions with the mechanical and electrical engineers and a thorough risk assessment.

Model specifications

7.2 The National Health Service Model Engineering Specifications, including the Scotland and Northern Ireland supplements, are sufficiently flexible to reflect local needs. The cost allowance is based on the quality of material and workmanship described in the relevant parts of the specifications.

Economy

7.3 Engineering services are a significant proportion of the capital cost, and remain a continuing charge on revenue budgets. The project design engineer should therefore ensure:

- economy in initial provision, consistent with meeting functional requirements and maintaining clinical standards;
- optimum benefit from the total financial resources these services are likely to absorb during their lifetime;
- whole life-cycle costs to ensure that the most energy-efficient equipment is provided wherever possible – meeting the joint aims of reducing energy bills and harmful carbon emissions. See references (Appendix 4) for guidance on low energy hospitals.

7.4 Where various design solutions are available, the consequential capital and running costs should be compared using the discounting techniques described in the Capital Investment Manual (in Scotland entitled the Scottish Capital Investment Manual).

7.5 The economic appraisal of various locations and design solutions should include the heat conversion and distribution losses to the point of use. Where buildings are located remote from the development’s load centre, these losses can be significant.

7.6 Where the rehabilitation facility is part of a hospital complex, the energy management and accounting system should be part of the hospital building management system (BMS) and this should also include metering of all services where practical. If a hospital BMS is not available, or if the rehabilitation facility is not located on the hospital site, the energy management and accounting system for this department should, where applicable, stand alone. It should also be suitable for subsequent integration with a future BMS. Further detailed guidance is contained in HTM 2005 – ‘Building management systems’.

7.7 In view of the increasing cost of energy, the project team should consider the economic viability of heat recovery. Designers should ensure that those services which use energy do so efficiently and are metered where practicable.

Activity Data

7.8 Environmental and engineering technical data and equipment details are described in the Activity Data Sheets (see chapter 9). They should be referred to for space temperatures, lighting levels, outlets for power, telephones, equipment details etc.

Safety

7.9 The Health and Safety at Work etc Act 1974, as partly amended by the Consumer Protection Act 1987, together with the Workplace (Health, Safety & Welfare) Regulations 1992 and the Provision and Use of Work Equipment Regulations 1992, imposes statutory duties on employers and designers to minimise – so far as reasonably practicable – any risks arising from the use, cleaning or maintenance of engineering systems. One of the requirements of this legislation is to ensure, so far as is reasonably practicable, that design and construction is such that articles and equipment will be safe and without risks to health at all times when they are being set, used, cleaned or maintained by a person at work.

Fire safety

7.10 The project team should familiarise themselves with Firecode, which contains the Department’s policy and technical guidance on fire safety in hospitals and other NHS premises. In Northern Ireland refer to Firecode Policy and Principles. In Scotland refer to Firecode in Scotland.

Noise

7.11 Excessive noise and vibration from engineering services, whether generated internally or externally and
transmitted to individual areas, or noise from other sources, for example speech, which can be transmitted by the ventilation system, can adversely affect the operational efficiency of the department and cause discomfort to patients and staff. The limits and means of control advocated in HTM 2045 – ‘Acoustics’ should provide an acceptable acoustic environment. In Northern Ireland refer to PEL(96)24.

7.12 In addition to designing for control of noise levels, there may also be a need to ensure speech privacy, so that confidential conversations are unintelligible in adjoining rooms or spaces.

Space for plant and services

7.13 Space for plant and services should provide:

- easy and safe means of access, protected as far as possible from unauthorised entry;
- for frequent inspection and maintenance. Sufficient and easily accessible access panels should be provided for this purpose;
- for eventual removal and replacement of plant.

7.14 Recommended spatial requirements for mechanical, electrical and public health engineering services are contained in HTM 2023 – ‘Accommodation for plant and services’. Reference is also made in HTM 2023 to the Construction (Design and Management) Regulations.

7.15 Wherever possible, the distribution of mechanical and electrical services to final points of use should be concealed in walls and above ceilings. Heat emitters should be contained within a 200 mm wide perimeter zone under window sills, and critical dimensions should be taken from the boundary of this zone.

7.16 The 200 mm zone includes the floor area occupied by minor vertical engineering ducts and is included in the building circulation allowance.

7.17 Services contained in the space above the false ceiling, with the exception of drainage, should be confined to those required for the department.

Access to control and disconnection devices

7.18 Devices for the control and safe disconnection of engineering services should be:

- located in supervisory locations as well as in circulation rather than working areas;
- protected against unauthorised operation;
- clearly visible and accessible, where intended for operation by the department’s staff.

Engineering commissioning

7.19 The engineering services should be commissioned in accordance with the validation and verification methods identified in the latest HTMs. Engineering services for which a specific HTM is not currently available should be commissioned in accordance with ‘Engineering commissioning’ published by the Institute of Hospital Engineering (now called ‘The Institute of Healthcare Engineering and Estate Management’ (IHEEM)). Flow measurement and proportional balancing of air and water systems require adequate test facilities to be incorporated at the design stage. Guidance is also contained in a series of commissioning codes published by the Chartered Institute of Building Services Engineers.

Maximum demands

7.20 The estimated maximum demand and storage requirement, where appropriate, for each engineering service, will need to be assessed individually to take account of the size, shape, geographical location, operational policies and intensity of use of the rehabilitation facility.

Mechanical services

Heating

7.21 Spaces heated by low-pressure hot water systems should use radiators of the low surface temperature type. Surface temperatures should not exceed 43ºC. Exposed hot water pipework, accessible to touch, should be insulated. Further guidance is contained in Health Guidance Note – “Safe” hot water and surface temperatures’ (1998).

7.22 Radiators should normally be located under windows or against exposed walls, with sufficient clear space between the top of the radiator and the window sill to prevent curtains reducing the output. With the exception of radiators fitted with full-length covers, there should be adequate space underneath to allow cleaning machinery to be used. Where a radiator is located on an external wall, back insulation should be provided to reduce the rate of heat transmission through the building fabric.

7.23 Radiators in toilet or bedroom areas used by people with physical and/or sensory disabilities should not be sited next to the toilet or bed and should have safety guards or be cool to the touch to prevent burns.

7.24 All radiators should be fitted with thermostatic radiator valves. These should be of robust construction and selected to match the temperature and pressure
characteristics of the heating system. The thermostatic head, incorporating a tamper-proof facility for presetting the maximum room temperature, should be controlled via a sensor located integrally or remotely as appropriate. To provide frost protection at its minimum setting, the valve should not remain closed below a fixed temperature.

7.25 Radiators may also be used to offset building fabric heat loss in mechanically ventilated spaces.

7.26 Flow temperatures to heating appliances should be controlled by the BMS, where fitted, in accordance with space requirements and external temperatures. The system should be zoned to suit the building.

Ventilation (general)

7.27 Air movement induced by mechanical ventilation should be from clean to dirty areas, where these can be defined. The design should allow for adequate flow of air into any space having only mechanical extract ventilation, via transfer grilles in doors or walls. Such arrangements, however, should avoid the introduction of untempered air and should not prejudice the requirements of fire safety or privacy.

7.28 Mechanical ventilation should ensure that both supply and extract systems are in balance, and take account of infiltration as appropriate.

7.29 Fresh air should be introduced via a low-velocity system and should be tempered and filtered before being distributed via high-level outlets. Diffusers and grilles should be located to achieve uniform air distribution within the space, without causing discomfort to patients.

7.30 A separate extract system will be required for “dirty” areas, for example sanitary facilities. It should operate continuously throughout working hours of the facility. A dual motor fan unit with an automatic changeover facility should be provided.

7.31 External discharge arrangements for extract systems should be protected against back pressure from adverse wind effects and should be located to avoid reintroduction of exhausted air into this or adjacent buildings through air intakes and windows.

7.32 Further detailed guidance is contained in HTM 2025 – ‘Ventilation in healthcare premises: Design considerations’.

Ventilation (substances hazardous to health)

7.33 Local exhaust ventilation will be required where exposure by inhalation of substances hazardous to health cannot be controlled by other means. The Health and Safety Executive publication EH40, ‘Occupational Exposure Limits’, updated annually, sets limits which form part of the Control of Substances Hazardous to Health Regulations 1994 (COSHH).

Hot and cold water services

7.34 Guidance on the design and installation of hot and cold water supply and distribution systems is contained in HTM 2027 – ‘Hot and cold water supply, storage and mains services’.

7.35 All cold-water pipework, valves and fittings should be insulated and vapour sealed to protect against frost, surface condensation and heat gain.

7.36 The domestic hot water supply should be taken either from the general hospital calorifier installation or from a stand-alone calorifier at a minimum outflow temperature of >60ºC and distributed to all outlets such that the return temperature at the calorifier is not less than 50ºC. See Health Guidance Note – ‘“Safe” hot water and surface temperatures’.

7.37 The requirements for the control of legionellae bacteria in hot and cold water systems are set out in HTM 2040 – ‘The control of legionellae in healthcare premises – a code of practice’. In Northern Ireland see also PEL(94)8.

Piped medical gases and vacuum

7.38 Guidance on piped medical gas systems, anaesthetic gas scavenging and gas storage is contained in HTM 2022 – ‘Medical gas pipeline systems’.

Electrical services

Electrical installation


7.40 The point of entry for the electrical supply should be a switch enclosure housing the main isolators, distribution and control equipment. This space will also accommodate the distribution centre for subsidiary electrical services. Supplies should be metered and whenever possible, equipment should be mounted at a height which gives easy access from a standing position. Switchgear should be able to be locked in the “off” position.
The electrical equipment in occupied areas should generally be concealed using PVC-insulated cable and screwed steel conduit or trunking; however, in certain circumstances mineral insulated metal-sheathed or steel wire armour (SWA) cables may be used. External installations should use PVC-insulated cables in galvanised screwed steel conduit with waterproof fittings.

**Electrical interference**

7.42 Care should be taken to avoid mains-borne interference, radio frequency and telephone interference affecting physiological monitoring equipment, computers and other electronic equipment used here or elsewhere on the site.

7.43 Electrical products, systems and installations should not cause, or be unduly affected by, electromagnetic interference. This requirement is in the form of an EC Directive on Electromagnetic Compatibility (89/336/EEC as amended by 91/263/EEC and 92/31/EEC). This Directive has been implemented in UK law by the Electromagnetic Compatibility Regulations 1992 (SI No 2372).

7.44 Guidance on the avoidance and abatement of electrical interference is contained in HTM 2014 – ‘Abatement of electrical interference’. In Northern Ireland see also PEL(94)17.

7.45 Fluorescent luminaires should comply with BS EN 55015: 1996.

**Lighting**

7.46 Colour finishes and lighting throughout the department should be co-ordinated to create a calm and welcoming atmosphere. Practical methods are contained in the CIBSE Lighting Guide LG2 – ‘Hospitals and Health Care Buildings’.

7.47 Architects and engineers should collaborate to ensure that decorative finishes are compatible with the colour-rendering properties of the lamp, and that the spectral distribution of the light sources is not adversely affected.

7.48 General luminaires should be manufactured and tested in accordance with the requirements specified in the relevant sections of BS 4533. Their location should afford ready access for lamp changing and maintenance, but with the overriding requirement that the recommended standard of illuminance is provided to the task area in all treatment rooms.

7.49 The number and location of luminaires connected to a circuit, and the number of switches and circuits provided, should allow flexibility in the general and local level of illumination, particularly in areas away from windows, where daylight can vary significantly. Some areas of the department, which may be unoccupied for long periods, may also be suited to automatic/presence switching.

7.50 Generally, energy-efficient luminaires should be used wherever possible. Intermittently and infrequently used luminaires may be fitted with compact fluorescent or tungsten-halogen lamps.

7.51 Mobile examination luminaires, where provided, should comply with BS EN 60598-2-25.

7.52 Where visual display units (VDUs) are to be used, the lighting should be designed to avoid bright reflections on the screen and to ensure that the contents of the screen are legible and meet the Health and Safety (Display Screen Equipment) Regulations 1992, which came into force on 1 January 1993. The Regulations implement a European Directive, No 90/270/EEC of 29 May 1990, on minimum safety and health requirements for work and display screen equipment. Further guidance is contained in the CIBSE Lighting Guide LG3.

7.53 The lighting of corridors, stairways and other circulation areas, which generally are areas not covered by Activity Data A-Sheets, should be in accordance with the guidance contained in HBN 40 – ‘Common activity spaces, Volume 4: Circulation areas’.

7.54 Safety lighting should be provided on primary escape routes in accordance with HTM 2011 – ‘Emergency electrical services’ and BS 5266.

**Lighting consultation/examination and treatment rooms**

7.55 An examination luminaire should be provided over the treatment chair/table. It should be adjustable in pitch and rotation to allow the beam to be directed locally, and should provide reasonably shadow-free illumination with minimum heat gain to avoid injury to patients and staff. The examination luminaires should be manufactured and tested in accordance with the requirements specified in BS EN 60598-2-25.

**Controlled drugs cupboard**

7.56 A red indicating lamp should be provided on each controlled drugs cupboard and, where appropriate, outside the doorway to the room in which the cupboard is located and at a continuously staffed location. The lamps should be interlocked with the cupboard and alarm system to give visual and audible indication at the continuously staffed location of unauthorised entry to the cupboard.
7.57 An indicating lamp denoting that the circuit is energised should also be fitted to each cupboard. The supply circuits for the lamps and alarm system should be derived from essential circuits. The cupboards should comply with BS 2881. Further information is contained in HTM 63 – ‘Fitted storage systems’. More general information is contained in HC(77) 16 (in Wales, WHN (77)32) and ‘Guidelines for the safe and secure handling of medicines, a report’.

Socket-outlets and power connections

7.58 Sufficient 13 amp switched and shuttered socket-outlets, connected to ring or spur circuits, should be provided to supply all portable appliances likely to be used simultaneously. The installation of twin outlets should be considered where activities occur in juxtaposition.

7.59 Switched socket-outlets should be provided in corridors and in individual rooms to enable domestic cleaning appliances with flexible leads (9 m long) to operate over the whole department.

7.60 Appliances requiring a three-phase supply, or those rated in excess of 13 amp single phase, should be permanently connected to separate fused sub-circuits. The sub-circuits should be fed from the distribution board and terminate at a local isolator. Fixed appliances, less than 13 amp rating, should be permanently connected to a double-pole switched 13 amp connector unit. The connector unit should contain an indicating light, where appropriate, and a suitable fuse.

7.61 Disconnection switches should be provided adjacent to all engineering plant and equipment for use by maintenance staff.

7.62 Socket-outlets should be connected to essential circuits in accordance with the guidance contained in HTM 2011 – ‘Emergency electrical services’.

7.63 The electrical supply connections to all medical electrical equipment should comply with BS EN 60 601-1-2: 1993.

Emergency electrical supplies

7.64 Guidance on emergency electrical supplies is contained in HTM 2011 – ‘Emergency electrical services’.

Main entrance security systems

7.65 The main entrance may need to be controlled by a door security and/or closed-circuit television surveillance system which provides for verbal communication with, and an electro-magnetically operated door lock to be controlled from, the reception desk. In hospital premises, access from the rehabilitation department to the main hospital may require similar facilities.


Patient/staff and staff/staff call systems

7.67 The patient/staff and staff/staff call systems may be hard-wired or radio systems. Further guidance is contained in HTM 2015 – ‘Bedhead services’.

7.68 Patient/staff call points should be provided in all spaces where patients may be left alone temporarily, such as consultation/examination/treatment rooms and patient WCs. Each call unit should comprise a push button or pull cord as appropriate, reassurance lamp and reset unit. The audible alarm signal initiated by patients should operate for one second at ten-second intervals, with corresponding lamps lit continuously until cancelled.

7.69 Staff/staff call points should be provided in all spaces where staff consult, examine and treat patients. Call units should generally comprise a switch (pull to call, push to reset) and reassurance lamp. The audible alarm signal initiated by the staff should operate intermittently at half-second intervals, with corresponding lamps flashing on and off at the same rate.

7.70 A visual and audible indication of the operation of each system should be provided at the staff base to give responding staff unambiguous identification of the call source, with a repeater unit in the staff room. Further guidance is contained in HTM 2015 – ‘Bedhead services’.

Telephones

7.71 Where available, the central telephone facilities for internal and external calls should be extended to serve this department. Telephones will normally be of the desk pattern.

7.72 Coin- and/or card-operated payphones, depending on local policy, should be provided in the main waiting area.

7.73 Further guidance on telephone systems is contained in HBN 48 – ‘Telephone services’ and HTM 2055 – ‘Telecommunications (telephone exchanges)’. In Scotland refer to SHPN 48 – ‘Telephone services’.

Data links

7.74 Conduits will be required for cables to interconnect electronic equipment. The extent to which these conduits should link all workstations in this department and the
main hospital system or elsewhere will depend on the
local policy for automatic data processing. If a structured
cable system is to be installed within the hospital, the
rehabilitation department should be provided with all
outlets wired and connected. Conduits may also be
required to link closed-circuit television between the
seminar room and treatment areas.

Clocks

7.75 Clocks may be battery/quartz type. The majority will
be of a domestic nature.

Music and television

7.76 Conduits for television/video and background music
system outlets should be provided in the main waiting
area, and other areas as required.

Lightning protection

7.77 Protection of the building against lightning should
be provided in accordance with HTM 2007 and
BS 6651:1992. In Northern Ireland see also PEL(94)3.

Design parameters

7.79 The design should comply with the relevant British
Standards and Codes of Practice, including BS 5572, and
the current building regulations. Recommendations for
spatial and access requirements for public health
engineering services are contained in HSE Data Sheet EA5.

7.80 The gradient of branch drains should be uniform
and adequate to convey the maximum discharge to the
stack without blockage. Practical considerations, such as
available angles of bends, junctions and their assembly, as
well as space considerations, usually limit the minimum
gradient to about 1:50 (20 mm/m). For larger pipes, for
example 100 mm in diameter, the gradient may be less,
but this will require workmanship of a high standard if an
adequate self-cleaning flow is to be maintained. It is not
envisaged that pipes larger than 100 mm in diameter will
be required within interfloor or ground-floor systems
serving this department.

7.81 Provision for inspection, rodding and maintenance
should ensure “full bore” access and be located to
minimise disruption or possible contamination. Manholes
should not be located within this department.

Internal drainage

General

7.78 The primary objective is to provide an internal
drainage system which is easily maintained and which:
- uses the minimum of pipework;
- remains water- and air-tight at joints and
  connectors;
- is sufficiently ventilated to retain the integrity of
  water seals.
8.0 Cost information

Introduction

8.1 For all types of health building, it is important that building costs and revenue expenditure are kept as low as possible and consistent with acceptable standards. In applying the guidance in this document to determine a detailed design, the need for economy should always be of prime concern, and the activities should be carefully considered so that, where appropriate, space can be shared for similar activities which are programmed to take place at different times. The solution should not be detrimental to the proper functioning of the spaces involved nor to the needs of the users. Within this general context, this series of documents provides a synopsis of accommodation for health buildings which the Department of Health recommends for the provision of a given service.

Departmental Cost Allowance Guides

8.2 Departmental Cost Allowance Guides (DCAGs) related to this HBN are officially notified in Quarterly Briefing, published by NHS Estates. A full listing of all DCAGs is published in the Healthcare Capital Investment document – a hard copy of which can be obtained from NHS Estates. Further information on this can be obtained from NHS Estates, telephone 0113 254 7000.

8.3 The attention of the project team is drawn to guidance given in the Capital Investment Manual (Business Case Guide) published by The Stationery Office. This publication seeks to reflect the important changes that have taken place over recent years, both with the introduction of the NHS reforms and with the changing patterns of healthcare delivery. This new process is intended to reduce unnecessary and often expensive planning work that may subsequently prove to be abortive, and emphasises the necessity for a sound business case in support of both the capital and the revenue expenditure involved. The Capital Investment Manual also states that the capital works estimate of the intended scheme must be based, wherever applicable, on industry norms such as the DCAGs plus a percentage to cover for on-costs.

8.4 The DCAGs for this HBN reflect the total building and engineering requirements and accommodation that the rehabilitation department will require when incorporated into an acute general hospital where the common use of services will be available. Costs are based on a typical two-storey new-build unit, on a greenfield site with no planning constraints.

8.5 DCAGs are exclusive of VAT, Building and Planning Fees and all Local Authority charges, and are based on a Location Factor of 1.

On-costs

8.6 It is important to bear in mind that an allowance for on-costs should be added to the DCAGs for all units, this element being for external works, external engineering services and abnormals etc. The abnormals will largely be determined by the characteristics of the site, such as an inner-city location or poor ground conditions, or the condition and type of the existing building if refurbishment is the only option.

8.7 A rehabilitation department may have a unique range of on-cost requirements additional to those normally expected for a department within an acute general hospital. These are predominantly associated with the outdoor activity needs of physiotherapy and occupational therapy patients. Examples of possible requirements are as follows:

- paths with varying slopes, varying grass slopes, areas containing gravel, tarmac and concrete – all for walking practice;
- steps – also for walking practice;
- an area for outdoor manual work, for example digging or sawing;
- raised flower beds of varying height;
- containers for growing plants – placed on the ground or pavement area;
- a small greenhouse;
- a paved area for wheelchair practice, other mobility, and sitting.

8.8 It is important that project teams should assess at the earliest opportunity all the likely on-cost implications of individual sites and schemes.

Locational factors

8.9 Locational factor adjustments may be applied to the Works Costs (that is, the total of the DCAGs plus established on-costs) to take into account the local market conditions. For further information regarding these, please refer to the latest Regional Location factors in Quarterly Briefing, published by NHS Estates.
Functional units

8.10 The schedules of accommodation listed at the end of this document have adopted a modular approach to the planning of appropriate units to enable project teams to “pick and mix” those facilities that are required.

8.11 Using this modular approach, examples have been built up for both a small and a large theoretical hospital department. The areas given are for guide purposes only and will alter depending on the design solution. DCAGs have been calculated using the example units as a cost base.

8.12 It is not expected that any of the main rehabilitation departments, with the exception of the hydrotherapy suite, will be built as stand-alone units, but that they will form a comprehensive service at each location. However, the possibility of building less than a full service has not been eliminated. The hydrotherapy suite may be required to be built as an addition to an existing department.

Dimensions and areas

8.13 In determining spatial requirements, the essential factor is not the total area provided but the critical dimensions, that is, those dimensions critical to the efficient functioning of the activities which are to be carried out. To assist project teams in preparing detailed design solutions for the rooms and spaces, studies have been carried out to establish dimensional requirements in the form of critical dimensions. The results of these studies appear as ergonomic diagrams in Health Building Note 40 Volumes 1–4.

8.14 For development planning and at the earliest stage of a design, it may be convenient for designers to have data available which will enable them to make an approximate assessment of the sizes involved. For this reason, the areas prepared for the purpose of establishing the cost allowances are listed in the schedules of accommodation found at the end of this chapter.

8.15 It is emphasised that the areas published do not represent recommended sizes, nor are they to be regarded in any way as specific individual entitlements.

8.16 Planning of the building efficiently may also necessitate variation of areas, for instance, in the refurbishment or conversion of older property:
   a. rooms tend to be larger than the recommended area;
   b. some rooms may be too small or in the wrong location for efficient use;
   c. circulation space tends to form a larger than normal proportion of the total area.

Circulation

8.17 Space for circulation, that is, all internal corridors, small vertical ducts and spaces occupied by partitions and walls, is included at 23% for all units except the hydrotherapy suite, which is included at 10%.

8.18 Provision is also made for a 5% planning zone and a 3% addition for an engineering zone adjacent to the external walls. These areas are all included and therefore costed in the DCAGs.

8.19 It is also important to remember that the circulation figures included in the DCAGs for this type of accommodation are those anticipated for new purpose-built premises with no constraints. Where constraints are encountered, for example in refurbishment or conversion of older types of property, this circulation figure would be likely to increase accordingly, and therefore some adjustment may be necessary to the circulation figure.

Communications

8.20 Staircases and lifts are not included in the DCAGs relevant to this department. Costs related to these elements, along with a suitable space allowance, should be made in the on-costs.

Land costs

8.21 As is the norm for DCAGs, costs are exclusive of all land costs and associated fees. However, the project team’s attention is drawn to the fact that costs associated with these should be included in the Business Case submission, all as detailed in the Capital Investment Manual, and could therefore be an important part of the overall cost viability of the scheme.

Engineering services

8.22 The following engineering services, as described in chapter 7 and Appendix 3 and exemplified in the Activity Data, are included in the cost allowances. Primary engineering services are assumed to be conveniently available at the boundary of the department.
**Mechanical services**

8.23 Heating: low-pressure hot water heating system with thermostatic radiator control, maximum touch temperature 43ºC.

8.24 Ventilation: mechanical supply and extract to meet the clinical and functional requirements.

8.25 Cold water service: centrally supplied to service points including drinking water and hose reels. Storage tanks are not included.

8.26 Hot water service: supplied from a central storage system with thermostatic mixing valves at outlets. Storage is not included.

8.27 Medical gases: piped supplies of oxygen and medical vacuum to treatment room.

**Electrical services**

8.28 Departmental distribution switchboard.

8.29 Building management system.

8.30 Lighting system: general lighting as required by tasks. Fluorescent, tungsten-halogen, safety and emergency luminaires as appropriate.

8.31 Power system: socket-outlets and other power outlets for fixed and portable equipment. Supplementary equipotential earth bonding connections. Standby and safety installations from the main hospital supplies.

8.32 Alarm systems: fire, security, medical gases and drug cupboard.

8.33 Clocks.

8.34 Staff location: extension from hospital system.

8.35 Staff/staff and patient/staff call system.

8.36 Telephone: conduits, cabling and outlets, but excluding instruments (handsets, payphones etc).

8.37 Data transmission: conduits only.

8.38 Television and background music: conduits to and outlets in main waiting area.

8.39 Departmental building management system.

**Equipment (Group 1)**

8.40 X-ray viewers in consultation/examination and treatment rooms.

8.41 Controlled drugs cupboard.

8.42 Water boiler.

8.43 Dishwasher.
Schedule of accommodation modules for rehabilitation services

See also example schedules of accommodation for two theoretical hospital-based rehabilitation departments based on these modules (pages 47–59). The areas given are a guide only and relate to these examples. They have been used to establish the cost allowances.

Further details of these spaces are available in the latest version of Activity Database.

<table>
<thead>
<tr>
<th>SPACE</th>
<th>AREA GUIDE</th>
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<tr>
<td>MODULE 1</td>
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<tr>
<td>ENTRANCE and RECEPTION SPACES</td>
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<tr>
<td>Foyer</td>
<td>public telephones  wheelchair bay</td>
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<td>7.0</td>
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<tr>
<td>Reception desk 2-person</td>
<td>10.0</td>
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<tr>
<td>Reception desk 3-person</td>
<td>13.5</td>
</tr>
<tr>
<td>Waiting area 10-person</td>
<td>13.0</td>
</tr>
<tr>
<td>Waiting area 15-person</td>
<td>20.0</td>
</tr>
<tr>
<td>Draft lobby (optional)</td>
<td>11.0</td>
</tr>
<tr>
<td>Cloakroom (optional)</td>
<td>7.0</td>
</tr>
<tr>
<td>Cloakroom (optional)</td>
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<table>
<thead>
<tr>
<th>MODULE 1A</th>
<th>PATIENT SANITARY PROVISION</th>
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<tbody>
<tr>
<td>Not including hydrotherapy</td>
<td></td>
</tr>
<tr>
<td>Patient dual access wheelchair WC</td>
<td>(HBN 40 type 6):</td>
</tr>
<tr>
<td>entrance foyer area</td>
<td>near physiotherapy</td>
</tr>
<tr>
<td>near occupational therapy</td>
<td>near speech/general</td>
</tr>
<tr>
<td></td>
<td>5.5 for each required</td>
</tr>
<tr>
<td>Patient ambulant WC</td>
<td>(HBN 40 type 2):</td>
</tr>
<tr>
<td>Female</td>
<td>entrance foyer area</td>
</tr>
<tr>
<td>near physiotherapy</td>
<td>near occupational therapy</td>
</tr>
<tr>
<td>near speech/general</td>
<td>2.5 for each required</td>
</tr>
<tr>
<td>Male</td>
<td>entrance foyer area</td>
</tr>
<tr>
<td>near physiotherapy</td>
<td>near occupational therapy</td>
</tr>
<tr>
<td>near speech/general</td>
<td>2.5 for each required</td>
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## MODULE 2
### ADMINISTRATION SPACES

<table>
<thead>
<tr>
<th>Space</th>
<th>Area (sq m)</th>
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</thead>
<tbody>
<tr>
<td>Office – general administration</td>
<td></td>
</tr>
<tr>
<td>single</td>
<td>9.0</td>
</tr>
<tr>
<td>4 workstations</td>
<td>24.0</td>
</tr>
<tr>
<td>Office – physiotherapy</td>
<td></td>
</tr>
<tr>
<td>single</td>
<td>9.0</td>
</tr>
<tr>
<td>6 workstations</td>
<td>27.5</td>
</tr>
<tr>
<td>10 workstations</td>
<td>43.5</td>
</tr>
<tr>
<td>Office – occupational therapy</td>
<td></td>
</tr>
<tr>
<td>single</td>
<td>9.0</td>
</tr>
<tr>
<td>6 workstations</td>
<td>27.5</td>
</tr>
<tr>
<td>10 workstations</td>
<td>43.5</td>
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<tr>
<td>Case conference room</td>
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</tr>
<tr>
<td>Records store (optional)</td>
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<tr>
<td>Records store (optional)</td>
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## MODULE 3
### CLINICAL/THERAPY SHARED SPACES

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<thead>
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<th>Space</th>
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<tbody>
<tr>
<td>Patient assessment/interview room</td>
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<tr>
<td>Consulting/exam room (optional)</td>
<td>16.5</td>
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<tr>
<td>Splint preparation</td>
<td>19.0</td>
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<tr>
<td>Patient sub-waiting 3-person (optional)</td>
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## MODULE 3A
### PHYSIOTHERAPY

<table>
<thead>
<tr>
<th>Space</th>
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<tbody>
<tr>
<td>Therapy activity area</td>
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<tr>
<td>5-place</td>
<td>50.0</td>
</tr>
<tr>
<td>10-place</td>
<td>80.0</td>
</tr>
<tr>
<td>Therapy activity area – gym</td>
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</tr>
<tr>
<td>15-place</td>
<td>100.0</td>
</tr>
<tr>
<td>20-place</td>
<td>120.0</td>
</tr>
<tr>
<td>Individual treatment</td>
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</tr>
<tr>
<td>Individual treatment UVL</td>
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<tr>
<td>Multi-cubicle treatment area</td>
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</tr>
<tr>
<td>10-place</td>
<td>100.0</td>
</tr>
<tr>
<td>15-place</td>
<td>150.0</td>
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<tr>
<td>Wax treatment and ice preparation</td>
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</tr>
<tr>
<td>Patient changing (includes shower)</td>
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</tr>
<tr>
<td>female</td>
<td>15.5</td>
</tr>
<tr>
<td>male</td>
<td>15.5</td>
</tr>
<tr>
<td>Equipment store – activity area</td>
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<tr>
<td>Equipment store – activity area</td>
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</tr>
<tr>
<td>Equipment store – activity area</td>
<td>12.0</td>
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<tr>
<td>Equipment store – treatment cubicles</td>
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<tr>
<td>SPACE</td>
<td>AREA GUIDE</td>
</tr>
<tr>
<td>-------</td>
<td>------------</td>
</tr>
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| **MODULE 3B**  
**HYDROTHERAPY** |  
Staff base (includes resuscitation trolley) | 6.0  
Patient waiting | 5.0  
Patient transfer | 6.0  
Wheelchair/trolley parking bay | 5.0  
Patient/Staff changing | 16.0  
Patient dual access wheelchair WC  
(HBN 40 type 6) | 5.5  
Ambulant shower – pool entry area | 2.5  
Trolley shower – pool entry area | 10.0  
Pool area | 92.5  
Patient recovery/rest 4-place | 25.0  
Equipment store | 7.0  
Utility room/linen store | 10.0  
Plantroom – pool water treatment and circulation | 18.0  
Plantroom – pool area ventilation | 20.0 |
| **MODULE 3C**  
**OCCUPATIONAL THERAPY** |  
Light activities area  
10-place | 70.0  
15-place | 110.0  
Heavy activities area  
5-place (optional) | 50.0  
10-place (optional) | 90.0  
IT therapy room  
2-place | 10.0  
3-place | 15.0  
Store – on-going work | 7.0  
Store – on-going work | 14.0  
Store – materials and equipment | 20.0  
Store – timber and metal (optional) | 20.0  
Store – community disability equipment | 20.0  
Store – assessment wheelchairs | 15.0 |
<table>
<thead>
<tr>
<th>SPACE</th>
<th>AREA GUIDE</th>
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<tbody>
<tr>
<td><strong>MODULE 3D</strong></td>
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<tr>
<td>ACTIVITIES OF DAILY LIVING (ADL)</td>
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<tr>
<td>ADL bedroom with living assessment</td>
<td>18.0</td>
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<tr>
<td>ADL bedroom (optional)</td>
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<tr>
<td>ADL bathroom/shower</td>
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</tr>
<tr>
<td>ADL kitchen</td>
<td>22.0</td>
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<tr>
<td>ADL utility/laundry (optional)</td>
<td>11.0</td>
</tr>
<tr>
<td><strong>MODULE 3E</strong></td>
<td></td>
</tr>
<tr>
<td>SPEECH AND LANGUAGE THERAPY</td>
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<tr>
<td>Individual therapy room</td>
<td>15.0</td>
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<tr>
<td>Group therapy room 8-place</td>
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<tr>
<td>Viewing room</td>
<td>5.0</td>
</tr>
<tr>
<td>Store</td>
<td>6.0</td>
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<tr>
<td><strong>MODULE 3F</strong></td>
<td></td>
</tr>
<tr>
<td>PODIATRY</td>
<td></td>
</tr>
<tr>
<td>Treatment room with patient changing</td>
<td>15.0</td>
</tr>
<tr>
<td>Splint preparation (may be located elsewhere)</td>
<td>19.0</td>
</tr>
<tr>
<td><strong>MODULE 3G</strong></td>
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</tr>
<tr>
<td>COMPLEMENTARY THERAPY</td>
<td></td>
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<tr>
<td>Consulting/exam room (optional)</td>
<td>16.5</td>
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<tr>
<td><strong>MODULE 4</strong></td>
<td></td>
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<tr>
<td>IN-PATIENT ACCOMMODATION</td>
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<tr>
<td>Please note that space requirements for bedrooms may exceed figures given here, which are taken from the latest version of Health Building Note (HBN) 4 – ‘In-patient accommodation: options for choice’. Please refer to HBN 4 for details of the 8-bed clusters, which include sanitary facilities and family and clinical support.</td>
<td></td>
</tr>
<tr>
<td>8-bed cluster, all single bedrooms</td>
<td>225.8</td>
</tr>
<tr>
<td>8-bed cluster, 50% single bedrooms</td>
<td>193.5</td>
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<tr>
<td>ADL assessment areas</td>
<td>see module 3D</td>
</tr>
<tr>
<td>Speech/language room</td>
<td>see module 3E</td>
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<tr>
<td>Wheelchair parking bay with battery charging</td>
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<tr>
<td>Occupational therapy area</td>
<td>15.0</td>
</tr>
<tr>
<td>Physiotherapy gym/therapy area</td>
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</table>
## MODULE 5
### STAFF ACCOMMODATION

<table>
<thead>
<tr>
<th>Space</th>
<th>Area (m²)</th>
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</thead>
<tbody>
<tr>
<td>Staff training/seminar (may be located elsewhere)</td>
<td>40.0</td>
</tr>
<tr>
<td>Staff restroom</td>
<td></td>
</tr>
<tr>
<td>10-place</td>
<td>15.0</td>
</tr>
<tr>
<td>15-place</td>
<td>20.0</td>
</tr>
<tr>
<td>Beverage bay</td>
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</table>

**OR**

<table>
<thead>
<tr>
<th>Space</th>
<th>Area (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff restroom with beverages</td>
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</tr>
<tr>
<td>10-place</td>
<td>16.0</td>
</tr>
<tr>
<td>15-place</td>
<td>22.5</td>
</tr>
<tr>
<td>Staff locker room – male</td>
<td></td>
</tr>
<tr>
<td>10-person</td>
<td>6.0</td>
</tr>
<tr>
<td>20-person</td>
<td>8.0</td>
</tr>
<tr>
<td>Staff locker room – female</td>
<td></td>
</tr>
<tr>
<td>20-person</td>
<td>8.0</td>
</tr>
<tr>
<td>30-person</td>
<td>14.0</td>
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</tbody>
</table>

**OR**

<table>
<thead>
<tr>
<th>Space</th>
<th>Area (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff changing/locker room – male</td>
<td></td>
</tr>
<tr>
<td>10-person</td>
<td>15.0</td>
</tr>
<tr>
<td>20-person</td>
<td>18.0</td>
</tr>
<tr>
<td>Staff changing/locker room – female</td>
<td></td>
</tr>
<tr>
<td>20-person</td>
<td>18.0</td>
</tr>
<tr>
<td>30-person</td>
<td>24.0</td>
</tr>
<tr>
<td>Staff wheelchair WC</td>
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</tr>
<tr>
<td>(HBN 40 type 5)</td>
<td>4.5</td>
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<tr>
<td>Staff ambulant WC</td>
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</tr>
<tr>
<td>(HBN 40 type 1)</td>
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<tr>
<td>Staff shower</td>
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## MODULE 6
### PATIENT LIBRARY/INFORMATION

<table>
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<th>Space</th>
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### MODULE 7
**SUPPORT SPACES**

<table>
<thead>
<tr>
<th>SPACE</th>
<th>AREA GUIDE</th>
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</thead>
<tbody>
<tr>
<td>Clean utility</td>
<td>9.0</td>
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<tr>
<td>Dirty utility</td>
<td>7.5</td>
</tr>
<tr>
<td>General storage</td>
<td>6.0</td>
</tr>
<tr>
<td>General storage</td>
<td>12.0</td>
</tr>
<tr>
<td>Linen store (optional)</td>
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</tr>
<tr>
<td>Cleaners room</td>
<td>5.5</td>
</tr>
<tr>
<td>Disposal holding bay</td>
<td>3.0</td>
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<tr>
<td>Disposal holding bay</td>
<td>6.0</td>
</tr>
<tr>
<td>Electrical switchgear</td>
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</table>

### MODULE 8
**REHABILITATION ENGINEERING**

Please note that support facilities required will depend on integration with the main accommodation of a rehabilitation unit, for example staff accommodation.

<table>
<thead>
<tr>
<th>SUPPORT SPACE</th>
<th>AREA GUIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialised wheelchair assessment area</td>
<td>40.0</td>
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<tr>
<td>Wheelchair workshop</td>
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<tr>
<td>Store – assessment wheelchairs</td>
<td>60.0</td>
</tr>
<tr>
<td>Store – workshop</td>
<td>20.0</td>
</tr>
<tr>
<td>Office – engineers – 3 workstations</td>
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</tr>
</tbody>
</table>

### MODULE 9
**ORTHOTICS – MANUFACTURE AND/OR ADJUSTMENT**

Please note that support facilities required will depend on integration with the main accommodation of a rehabilitation unit, for example staff accommodation.

<table>
<thead>
<tr>
<th>SUPPORT SPACE</th>
<th>AREA GUIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workshop</td>
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<tr>
<td>Store</td>
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</table>

### MODULE 9A
**ORTHOTICS – SUPPLY AND FITTING**

Please note that support facilities required will depend on integration with the main accommodation of a rehabilitation unit, for example staff accommodation.

<table>
<thead>
<tr>
<th>SUPPORT SPACE</th>
<th>AREA GUIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consult/examination/fitting room</td>
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<tr>
<td>Store</td>
<td>25.0</td>
</tr>
<tr>
<td>Administration section – 2 workstations</td>
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</table>
# Example Schedule of Accommodation for a Theoretical Rehabilitation Services Unit (Small)

<table>
<thead>
<tr>
<th>Space</th>
<th>Quantity</th>
<th>Area</th>
<th>Total</th>
<th>Module Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entrance and Reception Spaces</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foyer</td>
<td>1</td>
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<td>7.0</td>
<td></td>
</tr>
<tr>
<td>public telephones</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>wheelchair bay</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reception desk 2-person</td>
<td>1</td>
<td>10.0</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>Waiting area 10-person</td>
<td>1</td>
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<td>13.0</td>
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</tr>
<tr>
<td>Draft lobby</td>
<td>1</td>
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<td>11.0</td>
<td></td>
</tr>
<tr>
<td>Cloakroom</td>
<td>1</td>
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<td>7.0</td>
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<tr>
<td><strong>Net Area</strong></td>
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<td><strong>Planning</strong></td>
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<td>50.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Engineering Zone</strong></td>
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<td>52.0</td>
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<td></td>
</tr>
<tr>
<td><strong>Circulation</strong></td>
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<td>63.5</td>
<td>63.5</td>
<td></td>
</tr>
<tr>
<td><strong>Module 1A</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sanitary Provision</td>
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</tr>
<tr>
<td>Not including hydrotherapy</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient dual access wheelchair WC</td>
<td>1</td>
<td>5.5</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>(HBN 40 type 6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>entrance foyer area</td>
<td>1</td>
<td>5.5</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>near physiotherapy</td>
<td>1</td>
<td>5.5</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>near speech/general occupational therapy</td>
<td>1</td>
<td>5.5</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>Patient ambulant WC</td>
<td>3</td>
<td>2.5</td>
<td>7.5</td>
<td></td>
</tr>
<tr>
<td>(HBN 40 type 2)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>entrance foyer area</td>
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<td>2.5</td>
<td>7.5</td>
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</tr>
<tr>
<td>near physiotherapy</td>
<td>3</td>
<td>2.5</td>
<td>7.5</td>
<td></td>
</tr>
<tr>
<td>near speech/general occupational therapy</td>
<td>3</td>
<td>2.5</td>
<td>7.5</td>
<td></td>
</tr>
<tr>
<td><strong>Net Area</strong></td>
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</tr>
<tr>
<td><strong>Planning</strong></td>
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<tr>
<td><strong>Engineering Zone</strong></td>
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<tr>
<td><strong>Circulation</strong></td>
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### Module 2
**Administration Spaces**

<table>
<thead>
<tr>
<th>Space</th>
<th>Quantity</th>
<th>Area</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office general admin 4 workstations</td>
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<td>24.0</td>
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<tr>
<td>Office physiotherapy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
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<td>9.0</td>
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<tr>
<td>6 workstations</td>
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<td>27.5</td>
<td>27.5</td>
</tr>
<tr>
<td>Office occupational therapy</td>
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</tr>
<tr>
<td>Single</td>
<td>1</td>
<td>9.0</td>
<td>9.0</td>
</tr>
<tr>
<td>6 workstations</td>
<td>1</td>
<td>27.5</td>
<td>27.5</td>
</tr>
<tr>
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**Circulation 23%**  
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### Module 3 and 3G
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## MODULE 3A
### PHYSIOTHERAPY

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## EXAMPLE SCHEDULE OF ACCOMMODATION FOR A THEORETICAL REHABILITATION SERVICES UNIT (LARGE)

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</tr>
<tr>
<td>near occup/specialist</td>
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<td><strong>CIRCULATION 23%</strong></td>
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### Module 2

**Administration Spaces**

<table>
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<tr>
<td>Office general admin single</td>
<td>1</td>
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<td>9.0</td>
</tr>
<tr>
<td>Office general admin 4 workstations</td>
<td>1</td>
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<tr>
<td>Office physiotherapy single</td>
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<td>Office physiotherapy 10 workstations</td>
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<tr>
<td>Office occupational single</td>
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<td>9.0</td>
</tr>
<tr>
<td>Office occupational 10 workstations</td>
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<td>Case conference room</td>
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**Net Area**: 164.0

**Planning**: 5% 8.0

**Engineering Zone**: 3% 5.0

**Circulation**: 23% 39.5

**Total**: 216.5

### Module 3 and 3G

**Clinical/Therapy Shared Spaces**

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<tbody>
<tr>
<td>Patient assessment/interview room</td>
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<tr>
<td>Consulting/exam room</td>
<td>2</td>
<td>16.5</td>
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<tr>
<td>(general &amp; complementary therapy)</td>
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<td>Patient sub-waiting area</td>
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<td>Splint preparation</td>
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**Net Area**: 67.0

**Planning**: 5% 3.5

**Engineering Zone**: 2.0

**Circulation**: 23% 16.0

**Total**: 88.5
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<th>MODULE TOTAL</th>
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<tr>
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<td></td>
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<td>Therapy activity area 10-place</td>
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<td>Therapy activity area 20-place&lt;br&gt;(includes gym accommodation)</td>
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<td>120.0</td>
<td>120.0</td>
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<tr>
<td>Individual treatment</td>
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<td>12.0</td>
<td>12.0</td>
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<tr>
<td>Individual treatment UVL</td>
<td>1</td>
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<td>Multi-cubicle treatment area 15-place</td>
<td>1</td>
<td>150.0</td>
<td>150.0</td>
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<td>Wax treatment and ice preparation</td>
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<td>Patient changing (includes shower)&lt;br&gt;female</td>
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<td>15.5</td>
<td>15.5</td>
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</tr>
<tr>
<td></td>
<td>male</td>
<td>1</td>
<td>15.5</td>
<td></td>
</tr>
<tr>
<td>Equipment store – activity area 1</td>
<td>1</td>
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<tr>
<td>Equipment store – activity area 2</td>
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<td>Equipment store – treatment cubicles</td>
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**NET AREA**: 445.0

**PLANNING 5%**: 22.0

**ENGINEERING ZONE 3%**: 14.0

**CIRCULATION 23%**: 107.5

*MODULE TOTAL*: 588.5

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<th>TOTAL</th>
<th>MODULE TOTAL</th>
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<tbody>
<tr>
<td><strong>MODULE 3B</strong>&lt;br&gt;HYDROTHERAPY</td>
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<tr>
<td>Staff base (includes resuscitation&lt;br&gt;trolley)</td>
<td>1</td>
<td>6.0</td>
<td>6.0</td>
<td></td>
</tr>
<tr>
<td>Patient waiting</td>
<td>1</td>
<td>5.0</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>Patient transfer</td>
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<td>6.0</td>
<td>6.0</td>
<td></td>
</tr>
<tr>
<td>Wheelchair/trolley parking bay</td>
<td>1</td>
<td>5.0</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>Patient/staff changing</td>
<td>1</td>
<td>16.0</td>
<td>16.0</td>
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<tr>
<td>Patient dual access wheelchair WC&lt;br&gt;Dedicated to hydrotherapy&lt;br&gt;(HBN 40 type 6)</td>
<td>1</td>
<td>5.5</td>
<td>5.5</td>
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</tr>
<tr>
<td>Ambulant shower – pool area entry</td>
<td>1</td>
<td>2.5</td>
<td>2.5</td>
<td></td>
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<tr>
<td>Trolley shower – pool area entry</td>
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<td>Pool area</td>
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<tr>
<td>Patient recovery/rest 4-place</td>
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<td>25.0</td>
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<tr>
<td>Equipment store</td>
<td>1</td>
<td>7.0</td>
<td>7.0</td>
<td></td>
</tr>
<tr>
<td>Utility room/linen store</td>
<td>1</td>
<td>10.0</td>
<td>10.0</td>
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</tr>
<tr>
<td>Plantroom – pool water treatment&lt;br&gt;and circulation</td>
<td>1</td>
<td>18.0</td>
<td>18.0</td>
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<tr>
<td>Plantroom – pool area ventilation</td>
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**NET AREA**: 228.5

**PLANNING 5%**: 11.5

**ENGINEERING ZONE 3%**: 7.0

**CIRCULATION 10%**: 24.0

*MODULE TOTAL*: 271.0
<table>
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<tr>
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<th>QUANTITY</th>
<th>AREA</th>
<th>TOTAL</th>
<th>MODULE TOTAL</th>
</tr>
</thead>
</table>
| **MODULE 3C**  
OCCUPATIONAL THERAPY | | | | |
| Light activities area 15-place | 1 | 110.0 | 110.0 | |
| Heavy activities area 10-place | 1 | 90.0 | 90.0 | |
| IT therapy room 3-place | 1 | 15.0 | 15.0 | |
| Store – on-going work | 1 | 14.0 | 14.0 | |
| Store – materials/equipment | 1 | 20.0 | 20.0 | |
| Store – timber/metal | 1 | 20.0 | 20.0 | |
| Store – community disability equipment | 1 | 20.0 | 20.0 | |
| Store – assessment wheelchairs | 1 | 15.0 | 15.0 | |
| NET AREA | | 304.0 | | |
| PLANNING 5% | | 15.0 | 319.0 | |
| ENGINEERING ZONE 3% | | 9.5 | 328.5 | |
| CIRCULATION 23% | | 73.0 | 401.5 | 401.5 |
| **MODULE 3D**  
ACTIVITIES OF DAILY LIVING (ADL) | | | | |
| ADL bedroom with living assessment | 1 | 18.0 | 18.0 | |
| ADL bedroom | 1 | 15.0 | 15.0 | |
| ADL bathroom/shower | 1 | 13.0 | 13.0 | |
| ADL kitchen | 1 | 22.0 | 22.0 | |
| ADL utility/laundry | 1 | 11.0 | 11.0 | |
| NET AREA | | 79.0 | | |
| PLANNING 5% | | 4.0 | 83.0 | |
| ENGINEERING ZONE 3% | | 2.5 | 85.5 | |
| CIRCULATION 23% | | 19.0 | 104.5 | 104.5 |
| **MODULE 3E**  
SPEECH AND LANGUAGE THERAPY | | | | |
<p>| Individual therapy room | 2 | 15.0 | 30.0 | |
| Group therapy room 8-place | 1 | 24.5 | 24.5 | |
| Viewing room | 1 | 5.0 | 5.0 | |
| Dedicated store | 1 | 6.0 | 6.0 | |
| NET AREA | | | 65.5 | |
| PLANNING 5% | | 3.0 | 68.5 | |
| ENGINEERING ZONE 3% | | 2.0 | 70.5 | |
| CIRCULATION 23% | | 16.0 | 86.5 | 86.5 |</p>
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<thead>
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<th>SPACE</th>
<th>QUANTITY</th>
<th>AREA</th>
<th>TOTAL</th>
<th>MODULE TOTAL</th>
</tr>
</thead>
</table>
| **MODULE 3F**  
PODIA TRY | | | | |
| Treatment room with patient changing | 1 | 15.0 | 15.0 | |
| NET AREA | | | 15.0 | |
| PLANNING 5% | | 1.0 | 16.0 | |
| ENGINEERING ZONE 3% | | 0.5 | 16.5 | |
| CIRCULATION 23% | | 3.5 | 20.0 | 20.0 |
| **MODULE 5**  
STAFF ACCOMMODATION | | | | |
| Staff restroom with beverages 15-place | 1 | 22.5 | 22.5 | |
| Training/seminar room | 1 | 40.0 | 40.0 | |
| Staff changing female 30-person | 1 | 24.0 | 24.0 | |
| Staff changing male 20-person | 1 | 18.0 | 18.0 | |
| Staff wheelchair WC (HBN 40 type 5) | 1 | 4.5 | 4.5 | |
| Staff ambulant WC 3 female 2 male (HBN 40 type 1) | 5 | 2.0 | 10.0 | |
| Staff shower | 2 | 2.5 | 5.0 | |
| NET AREA | | | 124.0 | |
| PLANNING 5% | | 6.0 | 130.0 | |
| ENGINEERING ZONE 3% | | 4.0 | 134.0 | |
| CIRCULATION 23% | | 30.0 | 164.0 | 164.0 | |
| **MODULE 6**  
PATIENT LIBRARY/INFORMATION | | | | |
| Patient information area | 1 | 15.0 | 15.0 | |
| NET AREA | | | 15.0 | |
| PLANNING 5% | | 1.0 | 16.0 | |
| ENGINEERING ZONE 3% | | 0.5 | 16.5 | |
| CIRCULATION 23% | | 3.5 | 20.0 | 20.0 | |
### MODULE 7
**SUPPORT SPACES**

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<th>Service</th>
<th>Quantity</th>
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<th>Dirty</th>
</tr>
</thead>
<tbody>
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<td>9.0</td>
<td>9.0</td>
</tr>
<tr>
<td>Dirty utility</td>
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<td>7.5</td>
<td>7.5</td>
</tr>
<tr>
<td>General storage</td>
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<td>12.0</td>
</tr>
<tr>
<td>Cleaners room</td>
<td>1</td>
<td>5.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Disposal holding bay</td>
<td>1</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Electrical switchgear</td>
<td>1</td>
<td>2.0</td>
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<tr>
<td>Store – linen</td>
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NET AREA: 45.5

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### MODULE 8
**REHABILITATION ENGINEERING**

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<tr>
<td>Specialised wheelchair assessment area</td>
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</tr>
<tr>
<td>Wheelchair workshop</td>
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<td>40.0</td>
<td>40.0</td>
</tr>
<tr>
<td>Store – assessment wheelchairs</td>
<td>1</td>
<td>60.0</td>
<td>60.0</td>
</tr>
<tr>
<td>Store – workshop</td>
<td>1</td>
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<tr>
<td>Office – engineers 3-workstation</td>
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NET AREA: 178.0

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### MODULE 9
**ORTHOTICS – MANUFACTURE/ADJUSTMENT**

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<tr>
<td>Workshop</td>
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NET AREA: 31.0

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### MODULE 9A
**ORTHOTICS – SUPPLY AND FITTING**

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<th>Cost (£)</th>
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<td>Store</td>
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<td>25.0</td>
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<td>Administration section 2-workstation</td>
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<td>14.0</td>
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<td><strong>NET AREA</strong></td>
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<td>67.0</td>
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<tr>
<td><strong>PLANNING 5%</strong></td>
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<tr>
<td><strong>ENGINEERING ZONE 3%</strong></td>
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<tr>
<td><strong>ALLOWANCE</strong></td>
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**88.5**

Cost information
9.0 Activity data

Introduction

9.1 Activity DataBase is an information system developed to help project and design teams by defining the users’ needs more precisely. This information constitutes the computerised Activity DataBase for Windows, updated twice yearly.

9.2 Room Data Sheets record in more detail than is described in this guidance, each task or activity that is performed in a particular activity space, together with environmental conditions and the technical data necessary to enable the activities to be performed. Each Room Data Sheet also contains a list of relevant assembly and component codes and descriptions. Room area information is provided in conjunction with a room graphic.

9.3 Assembly Data Sheets provide narrative text and ergonomically arranged graphics to scale relating to one activity. They show equipment fitted or supplied as part of the building, and the necessary engineering terminals.

9.4 Component schedules provide information about the total quantities of group 1, 2 and 3 components for single data sheets or for all data sheets for a department. Group 4 components are not included in the schedule.

9.5 Activity Data is only available in the form of magnetic media, but users may generate paper copies where required.

9.6 Further information about the use and preparation of Activity Data can be obtained from:

NHS Estates
Department of Health
1 Trevelyan Square
Boar Lane
Leeds LS1 6AE
Tel: 0113 254 7000
Fax: 0113 254 7299.

Activity Data applicable to this guidance

9.7 The Room Data Sheets recommended for the activity spaces described in this guidance are either new sheets, amended ones or ones selected from existing sheets.

9.8 Further Room Data Sheets may be selected, or drawn up by project teams to their own requirements, for any services not described in the guidance.

9.9 In order to ensure consistent and economic provision, variations from the Room Data Sheets recommended for the spaces covered in this guidance should be considered only where it has been decided that the function of a space will differ substantially from that described.

9.10 The Room Data Sheets may not carry a title identical to the activity spaces detailed in this guidance. Use of the appropriate code number will, however, result in the correct activity space being accessed.
Appendix 1 – Case studies

The first case study has been taken from research by MARU Health Buildings Research Centre – ‘Innovative environments for rehabilitation’. The aim of the study was to identify innovative models for rehabilitation facilities in community settings. The remaining three have been selected as providing superior examples of both general and specialist rehabilitation services.

The Westway Centre provides integrated health and social care for people over 65 living in the Royal Borough of Kensington and Chelsea. Rehabilitation services are provided mainly on a day-care/drop-in basis, although some outreach care is delivered to patients in their own homes.

Cannock Chase features a purpose-built rehabilitation facility within a community hospital. Managed by Mid-Staffordshire General Hospitals Trust, the unit provides comprehensive rehabilitation services for both in-patients and out-patients. This type of facility would be equally suited to being attached to an acute general hospital.

Victoria House is a specialist neurological rehabilitation facility within an acute general hospital. The aim of the service is to provide early in-patient rehabilitation for people with complex neurological problems. Some long-term treatments are provided on an out-patient basis. The unit is attached to a multidisciplinary academic rehabilitation research unit at Southampton University.

The Walton Centre is a specialist neurology and neurosurgery trust sharing a site with an acute general hospital, based outside Liverpool. It is largely housed in a new, purpose-built block, but with a Younger Rehabilitation Unit (YRU) occupying an older block on-site. The Trust provides emergency and elective neurology and neurosurgery for a wide catchment area. Rehabilitation takes place within the acute unit and the YRU.
The Westway Centre, London

The Westway Centre offers integrated health and social care for people over 65 years living in the Royal Borough of Kensington and Chelsea, principally in North Kensington, combined with outreach care in the home.

Service

Approach

The centre brings together services offered by local authorities and local health services that were previously provided independently. It is based on the “elderly persons integrated care service” (EPICS) model, a concept pioneered by the Helen Hamlyn Foundation who supported the original project team. The service continues to develop following the principles laid down at the beginning of an integrated health and social care service. Users and carers are involved in the development, policy and management process.

The aim of the centre is to enable as many people as possible to live independently in their own homes by providing a mix of preventive care, intensive rehabilitation and maintenance care.

The service has two elements, a self-referral open access service for health and social care and a more specialised day-care service for referred service users, often combined with outreach therapy and care in the home.

The centre provides a variety of integrated healthcare and social activities, with the aim of translating specific therapies into daily life. These include early morning physical exercise classes with people of similar abilities and/or needs grouped together. Social activities are used as rehabilitation therapies. For example, bingo helps with hand-eye co-ordination.

Health checks are carried out by the centre nurse, enabling early diagnosis for heart disease, diabetes etc. Health promotion group sessions are also led by nurses.

The restaurant and coffee bar facility creates a central core for people to meet and be social. The meals are cooked on site and paid for at a subsidised rate by all the users. A home meals service can be arranged.

An ordinary bath and shower facility is provided, as this is what most of the users have in their homes. Some may use it independently or with help from their own carer/relative. There is also a same-day laundry service for day-care users, which they are encouraged to do themselves with help from support staff if required.

Care group

The centre is open to people over the age of 65 in the borough, who can register as centre users and can book appointments for any health or social care session directly at the reception desk. The specialised day-care programmes are for older people with assessed high needs, perhaps following an episode of illness. The space can accommodate a maximum of 30 people a day, who arrive in a variety of ways – walking, public transport, dial-a-ride, centre transport.

Range

Provision of health services includes full-time nursing care and part-time physiotherapy and occupational therapy together with regular sessions with the chiropodist, dentist, hygienist, old-age psychiatrist and reflexologist. Health promotion includes continence advice, health checks and health information. As well as dietitians, community nurses and health visitors provide some input. Social care services provide a full-time social work drop-in facility, the restaurant and coffee bar (seven days a week), educational and leisure services, carers’ network, beauty therapy and hairdressing. The educational and leisure services include art classes, dance sessions, chirobics and outings.

Funding

The centre and the outreach services are funded jointly by the Royal Borough of Kensington and Parkside NHS Trust.

Facility

Location

The building is located in North Kensington and occupies three arches under the motorway flyover in Ladbroke Grove. The other arches are occupied by small businesses. Pedestrian access to the centre is possible via an alleyway or from the main road. Parking facilities are limited.

Rehabilitation facilities

Specific physiotherapy and occupational therapy activities occur in the therapy rooms, including an ADL kitchen, consulting room, treatment room, bathroom and laundry, hairdressing and beauty salon. Rehabilitation also takes place in the activities room, the restaurant space and the quiet room. The staff meeting room accommodates a number of drop-in sessions. All spaces are used for varying forms of therapy on a timetabled basis. As there is only one multi-purpose group activity room, the restaurant area is used for other activities such as aerobics, art classes and meetings.
Planning

The building is sited on a tight space under the motorway with limited levels of daylight to the rather deep plan. All therapy and social areas are provided on the ground floor. The office area is limited on the ground floor and the manager’s office is situated on the first floor, which is only accessible through a separate entrance from the outside. This first-floor office space is shared with other voluntary and local authority groups.

Design

Although the building is an infill under motorway arches, the entrance is easily recognisable. Ground-floor spaces are interlinked so that areas for public use are easily accessible. The entrance leads into a reception and coffee bar which then leads on one side to the Sally Deacon restaurant and on the other to the activities room. The rest of the ground floor accommodates the specialist rooms. As for internal spaces, the entrance/reception and coffee bar area are spacious and welcoming, as is the restaurant. The therapy/gym is small and is used for consultation as well as physical therapies.

Comment

The mix of the able and the less able is easily accommodated, and the less able in particular appear to benefit from the mix. The integrated model of care, allowing analysis of individual rehabilitation requirements and then a translation of therapies into daily life, is impressive. The social atmosphere is strong, and the centre is a place where people show a sense of empowerment and ownership. The centre is well used, and user participation contributes to this. The fact that users have to pay for lunches and some other services, such as beauty and hairdressing, engenders an attitude of independence. The building is not extensive, but every space is used as a resource and timetabled for a range of activities.
Cannock Chase Hospital, Staffordshire

Cannock Chase Hospital is a community hospital with 198 beds (including 48 mental health beds) and with a purpose-built rehabilitation facility. The hospital is close to the main shopping area of Cannock.

Service

Approach

The aim of the service is to provide comprehensive rehabilitation for both in-patients and out-patients with a variety of conditions. The unit is managed by Mid-Staffordshire General Hospitals Trust, but there are also primary care facilities and mental health in-patient and out-patient facilities on site.

Care groups

The client group is predominantly older adults with a variety of conditions. The average age of those attending for rehabilitation is 55. The commonest conditions are CVA, decreased mobility and muscular disorders.

Patients are referred from any of the Trust’s wards on site and from GPs and other health professionals. There are 14 designated rehabilitation beds. Many in-patients have received care at the acute general hospital and are then transferred to Cannock Chase to continue their rehabilitation there.

Range

The rehabilitation centre offers the full range of therapy input including physiotherapy, occupational therapy and speech and language therapy. Patients are usually medically stable.

Funding

Patients are almost exclusively local people. Funding is from South Staffordshire HA, Birmingham HA and Wolverhampton HA, and local GPs. There is private funding for driving assessments.

Facility

Location

The centre is a purpose-built facility on the ground floor of the hospital. It opened in 1991.

Rehabilitation facilities

Very little rehabilitation takes place on the wards. Patients attend the centre for physiotherapy and occupational therapy, speech and language therapy, multidisciplinary group activities and clinical psychology.

There is a large, airy physiotherapy room with plinths and associated equipment. The room is large enough to use as a demonstration centre for therapy education. There is also a full-height gymnasium. Both receive good natural light, although overlooking is a problem with the physiotherapy room, which has low-level windows that have had to be obscured from the nearby public highway.

There is a deck-level hydrotherapy pool with adjacent changing and shower facilities. The pool has good alarms and a well-honed routine for rapidly removing patients from the pool in case of emergencies. Patients can enter the pool from steps or via a hoist. Local groups use the pool out of normal hours.

There is a large occupational therapy facility that includes both light and heavy workshops, an outdoor area with raised beds and a
greenhouse, and a well-equipped area for assessment of activities of daily living. The assessment kitchen has variable-height units, and the assessment bathroom has an adapted bath that can be set up to mimic different home installations. An assessment bedroom with ceiling hoist doubles as a seminar room. There is equipment for splinting and for minor adjustments of appliances. The unit has an adapted static car for assessment of disabled drivers. It also has access to adapted manual and automatic cars for assessment. The rehabilitation day unit is accommodated within the rehabilitation department, with easy access to the above facilities. The hospital is close to the local shopping area. Staff use this to help patients re-learn skills of mobility as well as to practise shopping and other outdoor activities. There are both dropped and step kerbs en route.

Planning
The hospital is built on a sloping site with three storeys which take account of the natural contours. There is very little parking space for staff, patients or disabled people. The rehabilitation centre is on the ground floor with true, level access throughout. All corridors are wide, and signage is in large, clear letters. There is good natural light. Floor finishes are non-slip but are very shiny, giving an impression of slipperiness.

Design
The unit is purpose-built. The garden area is easily accessible and well used. Steps have been taken to protect finishes from wheelchair damage. Storage space within the unit is limited – alternative external storage is not used because of problems with damp. The unit provides some equipment for use in patients’ homes, hence the need for large storage areas.

Comment
The unit’s position in a community hospital has allowed the development of rehabilitation as a specialty rather than as a secondary facility. The spacious, light, airy design is welcoming and attractive. Staff take pains to maximise the use of the centre by encouraging local groups to use facilities out of hours. The district wheelchair service is also located within the rehabilitation department.
Victoria House, Southampton

Victoria House is a specialist neurological rehabilitation facility within an acute general hospital. There are 14 beds, of which 11 are currently funded. The unit is attached to a multidisciplinary academic rehabilitation research unit at Southampton University.

Service

Approach

The aim of the service is to provide early in-patient rehabilitation for people with complex neurological problems. A separate rehabilitation unit at a community hospital some miles away takes patients with more predictable conditions, allowing Victoria House to concentrate on people requiring more intensive support.

The unit is currently managed by the acute trust, but is transferring to community trust management. Its location will be unchanged, but it will operate as an in-reach facility.

A multidisciplinary team headed by a professor of rehabilitation medicine assesses and delivers individualised therapy programmes. Average length of stay is 80 days (ranging from 15 to 200 days), with patients most commonly being discharged home.

Care groups

The client group is predominantly younger adults aged 18–65 with complex neurological problems, often following road traffic accidents, stroke or neurological surgery. A smaller number of patients have multiple sclerosis, motor neurone disease or other progressive disorders.

Patients are referred from the acute wards in the general hospital, and some particularly complex cases are admitted from other hospitals also. The unit’s policy is to admit as soon as possible to commence early rehabilitation. Many patients exhibit challenging behaviours that can be minimised with early referral and admission. One advantage of the unit’s position within an acute general hospital is this ability to accept patients who still need the input of acute services, which tends to be high during the first three months of recovery after severe injuries.

Range

The self-contained centre is largely an in-patient facility, although out-patient psychology clinics are held on the premises. Most patients receive the full range of their therapy input within the unit, although some attend the main occupational therapy department, which has a workshop offering a wider range of activities. Some patients with enduring problems continue to attend as out-patients.
Patients frequently have other health needs that require the support of other services such as X-ray. Patients with less complex health needs, whose service can be delivered with less medical backup, are accommodated at a separate unit in a community hospital.

**Funding**

Capital funding for the refurbishment of the building and revenue funding is via the service contract with the local HA and GPs and (in relation to severe head injuries) with adjacent districts.

**Facility**

**Location**

The centre is a self-contained block located at the rear of a large acute general hospital. It was previously a maternity unit.

**Rehabilitation facilities**

There is one 3-bed bay, one 2-bed bay and nine single rooms (not en-suite). The single rooms are spacious and are much preferred by patients and staff to shared rooms. There is overhead tracking for hoists in some rooms, and a combination of fixed and mobile hoist in bathrooms. There is one wheel-in shower that is heavily over-used.

There is provision for physiotherapy and occupational therapy, although OT space is limited and centres largely on activities of daily living. The treatment room is connected by a sliding wall to the dining/recreation room and is used for social events, which frequently include past patients. There are no workshop facilities, although some patients make use of the main OT workshop on the other side of the hospital site. There are also facilities for clinical psychology and speech and language therapy. Other services such as podiatry, dietetics, wheelchair adaptations and orthoses are provided as for the rest of the hospital. Near the OT workshop there is a separate rehabilitation engineering workshop making non-standard customised equipment and adaptations for in-patients and out-patients.

Much of the rehabilitation activity is built into the patients’ day and takes place without excessive reliance on specialist facilities. For instance, there are no stairs within the unit, so patients learn initially on a purpose-built three-step platform. They then practise full flights of stairs elsewhere within the hospital. Staff make good use of the rest of the hospital site for other activities such as shopping practice or road safety.

Many of the patients require supervision, and a number of security measures have been installed. These include a convex mirror to enable views of corridors and external doors, and magnetically-operated security doors. The garden area has an eight-foot-high fence to ensure that patients can have free access to the outdoors without compromising their safety.

**Planning**

The building is single-storey, with true, level access throughout. The combined reception/nurses’ station is in the centre of the building but is well signed. Additional visual clues include coloured stripes on the floor. The rooms are spacious, but the corridors are rather narrow. Kitchen and storage spaces are limited.

There is a multidisciplinary team room, but otherwise staff facilities are limited. Nursing staff tend not to use the multidisciplinary room as much as therapy and medical staff.

**Design**

The unit is adapted from a maternity unit. The garden area opens off the main recreation room and is attractive and light. Steps have been taken to protect finishes from wheelchair damage by installing vertical bars at the entrance to all rooms.

**Comment**

The unit’s position separate from, but within, an acute general hospital allows patients to commence early rehabilitation. The links with the University clearly influence the philosophy of care and the extent of multidisciplinary collaboration. Imaginative use of the wider hospital site and the integration of “real-life” scenarios offset the lack of specific facilities within the unit. The provision of single rooms for each patient is highlighted by staff as a major advantage in helping to prevent the emergence of disturbed patterns of behaviour. Delivering most therapy on-site maximises the use of relevant environmental cues, accelerating the progress made in therapy in this patient group.
The Walton Centre, Liverpool

The Walton Centre is a specialist neurology and neurosurgery trust sharing a site with an acute general hospital. It is largely housed in a new, purpose-built block, but with a Younger Rehabilitation Unit (YRU) occupying an older block on-site.

Service

Approach

The Trust provides emergency and elective neurology and neurosurgery for a wide catchment area. All nervous system disorders are treated, including traumatic brain injury, cerebrovascular disease including subarachnoid haemorrhage, tumours, multiple sclerosis, epilepsy and neuromuscular disorders. Rehabilitation takes place within the acute unit and in a separate YRU.

The Trust is seeking funding for an acute rehabilitation facility in the new block. This would allow early rehabilitation to exploit the plasticity of the nervous system. The Trust’s mission is “to maximise the independence and improve the health of people with neurological injury, illness or disability”.

Funding

The Trust takes patients from Merseyside, Cheshire, parts of West Lancashire, North Wales and the Isle of Man. Nursing and medical staff are employed by the Walton Trust, but dedicated therapy staff are employed via a service level agreement from Aintree Trust. Some facilities (for example hydrotherapy) are managed by Aintree Trust but used by YRU patients.

Facility

Acute in-patient rehabilitation

The main body of the Trust is housed in a new purpose-built block, which opened in 1998. The building is light and airy, with a spacious main reception area containing a low-level desk and an adjacent space for exhibitions or educational activities. The corridors are wide enough for two wheelchairs to pass one another easily, and lifts have self-levelling mechanisms, low controls and audible and visual floor identification. Lift doors have delayed closure mechanisms, which allow disabled people adequate time to enter.

Attention has been given throughout to patient flow. Within the rehabilitation department, OT and physiotherapy share an open-plan office sited between the physiotherapy gym and OT room. There are windows on either side of the office to allow easy observation of treatment spaces, and a third window overlooks the shared waiting area.

The physiotherapy gym and OT room are light and well equipped, with an assessment kitchen and bathroom. There is good storage. The facility has three consulting rooms, which are available on a first-come-first-served basis. One is an informal-style room for counselling. There is a meeting room that can accommodate case conferences. One criticism from staff is the large number of heavy fire doors, which are difficult to open for people in wheelchairs and have delayed closure mechanisms that operate very rapidly over the last few centimetres.

Attention to patient flow extends beyond the immediate department. Adjacent to it is the planned acute rehabilitation ward and the Assistive Technology Unit. The latter facility designs and builds environmental adaptations for clients from a very wide catchment area. Although not part of the Trust, it has been seamlessly incorporated in the most appropriate location.

Younger Rehabilitation Unit

The YRU is a purpose-built, single-storey facility at the rear of the site and adjacent to Aintree Trust’s physiotherapy department. It opened in 1977 and has 16 beds with an average stay of 50 days. Most patients have received their acute care within the Walton Centre Trust. The unit specialises in physical aspects of rehabilitation, and patients with serious behavioural and cognitive problems are referred elsewhere. Patients are medically stable prior to admission to the unit.
The main (automatic) doors open onto a large combined dining and recreation area. There is access from this and from the four-bed bays to a pleasant courtyard garden, although the glass patio doors have had to be adapted to allow wheelchairs to pass the threshold.

There is a combination of four-bed bays and single rooms, with a newly refurbished transitional flat to allow semi-independent living prior to discharge and as an aid to planning home care packages. There is a variety of sanitary facilities including level access showers and assisted baths, and an automatic WC which incorporates a bidet and drying facility for post-toilet hygiene. There are sliding doors on all sanitary rooms, which provoke a mixed reaction from staff and patients.

There are facilities for physiotherapy and occupational therapy, including an assessment kitchen but no OT workshops. The unit has access to a deck-level hydrotherapy pool with adjacent changing and shower facilities. Speech and language therapists and clinical psychologists use a quiet room within the unit. Space that was originally used for four currently unfunded beds is now a research unit.

Planning

The main hospital block is purpose-built and incorporated input from staff and disabled people’s user groups. The clinical facilities are all on the ground or first floors, with administration occupying the second floor. There is true, level access throughout and good use of natural light.

Design

There is a water garden and a quiet room designed in conjunction with students at Salford University. The colour scheme in the main block is strong but restful. Floor finishes are non-slip but very shiny, giving an impression of slipperiness.

Comment

The main block of the Trust offers well-designed surroundings with an emphasis on patient flows. Space has been incorporated for a number of non-trust services to encourage seamless care. The YRU, by contrast, is older and less attractive, although efforts have been made to incorporate the same philosophy.
Emma is a midwife. She was diagnosed as having neurofibromatosis in 1986. Since then, she has had numerous neurosurgical operations. All the operations have been completely successful; however, tumour growth has resulted in nerve damage and impaired function of affected limbs.

In 1996 the severity and extent of the growths resulted in profound disability. Surgery to remove them was successful. Since then, her condition has gradually improved and she now works full-time despite some residual weakness in her arms and legs. She uses a stick, especially in windy weather and on moderate walks.

A patient's story

I was in an acute neurosurgery ward for three months. I had been there so often in the past that I felt quite at home. The staff knew me, understood my home situation and treated me like an individual. When I found out I was going to be transferred to the rehabilitation unit I really didn’t want to go. I wasn’t familiar with the surroundings and the staff didn’t know me.

When I got to the rehabilitation unit, I felt I was in the wrong place. I was in a wheelchair, couldn’t stand or transfer myself and could hardly feed myself, yet I couldn’t accept the fact that I was now disabled. I remember telling the staff that I was in the wrong place, that I wasn’t like the other patients and that “I shouldn’t be here” and would “soon walk out”.

Gradually it dawned on me that my disabilities would not go away. I then learned to accept my disabilities.

My main memory of the unit was lack of privacy. I hated those sliding doors, the noise of them being opened and the invasion of my space every time staff/visitors came to see me. Some knocked, some just barged in. I felt I never had time or space to myself. The person in the next door room had a hearing impairment, so had the TV on really loud all the time. There was never any peace with the combination of noisy sliding doors all along the corridor and noisy television next door.

Going for a bath on the acute unit was a very degrading experience. I was transferred from my room to the bathroom up a corridor on a hoist. Prior to that I had always walked. On the rehabilitation unit I was dressed in my room and was transferred to the shower or bathroom in a shower chair, with a blanket wrapped around me to protect my modesty. The bath/shower areas were down a corridor. I was well covered up, but felt very exposed and vulnerable. The other patients were in the same situation – they had little or no privacy. Private en-suite bath/shower facilities would have been so much better.

The therapy facilities in the rehabilitation unit were much better than in the acute unit. There was more space and better equipment, and the therapy input was excellent. I hated having to ask for anything, so I pushed myself really hard – I was determined to prove what an exceptional patient I was. A member of staff told me I was working too hard and exhausting myself. I was encouraged to rest at night by having my bedrails put up, so that I had to ask for help. I was very angry at the time, having to ask for help. The anger changed to gratitude as I soon felt the benefit of the rest. I realised then that I had been doing too much.

I believe that the unit now has a transition flat where patients who are about to go home can have a sort of semi-independent trial. This would have helped me a lot. It would have been a sign that I was nearly home.

I was in the rehabilitation unit for three months. For a while I was very depressed, and didn’t acknowledge it. When I did I turned a major corner in my rehabilitation.

In all, I was off work for a year. I started back at work doing six hours a week and gradually, over a two-year period, reached my goal of full-time. My role in active midwifery has changed due to the disability. I now participate more in parent education and clinical teaching and am a source of support and information for clients with special needs. The trust I work for has supported me in my return to work, and provided me with any equipment which would make my role easier.

I can do most things now. I’ve had to re-learn a lot. I’ve adapted the way I work, and use different muscles to carry out various tasks. On the whole, I manage to lead as normal a life as possible, and would be the first to advocate – there is life beyond disability. I have to have regular body scans to monitor tumour growth. Currently there are no major changes, so I take each day as it comes.
Appendix 3 – Engineering services for hydrotherapy pools

Mechanical services

The mechanical services in the hydrotherapy suite functional unit and the cost allowance includes providing the following:

- supply and extract ventilation systems and air handling plant, including integral heat pump for energy recovery;
- pool water circulation system, including pumps, pipework, strainer, filter with back-wash control valve and heating calorifier;
- pool accessories, including pool cover, skimmer units, inlets, outlets and drain connections, water “make-up” system;
- pool water treatment equipment and associated control systems.

Heating

Because of the chemically aggressive high humidity levels that are a persistent and inherent feature of the hydrotherapy pool hall, it is recommended that radiators or low-pressure hot water radiant panel heaters should be avoided. The fabric losses for this space should be dealt with by the ventilation system.

Ventilation of hydrotherapy suite

The hydrotherapy pool hall should have a supply and extract ventilation system dedicated to this accommodation. The relatively high ventilation rates and air temperatures necessary within the pool hall justify the provision of equipment to recover some of the heat energy that would otherwise be discharged by this system.

The diffusion of high air temperature from the pool hall into the ancillary changing and recovery accommodation should be achieved by creating a positive air movement from the ancillary accommodation into the pool hall.

In order to reduce condensation on the building fabric (especially windows), the supply air to the hydrotherapy pool hall should be introduced at high level and directed to circulate down the windows and wall structure of the hall. With this arrangement, the extracts would be positioned directly over the pool.

The supply air rate for a hydrotherapy pool should be based upon the total wetted surface area of the pool plus 10%. Project teams should take account of water vapour evaporation from the surface of a hydrotherapy pool, which will be greater than that from a conventional swimming pool due to the comparatively higher pool water temperature. It is recommended that approximately 20% of air supplied to the pool should be fresh air.

The materials selected for the supply and extract ductwork and accessories for the hydrotherapy pool ventilation system must be suitable to endure the humid and chemically aggressive environmental conditions.

Controls for hydrotherapy suite ventilation system

The supply and extract ventilations fans to the hydrotherapy pool hall should be interlocked so that the supply fan will not operate unless an air flow is established within the extract system.

The supply and extract ventilation for the hydrotherapy suite should be time-clock controlled to relate to the normal hours of the operations of the suite. A local override switch may be provided to permit staff to reactivate the plant on an extended day basis as required.

Outside the normal hours of operation of the hydrotherapy suite, when the pool cover will be in place, the rate of evaporation from the pool surface will be greatly diminished but not completely eliminated. In order to prevent excessive condensation on the building fabric, especially glazing, the pool hall ventilation system should be provided with both a night set-back temperature control and a high humidity control. Either of these should override the time clock control and automatically operate the system for such periods as are necessary to restore the desired set-back conditions. The actual set-back levels will need to be ascertained by experiment to suit local site conditions, but settings within a temperature range of 21–25°C and a relative humidity range of 60–75% are likely to be suitable.

In order to assist the users with the day-to-day monitoring of the pool temperature and environmental conditions, consideration should be given to providing a remote indication panel, located in the pool hall, giving visual display of the pool water temperature and the pool hall air temperature and relative humidity.
Plantrooms

It is recommended that the pool water treatment and circulation plant be segregated in a separate enclosure from the pool hall ventilation equipment. These plantrooms can be located adjacent to each other or be a sub-division of a larger space, but it is not necessary for them to be located at the same level. External access to these plantrooms is required for servicing and maintenance.

It is normally preferable for the pool water plantroom to be at ground or semi-basement level. The shape and relative height of the pool hall may permit the ventilation plant to be installed within a roof level plant or enclosure adjacent to the pool hall, and such an arrangement could minimise the length of the ductwork routes to and from the pool hall and associated changing areas.

Special provision must be made within the pool water plantroom for the chemicals used for pool water treatment. Only chemicals for immediate use should be kept here. Separate bunded areas sited as far apart as possible should be provided for each of the chemicals so that they may be effectively segregated, retained and used in a safe manner. This is particularly important when sodium hypochlorite and acid reagents are used, as they react together to produce chlorine gas. To comply with Health and Safety recommendations an emergency “walk under” drench shower with eye-wash provision should be provided within this plantroom.

Ventilation to the pool water treatment plantroom will be required to relieve both the atmospheric contamination associated with the dispensing and/or possible accidental spillage of water treatment chemicals and excess temperature/high humidity which will arise from the plant operating conditions. Any local mechanical extract discharge arrangement should be located to avoid re-introduction of exhausted air into the building through air intakes and windows.

A wash down and hose point should be provided for the dispersal of any chemical spillage and for general cleaning. This should be installed to comply with local water regulations, including the provision of suitable anti-contamination fittings.

Hydrotherapy pool water circulation system

The pool water circulation system should ensure an even distribution of water through the pool and minimise any “dead” zones.

A single in-line strainer unit should be provided immediately prior to duplicate circulating pumps. The pump performance characteristic should be compatible with the requirement for backwashing the filter as well as the circulation duty when the filter is offering maximum resistance immediately prior to backwashing.

A filtration system should be provided with vent, pressure gauges for measuring inlet and outlet pressures, inlet and outlet water sampling points, and a flow-rate indicator. It should also include an appropriately sized pipework assembly so that backwashing utilises pool water to ensure disinfection of the filter media.

The heat exchanger should be capable of maintaining the pool temperature at a selected operating point within the range 34°C–40°C, and to a control tolerance of +1°C. When bringing the pool up to operating conditions after a cold fill, the rate of temperature rise should be restricted to a maximum of 1.5°C per hour to avoid condensation.

A manually operated regulating by-pass valve will be required to set the correct flow rate through the heat exchanger, and a flow rate indicator should be provided for this purpose.

A break tank should be provided for a pool water make-up and should include an automatic self-levelling and make-up system.

A separate outlet should be provided below normal water level, at a suitable position in the pool wall, connected via a manually operated shut-off valve to the strainer unit. This will permit portable fittings to be plugged in for suction cleaning of the underwater surfaces of the pool.

Hydrotherapy pool water treatment plant

Continuous disinfection of the hydrotherapy pool water is essential to control water quality within acceptable limits. Detailed guidance on the microbiological aspects of the health risks and the advantages and disadvantages of the various options for chemical dosing treatments are given in ‘Hygiene for Hydrotherapy Pools’ (under review), published by the Public Health Laboratory Service.

The injection pumps should be automatically controlled, preferably using an electronic control system which responds to the free chlorine level in the pool. The controls should continuously monitor and display the pH and total chlorine level and should also incorporate features to vary the required set-point and compensate for variation in pool water temperature. In addition, the injection pumps should be interlocked with the pool water circulation to prevent the continuation of dosing should there be a cessation or substantial reduction of flow. This interlocking system should be designed to “fail safe”.
The sampling chambers should be of a construction suitable for operating at the elevated pool water temperature and have removable sampling bowls. The outlets from the sampling chambers should be valved and may be returned to the remote balancing tank if this is provided or, alternatively, run to a drain.

In addition to the above fixed equipment, a pool water test kit should be provided which is suitable for manually sampling and testing the pool water for residual free chlorine, pH level, alkalinity and hardness.

**Patient hoist for hydrotherapy pool**

A power-operated patient hoist, traversing over the pool, will be required. The hoist should give smooth lifting, lowering and automatic braking action and have upper and lower limit safety stops. The upper limit stop must ensure the safety of sitting patients. The lifting speed should not exceed 0.05 m per second. The power unit and control ear must be totally enclosed and suitable for long periods of trouble-free operation in the humid, corrosive pool atmosphere. All moving parts of the hoisting unit must be protected from the reach of the patient.

The hoist may be electrically or hydraulically operated and may either be suspended and operate along an overhead beam or be floor-mounted.

The track, trolley, slings, spreader bars, harness and other parts of the hoisting assembly must be designed for a long, trouble-free life, and particular care must be taken in the design and construction of the stitchings and fastening of those parts of the assembly which will be subject to immersion in the pool. All nuts should be fitted with either lock nuts or lock washers, or corrosion resistant self-locking nuts may be used.

If the hoist is electrically operated, special precautions are required to protect the patient and operating staff against the danger of electric shock.

Any transformer or earth-proving units should preferably be located outside the pool hall.

The patient hoist controls should comply with the relevant IEE Regulations for Electrical Installations.

An independent emergency stop control should be provided. It should be located in a position convenient to the operator and should be cord-operated and distinctly coloured and marked. Hand re-setting will be necessary.

**Piped oxygen and medical vacuum (optional services)**

An oxygen supply and medical vacuum may be required in the individual physiotherapy treatment room. Rather than use portable apparatus it may be preferable to have permanent services from the hospital medical gases installations, if these are available. Guidance regarding medical gases installations and terminal outlets is given in HTM 2022 – ‘Medical gas pipeline systems’ and any subsequent published amendments.

**Electrical services**

**Introduction**

In practice the electrical switchroom for the hydrotherapy suite will usually be adjacent to the hydrotherapy pool plantrooms.

**Electrical installations**

Within the hydrotherapy pool area and associated water treatment plantroom, any exposed services should be of PVC or similar finish to avoid corrosion by humid and chemically aggressive atmospheric conditions. Mineral-insulated PVC sheathed cables may be used.

**Lighting**

In the hydrotherapy pool area, the general lighting luminaires should be splash-proof (IP54 degree or protection as classified in BS 5490) and made from a non-corrosive material. Consideration should be given to maintenance with, ideally, no luminaires positioned immediately over the pool itself. With a high ceiling level in the pool hall, wall-mounted luminaires are one option, but care should be taken to avoid problems with glare. This could be alleviated by uplighting but, to achieve the required illumination levels, this may involve having to use floodlights as uplighters.

Any luminaires (other than those operated at safety extra low voltage (SELV)) that are installed above the pool or the area within 2 m of the pool, should be installed at a height greater than 2.5 m above the floor/access level.

Any luminaires installed over the area between 2 m and 3.5 m from the pool, should either be class II or should be installed at a height greater than 2.5 m above the floor/access level.

Within the physiotherapy activity area with high ceilings, consideration again should be given to using wall-mounted luminaires to provide convenient access for
maintenance. These luminaires should be manufactured from materials having good resistance to impact damage.

Within the occupational therapy activity areas fluorescent lighting should generally be provided, and be circuited to avoid stroboscopic effects where rotating machinery is used. Ceiling-mounted luminaires positioned above workbenches and equipment are preferable to portable lamps for task lighting. When maximum flexibility of use is required, such as in the light activities area, it may be advantageous to install ceiling-mounted power track. This will allow task lighting and power supplies for portable therapy equipment to be directly accessible without the hazard of trailing cables, and has the potential for changing lighting patterns to suit other group activities.

**Socket-outlets and floor cleaning equipment in the hydrotherapy pool hall**

Socket-outlets will usually be required within the hydrotherapy pool hall for floor cleaning machines. These should be sited at least 2.0 m, and preferably 3.5 m, away from the edges of the pool water surface and should be industrial-type sockets, as classified in BS EN 60309-2. They should be connected via an integral or adjacent residual current protective device complying with BS 4293, having a residual operating current not exceeding 30 mA.

As a further safety precaution, all 230 V floor cleaning equipment should be fitted with a restraining lanyard, sliding along a secure wire fixed to the pool structure, of a length permitting operation of the equipment but short enough to prevent it falling into the pool.

**Power connection for pool counter-current unit (optional facility)**

If a counter-current unit is to be provided (see paragraph 6.69) it should be connected via an appropriately rated residual current protective device having a residual operating current not exceeding 30 mA. The electrical controls, which may be incorporated within the unit assembly, should be of a type which provides at least IP44 degree of protection, as classified in BS 5490, and also protects the operating staff against the danger of electric shock. They may be pneumatically operated or electrically operated at a safety extra low voltage (SELV) not exceeding 12 V (RMS) using an earth-free source and circuits which comply with the relevant IEE regulations for Electrical Installations.

**Internal drainage**

**Design parameters**

Depending on local circumstances, special consideration may have to be given to the size of the drainage connection from the hydrotherapy pool to deal with the flow rates associated with filter backwashing and pool emptying.
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