HEALTH BUILDING NOTE 22

Accident and emergency department in an acute general hospital

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in the United Kingdom

Accident and emergency department
in an acute general hospital

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About this publication

The Health Building Note/Scottish Hospital Planning Note (HBN/SHPN) series are intended to give advice on the briefing and design implications of Departmental policy.

These Notes are prepared in consultation with representatives of the National Health Service and appropriate professional bodies.

Health Building Notes/Scottish Hospital Planning Notes are aimed at multi-disciplinary teams engaged in:

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

Throughout the series, 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.

Health Building Note/Scottish Hospital Planning Note 22

HBN/SHPN 22 has been prepared jointly by NHS Estates and the Estates Division of the Management Executive, NHS in Scotland and is the first HBN/SHPN to have a UK-wide application.

HBN/SHPN 22 focuses on an accident and emergency department with a workload range of 20,000 to 70,000 new patient attendances per annum located in an acute general hospital.

Accommodation is provided for:

• three main groups of patient-related activities, including:
  (i) reception, assessment, and registration;
  (ii) waiting and
  (iii) consultation, examination and treatment;
• staff;
• storage.

Noting the large proportion of children who attend accident and emergency departments, HBN/SHPN 22 encourages project teams to give special consideration to the provision of separate sections for children and for adults.
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1.0 Scope of Health Building Note/Scottish Hospital Planning Note 22

Introduction

1.1 This Note is a guide to the planning and design of accident and emergency (A and E) departments in acute general hospitals. It replaces Health Building Note (HBN) 22 -- ‘Accident and emergency department’ (1988) and Hospital Planning Note (HPN) 3 -- ‘Provision and design of casualty and accident departments’ (1961).

1.2 This Note reflects current opinion on the design of A and E departments; drawing together the best current knowledge of appropriate space, performance and cost criteria for health care needs. Care has been taken to ensure that the guidance and space standards for the accommodation described are as economical as possible without detriment to clinical service standards.

1.3 Project teams planning the upgrading of existing or provision of new A and E departments should seek the advice of medical, nursing, ambulance and appropriate other staff who are experienced in the management of A and E services.

1.4 References are listed following the appendices. Full details about documents are included in the References; they are shown against the paragraph number in which the document title occurs and include references to equivalent documents for England, Northern Ireland, Scotland and Wales, as appropriate and in that order.

Range of provision

Inclusions

1.5 This Note describes an A and E department which:

- can accommodate people who attend without appointment for a wide variety of conditions (see paragraph 2.3). Provision is also made for patients’ escorts;

- enables medical, nursing and other staff in the department to consult, examine and treat, promptly and at any time, people who are ill or injured. Spaces and facilities are required which can cope with a wide range of activities and be used flexibly;

- needs ready access to and the support of other departments in an acute general hospital (see paragraphs 3.11 to 3.18);

- can be provided in the workload range 20,000 to 70,000 new attendances per annum. A Schedule of Accommodation, (see Chapter 7), is included for A and E departments with:
  (i) 20,000 new attendances per annum;
  (ii) 30,000 new attendances per annum;
  (iii) 50,000 new attendances per annum;
  (iv) 70,000 new attendances per annum.

Project teams planning A and E departments with different workloads should make an appropriate adjustment to the Schedule of Accommodation. The features referred to above apply to the provision of an A and E department regardless of its size.

Exclusions

1.6 This Note excludes guidance for:

- specialist major trauma units. Guidance may be published as a supplement to this Note;

- departments where new attendances are fewer than 20,000 per annum;

- specialist minor injury units, nurse practitioner units and primary care emergency services (Scotland). Guidance may be published as a supplement to this Note;

- emergency admission units, A and E in-patient beds and dedicated operating theatres;

- fracture clinics.

Capital Investment Manual (England and Wales)

1.7 The Capital Investment Manual contains the NHS Executive’s procedural framework governing the inception, planning, processing and control of individual health building schemes. There are various mandatory requirements within this overall process but the way these tasks are carried out is mainly for NHS bodies to determine. Approval from the NHS Executive for business cases will depend on how they intend to carry out the mandatory tasks. The Manual gives guidance on the technical considerations of the full capital appraisal process and also provides a framework for establishing management arrangements to ensure that the benefits of every investment are identified, realised and evaluated. It emphasises three key points:
• each individual scheme must be supported by a sound business case. A business case must convincingly demonstrate that the investment is economically sound (through an option appraisal) and financially viable (affordable to the NHS body and its purchasers);

• an exploration of private finance alternatives should be viewed as a standard option whenever a capital scheme is being considered. Once the Outline Business Case has been approved, the preferred option should be compared to potential private finance alternatives. Approval to the Full Business Case will not be given unless there is a clear demonstration that private finance alternatives have been adequately tested;

• the delivery of a major capital project is a difficult and complex task. Nevertheless failure to deliver on time and to cost diverts resources from direct patient care. The establishment of an appropriate project organisation is essential to ensure that projects are delivered within agreed budgets and timescales.

Health Building Procurement (Scotland)

1.8 Health Building Procurement in Scotland is the mandatory procedural framework governing the inception, planning, processing and control of individual health building schemes. The aim is to promote a consistent and streamlined approach to capital development that achieves best use of resources through the selection and construction of relevant and cost effective schemes that open on time and within budget. It identifies the main procedural activities and provides a framework for delegation with effective management and the proper accounting for expenditure and performance. Chapter 2 of SHPN 1 - ‘Health Service Building in Scotland’ issued under cover of SOHHD/DGM(1991)79 sets out each of the stages included in Health Building Procurement in Scotland. These procedures are currently under review.

Health Building Notes/Scottish Hospital Planning Notes 1 and 2

1.9 HBN 1 - ‘Buildings for the health service’ and SHPN 1 - ‘Health service building In Scotland’ describe the planning, construction and commissioning of a health building and introduce the readers to Departmental publications on all aspects of building.

1.10 HBN 2 - ‘The whole hospital: briefing and operational policies’ and SHPN 2 - ‘Hospital briefing and operational policies’ describe the preparation of a brief for a health building and explain how the stages of the process may be related to mandatory requirements. They also give guidance on the formulation of operational policies governing the content, working and design of hospitals.

Cost allowances

1.11 The Departmental Cost Allowance Guides (DCAGs) associated with this Note are:

• promulgated in the Quarterly Briefing (issued separately under cover of an Estate Policy Letter) on behalf of the NHS Executive;

• given in the Schedule of Departmental Cost Allowances published by NHS in Scotland Management Executive - Estates Division.

Equipment

1.12 Equipment is categorised into four groups, as follows:

• Group 1: items (including engineering terminal outlets) supplied and fixed within the terms of the building contract;

• Group 2: items which have space and/or building construction and/or engineering service requirements and are fixed within the terms of the building contract but supplied under arrangements separate from the building contract;

• Group 3: as Group 2, but supplied and fixed (or placed in position) under arrangements separate from the building contract;

• Group 4: items supplied under arrangements separate from the building contract, possibly with storage implications but otherwise having no effect on space or engineering service requirements.

1.13 Group 1 items are provided for in the Departmental Cost Allowance Guide associated with this Note. The Department of Health Equipment Cost Allowance Guide (ECAG) specifies a sum of money for the functional unit for Groups 2 and 3. In Scotland, guidance on formulating a cost allowance for Groups 2, 3 and 4 is contained in SHHD/DGM (1989)96 issued to general managers of health boards on 24th November 1989.

Works Guidance Index

1.14 This volume contains guidance that is current at the time of publication. Specific issues such as arrangements for dealing with fire, security, energy conservation, etc are also covered by other published guidance which must also be taken into account. Project teams should check the current edition of the Works Guidance Index and investigate the possibility of changes occurring after its publication. In Scotland, enquiries in the first instance concerning particular items should be directed to the NHS in Scotland Management Executive - Estates Division.
2.0 General service considerations

Introduction

2.1 This chapter considers ways in which A and E patients can be classified and service issues related to the provision of an A and E department, including the principal functions of a department, organisational arrangements within a department, the workload and size of a department, and relationships with whole hospital services.

Classification of patients

2.2 People who attend A and E departments can be described and classified in various ways, as outlined below.

Reasons for attendance

2.3 Most people attend A and E department because they are suffering from:
- a moderate or severe illness or emergency. This group attends as an alternative to seeing their general medical practitioner (GP);
- an injury for which they would not normally attend their GP, for example a fractured limb;
- a serious medical emergency, such as asthma;
- a serious surgical emergency or multiple injury;
- the results of alcohol and/or drug abuse.

2.4 The majority of patients attending an A and E department will have soft tissue injuries, suspected fractures and a wide range of other minor conditions. The next largest group has medical or surgical emergency conditions which may or may not require admission. Only a small proportion of A and E patients (less than 1% in the UK) have suffered major trauma.

Initiators of attendances

2.5 The four main initiators of attendances are:
- patients themselves;
- ambulance and other emergency services;
- GPs;
- other hospitals.

2.6 Local policy will determine whether GP emergency admissions of patients to in-patient beds should be direct to wards or via the A and E department. With the latter policy, account will need to be taken of the additional workload when sizing the department.

Manner of arrival

2.7 Patients may be classified by their manner of arrival at an A and E department as ambulant or non-ambulant. In this context, the term “non-ambulant” is used to describe patients who are not ambulant because of an accident or emergency rather than because of a disability.

2.8 Ambulant patients:
- are significantly higher in number than non-ambulant patients;
- may require urgent attention although most will not;
- may have been transported by ambulance although most will have arrived on foot, by private car, by taxi or by public transport.

2.9 Conversely, non-ambulant patients:
- are more likely to require urgent attention;
- are more likely to have been transported by ambulance.

New and return attenders

2.10 The A and E service is demand-led. The number of new attenders will depend on local emergency health care policy concerning the use of hospital A and E and primary care resources. Figure 1 illustrates a general increase in the number of attendances of new patients over the period 1983 to 1992/93 in the United Kingdom (UK).

2.11 Return attenders are patients who are asked to return to the department for follow-up care or clinical review, including review by more experienced medical staff of treatment given by junior doctors. Figure 2 illustrates a decrease in the number of return attendances over the period 1983 to 1992/93. In the UK as a whole, the proportion of return attenders fell from 37.5% in 1983 to 19.8% in 1992/93. The fall reflects:
- a sustained effort to reduce the number of re-attenders;
- referral of more patients for follow-up to:
  (i) GPs;
  (ii) appropriate out-patient clinics.

Children and young people

2.12 People of all ages attend A and E departments but special consideration should be given to the needs of children and young people.
Notes

Sources of Data
1. England - Department of Health, Statistics Division
2. Northern Ireland - Department of Health and Social Services, Strategy & Intelligence Group
3. Scotland - National Health Service in Scotland Management Executive, Directorate of Information Services
4. Wales - Welsh Office, Health Statistics and Analysis Unit.

Years of Collection of Data
4. United Kingdom - statistics for England, Northern Ireland, Scotland and Wales have been aggregated to provide United Kingdom (UK) statistics. The years of collection of data of England have been used as a basis for the UK statistics as England has the largest number of attenders at accident and emergency departments.

Statistics Included
The figures refer to attendances at accident and emergency departments although it is clear from the sources of data that some attendances were to minor injuries units, small hospitals providing an accident and emergency service, etc. For example, total attendances at some hospitals were less than 1,000 per annum.
2.13 The Department of Health report ‘Welfare of children and young people in hospital’ and the SOHHD report ‘At home in hospital’ state: “One third of all patients seen in accident and emergency departments are children and appropriate provision is necessary to meet the needs of children and their families”. The reports go on to advise that consideration be given to certain standards; those with planning and design implications are reproduced below:

- “provision of appliances and equipment appropriate for the treatment of children - for example child-size resuscitation equipment”;
- “separate waiting space, play facilities and examination, treatment and recovery rooms furnished and equipped to meet children’s needs in safe conditions”;
- the need for access of parents/cares in examination/ X-ray and anaesthetic rooms;
- “policies which ensure that health promotion opportunities offered by the attendance of children and their families at A and E departments are fully exploited”;
- “procedures and facilities for counselling, comfort and support of parents in the event of the sudden death of a child”.

2.14 Every effort should be made to ensure that children can come to no physical harm and are not upset by sights and sounds in the A and E department, and that adult patients are not upset by the presence of children. This can be facilitated by an appropriate planning solution.

2.15 Project teams may find it helpful to refer to Health Building Note (HBN) 23 - ‘Hospital accommodation for children and young people’.

The principal functions of an A and E department

2.16 The principal functions of an A and E department are the reception, assessment, examination and treatment of patients with a wide range of needs, as defined in paragraphs 2.3 and 2.4. Specific activities and special requirements in an A and E department are described below.

Reception and assessment

2.17 The term “triage” denotes the assessment of patients arriving at an A and E department to ensure they receive appropriate attention, in a suitable location with a requisite degree of urgency. Triage is accepted practice in many hospitals. Triage has also been specifically recommended by National Audit Office reports. Potential benefits are identified as:

- patients are seen broadly in order of clinical priority, with potential for more favourable outcomes;
- better communications with patients, for example, on waiting times;
- patients may be advised to seek a more appropriate source of treatment, thereby relieving pressure on the A and E department;
- better management of workload.

2.18 In practice, the term “triage” is used to describe a wide variety of assessment procedures from a brief initial assessment to full, formal triage which can take more than five minutes. The added value of formal triage compared with informal prioritisation has been questioned; informal prioritisation has also been found to be more effective for urgent cases (see ‘Nurse triage in theory and in practice’ and ‘Do formal controls always achieve control? The case of triage in accident and emergency departments’).

2.19 Waiting time charter commitments should be taken into account by planning teams when determining provision in this area.

Consultation, examination and treatment

2.22 People with life-threatening emergency conditions attend A and E departments and should be treated in dedicated, appropriately equipped, resuscitation facilities. Most patients who require resuscitation are not likely to attend any other space in the department; they will be
admitted directly to that space and transferred from the space directly to in-patient accommodation.

2.23 Patients who require major surgery should be treated in an operating theatre in the hospital’s main operating department. Most patients are likely to be admitted to an in-patient bed prior to surgery.

2.24 Patients who require other surgical and operative procedures should be treated in an anaesthetic/procedures/plaster room which is appropriately equipped and has a controlled clinical environment.

2.25 The remaining patients will require facilities for consultation, examination and treatment.

Radiological examinations

2.26 Many patients attending A and E departments require radiological examinations. A significant proportion of these patients will be very ill and in need of continuing medical and nursing care while being examined. Consequently, the hospital’s main radiology department should be located close to the A and E department; there should be easy access and a short distance of travel for patients between the two departments. Such an arrangement offers the further advantage of ready access to specialised facilities in the main radiology department. If the main radiology department is not close enough to the A and E department, consideration will need to be given to the provision of a satellite radiology unit.

2.27 Modern resuscitation techniques may involve patients remaining in a resuscitation room for substantial periods, during which a high standard of radiology on difficult patients is required. Processing facilities in the main radiology department or satellite radiology unit should be used.

2.28 The X-ray equipment may be used for routine purposes, for transmitting images for distant diagnosis routinely and in an emergency. Such an arrangement may be particularly helpful in respect of:

• non-ambulant patients;
• smaller departments where the main radiology department is not conveniently located. The provision of processing equipment within the department will be determined by local needs. Account needs to be taken of the staffing implications for radiographers.

2.29 Clinicians may prefer ceiling-mounted X-ray equipment on a gantry which traverses resuscitation spaces, rather than mobile X-ray equipment. Project teams should carefully compare both and consider:

• capital cost, including purchase price, provision of parking space for mobile X-ray equipment and installation of, and ceiling-height, structural support and structural radiation shielding requirements for, ceiling-mounted X-ray equipment;
• image quality. The image quality of mobile X-ray equipment has improved significantly in recent years;
• advantages and disadvantages in use of the two types of equipment.

Recovery and observation

2.30 Reclining chairs may be provided for patients not likely to require admission as an in-patient but who need to lie down to recover and rest prior to discharge. Patients should not lie on trolleys for longer than necessary to prevent bed sores. Pre-discharge recovery may be necessary, for example, following:

• post-anaesthesia recovery;
• various operative, surgical and treatment procedures.

2.31 This Note does not describe beds associated with the A and E department, such as:

• those where patients are kept under intensive observation, for example, patients who have sustained head injuries and who, although conscious, may develop signs of an intracranial lesion;
• those for receipt of emergency admissions, particularly at night.

Disinfection, decontamination and isolation

2.32 It may be necessary, depending upon local policy on which hospitals are likely to receive patients contaminated with radioactive material or chemicals, to make available a decontamination room suitable for the purpose. The advice of the appropriate radiation protection adviser and emergency planning officer should be sought on the need for and design of the room.

2.33 As the need to disinfect, decontaminate and isolate patients prior to examination and treatment in an A and E department is infrequent, it is logical to consider use of the same space for all three activities.

2.34 The design should seek to reduce the probability of contamination of the rest of the premises: in particular, by providing direct external access and means of isolating the ventilation system from the rest of the hospital.

2.35 The room should contain a shower or other means of cleansing patients contaminated with radioactive material or chemicals. See paragraph 6.113. Depending upon local policy, the room may also be used for cleansing.
patients contaminated with vermin or whose clothing is contaminated with excessive soiling. See paragraphs 4.40 to 4.42, 6.26 and 630.

2.36 Patients who require, or are found on admission to require, source or protective isolation may be examined and treated in this space.

Death of patients in the department

2.37 Some patients may be “dead-on-arrival” or may die in the A and E department. A designated room is required where bereaved persons may be allowed privacy and an unhurried visit to see the deceased person and/or to confirm identity. See also ‘Bereavement care in accident and emergency departments’.

2.38 A designated room is also required where bereaved persons can sit, talk, take refreshments, make telephone calls and be interviewed in comfort and privacy. Informal terms, such as “Sitting room” or “Garden room” (if there is access to a garden), humanise the facilities. The term “Relatives room” could be perceived as impersonal, austere and limiting by the bereaved. See also ‘Bereavement care in accident and emergency departments’.

2.39 Following certification of death and the departure of the bereaved, the deceased person will be taken to the mortuary.

Major incidents

2.40 Most hospitals have contingency plans for major incidents involving multiple casualties, and it is normal for the A and E department to be the organisational focus for the implementation of such plans. Four important planning and design issues associated with the occurrence of a major incident are the need:

- to identify a control centre for information gathering and communicators’ co-ordination;
- to identify possible use of adjacent departments and/or other spaces at an early planning stage in the event of an influx of patients;
- to provide adequate storage space for the equipment and supplies which may be required, and a facility for recharging portable electrical equipment,
- to provide adequate space for ambulance parking.

Organisation and patient flow

2.41 The single over-riding organisational factor in an A and E department is its readiness at all times to provide emergency treatment for any patient.

2.42 The organisation of departments varies but patients are usually separated into streams in accordance with the urgency of need for treatment. Streaming may be sample and into three groups, such as:

- emergency cases, who do not wait for treatment;
- urgent cases, who need to be treated as soon as possible;
- non-urgent cases, who can wait.

Ambulance, police or fire service personnel may give advance warning to staff in an A and E department of the impending arrival of emergency cases. Increasing numbers of ambulance drivers/attendants are receiving paramedical training and are able to initiate treatment and provide information about the condition of patients, thereby enabling staff in an A and E department to be prepared for their arrival.

2.43 Patients who require immediate attention are taken straight to an appropriate treatment space, such as the resuscitation room. In such cases, reception and registration procedures are carried out concurrently with treatment. Information about patients delivered by ambulance may be provided by ambulance personnel; further information is collected from the patient (if appropriate) and/or from escorts. Patients who do not require immediate attention are received and registered prior to consultation, examination and/or treatment.

2.44 While the number of new attendances is the basis for planning, there are variations in operational policy which planning teams must take into account. These could lead to differences in the numbers of rooms required. Some hospitals provide a primary care emergency facility within the hospital A and E department. Similarly, in some hospitals, GP emergency referrals for admission may be examined, investigated and treated by relevant specialist consultant teams using A and E facilities before admission to the ward. Additionally, if coronary patients are to be admitted and treated within the A and E department, the number of resuscitation bays should be increased; however, if these patients are sent fast-track to respiratory/coronary care units elsewhere, no increase is required. Planning teams should ensure that these variations in A and E practice are taken into account in determining the level of facilities.

2.45 There are two methods for doctors/nurses (either together or separately) consulting, examining and treating patients:

- the “doctor/nurse-to-patient” method, where a patient is assigned to a specific space and the doctor/nurse attends the patient;
- the “patient-to-doctor/nurse” method, where a doctor/nurse stays in one place and sees patients sequentially.
Both methods may be used: the design of the department, therefore, should not preclude operating either way.

2.46 Following consultation with, and/or examination by, a doctor/nurse, the patient may follow one of several courses, depending on diagnosis, for example:

- immediate discharge;
- treatment, such as removal of foreign bodies from the eyes, application of dressings and initial treatment of certain fractures, in the same space, followed by discharge;
- treatment, such as suturing of lacerations, closed reduction of fractures and application of Plaster of Paris casts, in an anaesthetic/procedures/plaster room, followed by discharge or pre-discharge recovery;
- further investigation before treatment in the A and E department, such as radiodiagnostic examinations;
- admission to an acute in-patient ward, intensive therapy unit or the coronary care unit. Admission may follow treatment in the A and E department, such as resuscitation. Admission may be for observation, for treatment, or prior to major surgery in the main operating department;
- referral to another agency, for example, Social Services Department.

Workload

2.47 The most convenient measure of workload for sizing an A and E department is the number of new attendances per annum.

2.48 Figure 3 illustrates a breakdown of the new attendances per annum at A and E departments in England, Northern Ireland, Scotland and Wales separately, and in the United Kingdom in total, in 1992/93. It is noted from Figure 3 that:

- 36 A and E departments recorded new attendances between 20,000 and 30,000;
- 100 A and E departments recorded new attendances between 30,000 and 50,000;
- 65 A and E departments recorded new attendances between 50,000 and 70,000;
- 45 A and E departments recorded new attendances over 70,000.

2.49 Local factors which influence the workload of an A and E department include:

- population served;
- geography;
- demography;
- underlying morbidity;
- industrial activity;
- leisure activity;
- proximity to motorways and major trunk roads;
- access to alternative facilities;
- policy with regard to return attenders.

Functional unit

2.50 In this Note, the number of new attendances per annum is used as the basis for determining the size of an A and E department.

Sizing an A and E department

2.51 The Schedule of Accommodation in Chapter 7 identifies four sizes of A and E department. The size of a project-specific department may be calculated from the Schedules of Accommodation and the actual or estimated number of new attendances per annum. The Schedules of Accommodation include allowances which assume a rate of about 15% for return attendances per annum. Project teams planning A and E departments which vary significantly from this rate will need to make appropriate adjustments to the Schedules of Accommodation. The number of new attendances per annum at an A and E department is a routinely collected hospital statistic. Clinical case mix information may be available from local databases.

Facilities for staff

2.53 Staff in A and E departments routinely work in stressful situations. Provision of good facilities helps morale and contributes to the efficient functioning of the department. Facilities for staff should include:

- facilities for education and training;
- rest (including beverage preparation) facilities;
- overnight stay accommodation for medical staff (which can also be used for study during the day);
Notes

1. See Notes with Figures 1 and 2.

Figure 3: Numbers of hospitals with new attendances at accident and emergency departments in eight bands in England, Northern Ireland, Scotland, Wales and the United Kingdom in 1992/93.
• staff change and associated facilities.

The workload in A and E departments fluctuates significantly and staff may need to be recalled urgently. It is important, therefore, that facilities for staff are located in the department.

Education and training

2.54 A seminar room is required where education, training and discussions can be held for staff working in and associated with the A and E department. The seminar room may also be used by visiting students, for example, medical, nursing and ambulance staff. Local project teams may consider provision of a closed-circuit television system with full two-way audio links between treatment area(s) and the seminar room, and facilities for video-recording. Teaching may also take place in appropriate spaces in the department.

2.55 Interactive computer teaching facilities may be made available for use by A and E staff and ambulance staff.

2.56 Teaching requiring special audiovisual facilities should take place in a postgraduate medical centre, or in a hospital education centre.

Staff change

2.57 Staff may change from outdoor clothes into hospital or department uniforms in changing accommodation located within the department, or elsewhere in the hospital, as determined by local policy.

2.58 If changing accommodation is located elsewhere, then it will be necessary to provide within the department:

• small lockers for secure storage of small items of personal belongings;
• a shower;
• a WC.

2.59 This Note assumes that all staff who need to change will do so elsewhere in the hospital.

Information management and technology

2.60 Information management and technology (IM&T) is fundamental to the successful operation of an A and E department. The system selected should offer a wide range of facilities and be consistent with local and NHS IM&T strategies which may be obtained from the Publishing Department, DSS Distribution Centre, Manchester Road, Heywood, Lancashire, OL10 2PZ. A national overview of the trend towards voice and data communication 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.

2.61 Project teams should consider the requirement for radio communications between ambulance services and the A and E department. Consideration should also be given to fax machine communication between A and E departments and GP surgeries, and between A and E and other hospital departments and other hospitals.

2.62 Developments in telemedicine may require transmission of video/ECG/X-ray/scanner images between A and E departments and centres of specialist expertise in other hospitals.

2.63 Figure 4 illustrates a comprehensive IM&T network for an A and E department. A glossary which explains the meaning of the terms used on the figure is included at Appendix 1. Choice of systems and matters such as the location of computer terminals, which functions to include on the system, and access levels to information, should be determined locally. Examples of data handling needs which would be met by installation of a network such as that shown on Figure 4 include:

• within the department:
  (i) maintaining the appointment system for return attenders;
  (ii) operating a patient management system;
  (iii) providing management information, including clinical audit;
  (iv) managing materials;
  (v) managing statistical information, including feedback from patients, general practitioners and community nurses;
  (vi) storing reference material;
• with other hospital departments:
  (i) making appointments for out-patient clinics;
  (ii) transmitting urgent results from the pathology department;
  (iii) transmitting radiological images;
• with patients:
  (i) confirming appointments for return attenders;
  (ii) final checking that return attenders still plan to attend;
• with GPs, advising of attendance and requesting follow-up visit;
• with community nurses, requesting visit after attendance at the department;
Key to data and telephony station functions
Each station will have provision for IT and telephones

**Doctor**
- Appointments
- Clinical coding
- Electronic mail
- GP contact
- Health records
- Medical audit
- Orders
- Reference material
- Results
- Word Processing

**Nurse**
- Appointments
- Care planning
- Community contact
- Electronic mail
- Health records
- Orders
- Patient assessment
- Results

**Manager**
- Contracting
- Decision support
- Electronic mail
- Health records
- Non-clinical orders
- Patient assessment
- Pharmacy
- Reviews
- Word processing

**Administration**
- Appointments
- Electronic mail
- Health records
- Non-clinical orders
- Pharmacy
- Reviews
- Stores

**Stock**
- Patients appliances
- Pharmacy
- SSD
- Stores

**Tracking patients**

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*Figure 4 Data and telephony network diagram*
2.64 Project teams should:

- consider the IM&T needs of the department at an early stage;
- review current IM&T developments;
- check that proposals conform with local IM&T policies;
- ensure that sufficient space is provided at the design stage to meet the anticipated need for special power supplies, modems, visual display terminals (VDTs), printers and associated software, stationery, and conduits for cables;
- where necessary and if a suitable space is not available elsewhere, ensure that a room is provided within the department to accommodate the IM&T equipment. The space requirements, temperature limits, etc should be obtained from the equipment manufacturer;
- ensure that VDT screens are sited so that the displayed text is not visible to members of the public (although it may be considered an advantage to be able to turn the screen to enable the patient to check the accuracy of the information entered);
- ensure that the contents of the VDT screen are legible (see paragraph 6.62);
- ensure that equipment noise is controlled within acceptable limits and, where necessary, fit acoustic hoods or locate the equipment in a separate room;
- ensure that adequate provision is made for the security of data and devices.

Health records

2.65 Provision should be made for retaining accident record cards in the A and E department for a period of at least one year. It is assumed that records of patients who have not attended the department for one year or more will be filed in the health records department.*

Materials handling

2.66 Project teams should give careful consideration to supply, storage and disposal systems. The quantity and distribution of storage space is determined by local operational policies.

2.67 Project teams should consider:

- the fluctuating workload of the A and E department, with weekend peaks;
- whole hospital materials handling: supplies, storage and disposal policies. The frequency of deliveries, the amount of storage space required in the department and the delivery and storage policy of the supplying department are interrelated. The lower the frequency of delivery, the greater the capital outlay on working stocks and the amount of storage space required. This is particularly significant in respect of items reprocessed by the sterile services department (SSD);
- the types of item supplied, for example sterile supplies, office supplies and clean laundry;
- delivery and collection points;
- the volume and location of storage spaces (including spaces where items are held awaiting collection for reprocessing or disposal);
- specialised storage requirements, for example for pharmaceutical supplies (especially Controlled Drugs) and major incident emergency supplies.

2.68 Control of stock, which may require computer support, increases efficiency and can effect appreciable reductions in costs. The value of a departmental stores management system will be enhanced if it can be linked to an existing hospital materials handling system.

2.69 Organising an efficient and economical system for supply, storage and disposal is demanding and complex. Systems and timetables for ordering supplies, for delivery and for disposal should be devised and agreed with appropriate organisations external to the hospital and with the managers of relevant hospital departments, Including hospital stores, SSD, pharmacy, laundry and portering services. Good working relationships and communications with other hospital departments are of fundamental importance.

2.70 Guidance on the disposal of clinical and infected waste is contained in 'Safe disposal of clinical waste'. 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 BS7320: 1990) should be used for "sharps", particularly needles. Use of sharps containers minimises the risk of injury to staff, particularly portering staff handling clinical waste for incineration.

Sterile services

2.71 A SSD may provide a service to the A and E department which includes cleaning, disinfecting and/or sterilising specific items of medical equipment. Normally, items of medical equipment will be sent to the SSD.

*This statement amends HBN 47 - ‘Health records department’ which states that one of the functions of the health records department is “filling, storing and retrieving health records, including: accident and emergency records, in microfilm format, of patients who have not attended the accident and emergency department for two years or more.” SHPN 47 is currently in preparation.
2.72 Items of medical equipment should be disinfected prior to servicing. User servicing of electronic and medical engineering (EME) equipment may be carried out within the A and E department, but scheduled servicing should be carried out in the EME workshop (see HBN 34 and SHPN 34 - ‘Estates maintenance and works operations’).

2.73 Facilities will be required in the A and E department for automatically emptying, cleaning and disinfecting suction bottles.

Domestic services

2.74 A domestic services manager (or equivalent if the service is contracted out) will be responsible for organising the domestic cleaning services. It is assumed that most of the work will be carried out by domestic services staff based in the department but that some work will be carried out by a whole hospital team when most convenient.

2.75 Accommodation is required in the department where cleaning equipment can be stored and cleaned, and as a base for domestic services staff. The size and content of the space will be determined by the scope and extent of the services provided from it, as determined by the whole hospital policy. The type and number of items of equipment and materials to be stored will depend upon the finishes provided, the number and deployment of domestic services staff, and the frequency of cleaning.

2.76 Extensive spillage, sometimes obnoxious, commonly occurs in A and E departments. A small set of cleaning utensils and materials for emergency use should be immediately accessible to staff on duty at all times. The items should be stored separately from the cleaners’/domestic services room and be checked and cleaned or replaced regularly by a member of the domestic services staff.

Catering facilities

2.77 Vending machines in or close to waiting areas are likely to be the most appropriate method of providing the majority of patients and escorts with snacks and beverages. Care should be taken to ensure that patients who are likely to need a general anaesthetic do not eat or drink while waiting.

2.78 This Note assumes that staff will attend the hospital staff dining room for main meals but may prepare and consume snacks and beverages in the staff rest room.
3.0 General functional and design requirements

Introduction

3.1 This chapter provides planning and design guidance for an A and E department based on the service objectives outlined in Chapter 2. Additional guidance which is common to all health buildings is provided in Chapter 5.

General design considerations

3.2 For many people their first point of contact with any hospital will be the A and E department. This will influence the hospital organisation and the quality of service. In 1992/93, 13.4 million new patients attended A and E departments in the UK, 1.9 million more than attended out-patient departments.

3.3 An A and E department should be planned and designed to provide patients and their escorts with high-quality facilities which will be as easy as possible for staff to manage and operate. The design should help to assure patients that they are receiving a first-class service. To this end, particular attention should be paid to the visual aspects of the department as well as to functional and environmental needs.

3.4 Patients and escorts are likely to be anxious; therefore the design should help to alleviate patient stress. Particular care should be taken with the design of public spaces at the entrance to the department, especially the waiting area where it is inevitable that occasionally people will have to wait for significant periods of time.

3.5 The design of the A and E department must reconcile conflicting requirements:

- to preserve the privacy and dignity of patients, particularly where men and women are treated in adjacent spaces and share circulation and spaces;
- to provide staff with easy but unobtrusive visual and auditory observation, which is vital to patient care;
- to facilitate quick movement of patients (some on trolleys or in wheelchairs) and staff between spaces

Signposting

3.6 A sign at each entrance to the hospital grounds should clearly indicate the presence of an A and E department. The location sign(s) on the department should be similar in style and visible from the grounds. The department should be clearly and adequately signposted from the entrance(s), from the car park and from other strategic positions. All signs should be at a level which will prevent them from being obscured by cars and should be illuminated after dark. Planning teams should consult the local highway authority regarding appropriate signposting on major roads surrounding the hospital.

3.7 Internal signs should be kept to a minimum. Traffic flows for patients should be straightforward and self-managing. A plethora of signs is a strong indication that the design and workflow concepts are wrong. Use of multi-lingual signs or pictograms should be considered where signs are essential and in departments attended by a significant number of people whose first language is not English or who may be illiterate.

3.8 A kit of temporary signs should be held in the department for use in the event of a major incident. Signs are likely to be needed to indicate clearly the functions of areas of the A and E and other departments. Large self-adhesive signs may be most appropriate for designating use of rooms, such as “Police”, “Press”, “Relatives and friends” and “Control room”.

3.9 HBN 40, together with SHPN 40 - ‘Common Activity Spaces, Volume 4: Circulation Areas’ and Health Technical Memorandum (HTM) 65 - ‘Health Signs’ should also be consulted.

Location

3.10 The A and E department should:

- have easy unimpeded access from an entrance to the hospital grounds;
- have its own external main entrance off the hospital road system;
- be sited at ground level on a single floor.

3.11 Patients and escorts must be able to move directly into the department from the outside without entering other parts of the hospital complex or needing to use lifts and corridors. The department should be separated by a suitable distance from the main entrance to help avoid traffic congestion, but it should never be in a remote location. The entrance should be readily identifiable and easily accessible, to avoid unnecessary aggravation and stress.
Interdepartmental relationships

3.12 The A and E department should be close to the radiology department, with easy access to radiodiagnostic room(s) designated for A and E purposes.

3.13 Most patients requiring admission to in-patient accommodation will be stabilised in the A and E department prior to transfer. It is important, however, to ensure that access is easy and travel time as short as possible, in particular to the intensive therapy and coronary care units. Most patients requiring surgery will be admitted to a ward prior to transfer to the operating department.

3.14 Ideally, the A and E department should be sited close to the comprehensive children’s department.

3.15 Consideration should be given to the need for urgent results from pathological investigations. Specimens may be transferred to the pathology department by porter or by pneumatic conveyor system (see paragraph 6.47 and Health Technical Memorandum (HTM) 2009 - ‘Pneumatic conveyor systems’ (in preparation)). Results may be returned by computer links and confirmed by hard copy. Alternatively, most investigations may be carried out by A and E department staff using equipment based in the department or shared with a nearby department; for example, facilities for performing blood gas analysis may be provided in an intensive therapy unit and a neo-natal unit. Access to a blood bank will be required.

3.16 An A and E department will need to draw upon other hospital departments for support services. There are no critical connections that demand that the A and E department is located immediately adjacent to any of them, but short logistical links and ease of access will aid efficiency.

3.17 The need for access to the out-patients department and any other area that may be used to accommodate an overflow of patients in the event of a major incident should be borne in mind.

3.18 Provision of a secondary entrance from the hospital street will facilitate ease of access to and from other parts of the hospital for patients, escorts, staff and materials.

3.19 The A and E department may be used as the “main entrance” to the hospital at night, for example for emergency admissions direct to wards, and by visitors and staff. Such an arrangement should not compromise use of spaces in the A and E department. It is essential that careful consideration is given to security within the department and access to and from the rest of the hospital; appropriate surveillance and control systems will need to be in place. See also paragraphs 3.35 to 3.41.

Intradepartmental relationships

3.20 Patient-related activities in an A and E department fall into four main groups which occur in the following sequence:

- reception and assessment;
- waiting;
- consultation and/or examination and/or treatment;
- admission to in-patient accommodation or discharge from the department.

Chapter 4 of this volume identifies and describes the spaces which need to be provided for the first three groups of activities listed above. The design of the department should facilitate quick and uninterrupted patient movement both between and within the groups of spaces.

3.21 Patients arrive at and leave an A and E department in various ways. Account should be taken of patients:

- arriving on stretchers/trolleys. Most will be taken directly to a consultation/examination/treatment space because of the urgent need for consultation/examination/treatment or because a consultation/examination/treatment space is the most appropriate place for a patient on a trolley to wait for treatment;
- arriving in wheelchairs and on foot. The priority given to patients for moving to a consultation/examination/treatment space will be determined mainly by the urgency of need for treatment. This group of patients will include:
  (i) the majority attending the department who will be received, assessed and registered, and may wait prior to moving to a consultation/examination/treatment space;
  (ii) patients who will be assessed, received and registered but will then move to a consultation/examination/treatment space;
  (iii) patients who will be moved to a consultation/examination/treatment space immediately following assessment;
- attending the radiology department;
- being admitted to in-patient accommodation;
- leaving the department through the main entrance, some of whom may need to attend the reception desk to make an appointment for a clinic.

3.22 Patients may move to, within, and from the A and E department on foot, in a wheelchair, or on a trolley, and may or may not be escorted by one or more members of staff and one or more escorts.
Figure 6  Intra-departmental relationships (not to scale)
3.23 Consideration should be given to the factors set out in paragraphs 3.21 and 3.22 when determining the location of consultation/examination/treatment rooms in relation to other spaces in the department and in relation to other parts of the hospital. A link to the main hospital circulation route should be provided to facilitate the transfer of patients between the A and E department and other parts of the hospital.

3.24 Ease of movement around the department will also be necessary for staff and for handling materials. Principal flowlines should be planned to minimise clashes between the movement of patients and the movement of materials. A secondary entrance for staff and materials-handling purposes will facilitate this and may be combined with the link to the main hospital circulation route referred to in paragraph 3.23. Doors and corridors should be wide enough to allow the unimpeded movement of patient trolleys, wheelchairs and items of mobile equipment attended by member(s) of staff and/or escort(s).

3.25 Children and young people are more emotionally vulnerable than adults and the possibility of them being exposed to disturbing sights and sounds in the A and E department should be minimised. The number of spaces attended by adults which children can see and from which children can hear sounds should be minimised. The number and type of spaces dedicated for use by children and young people should increase as the size of the department increases. Even in the smallest department(s) separate spaces should be provided for:

- waiting and play;

3.26 Serious consideration should be given to the provision of separate adult’s and children’s sections in an A and E department: it is recognised that separate children’s sections are more likely to be economically viable in larger departments. The children’s section should have its own entrance and include all those spaces commonly attended by children. Consideration will need to be given to the relationships of the children’s waiting/play area in a children’s section to the adult section of an A and E department if the children’s waiting/play area is to be used by children accompanying adult patients.

3.27 Patients (and escorts) mainly arrive at, and depart from, the A and E department by ambulance, by car or on foot: the majority will make their own arrangements and travel by private car. Patients may also be brought or transferred by helicopter ambulance. It is essential that all patients are able to move directly into the department from the outside without having to enter other parts of the hospital complex.

3.28 In small departments, space should be available immediately outside the main entrance for at least two ambulances to draw up at the same time: more space will be required in larger departments. At hospitals where patients may arrive or depart by helicopter, consideration must be given to the provision of landing facilities and transfer arrangements when the layout of the hospital and its grounds is being planned. Reference should be made to HBN 45 and SHPN 45 - ‘External works for health buildings’. There should be easy access for transferring patients by trolley/stretcher from the point of arrival by ambulance or helicopter to the inside of the A and E department.

Car parking

3.29 Car parking facilities should be provided for patients and escorts attending the A and E department. It is essential that patients can be set down prior to, and collected following, their attendance at a point close to the main entrance to the A and E department. This objective can be achieved if the car parking facilities are located:

- close to the department, and an adequate number of spaces reserved for use by patients/escorts; or
- remote from the department, but adequate space provided near the main entrance where cars can be parked temporarily while escorts attend to patients.

Use of the car parking facilities should not impede the movement of ambulances. Free parking may be allowed for the period of an A and E attendance. See also HBN 45 and SHPN 45 - “External works for health buildings”.

Provision of WCs

3.30 WCs are required in an A and E department:

- for patients, escorts, staff and visitors, any of whom may use walking aids or a wheelchair;
- for patients and escorts, close to the main waiting area and consultation/examination/treatment spaces. Care must be taken that WCs are not overlooked by the waiting area.

An excessive number of WCs should be avoided.

3.31 Single cubicle WCs, appropriate for use by men and women, are considered satisfactory and a practical solution. Designing one of these WCs to accessible standards in consultation/examination/treatment areas would cater for all users whilst making an economic provision. See also paragraphs 4.22 and 4.23.

3.32 Individual projects will need to balance the amount of sharing of facilities to meet functional requirements while still ensuring the maintenance of privacy and dignity required in the department.
Violence and security

Violence

3.33 Some patients and escorts attending A and E departments will be violent. Violent behaviour is a feature of several common clinical conditions; patients with these conditions are likely to require urgent attention. Patients and escorts may also become aggressive for reasons associated with the attendance, such as anxiety, perceived “queue jumping” and the need to wait. The attitude of staff who receive, assess and register patients is important; special training is likely to prove helpful.

3.34 Potential consequences of violent behaviour include verbal attack and physical attack on the persons or property of staff, patients and escorts.

Security

3.35 Theft of NHS property and personal property of patients, escorts and staff, and vandalism of NHS property are problems which require addressing in the planning and design of an A and E department. Older people are particularly vulnerable to theft while waiting for treatment. Consideration needs to be given to risk to NHS property within the A and E department and to preventing patients and escorts in the department from gaining unauthorised access to other parts of the hospital. Reference should be made to Scottish Office PAN 46 - ‘Planning for crime prevention’, and the NAHAT Security Manual (see paragraph 3.41).

Design requirements

3.36 Project teams should consult Health Facilities Note (HFN) 05 - ‘Design against crime: a strategic approach to hospital planning’, issued in Scotland with NHS:MEL (1994)93. HFN 05 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, alarms, closed-circuit television and other items of hardware.

3.37 Project teams are also 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 Service Advisory Committee report ‘Violence to staff in the health services’, issued in 1987.

3.38 The A and E department should be designed so that risk of violence and security risks are minimised. Important design requirements include:

- creation of a pleasant environment, particularly the reception desk and in the waiting area. The reception desk should be friendly and not confrontational. There is evidence that violence occurs less at welcoming open-plan reception desks than at enclosed “secure” reception offices. A fall-back situation is required in the event of real danger to staff. Further details are described in paragraphs 4.8 to 4.12 and 4.16;
- furniture and equipment should be selected with care, bearing in mind that loose items may be used as weapons;
- good observation. Ease of visual contact with colleagues is important. Reception desks and waiting areas that are open and well-lit facilitate scrutiny by patients, escorts and staff;
- good communication. Provision of communication systems are considered below (paragraphs 5.28 to 5.39).

3.40 A and E departments used as “main entrances” at night (paragraph 3.19) should be designed with security in mind, both within the department and relating to access to and from the rest of the hospital (paragraph 3.36). However, use of surveillance and control systems referred to in the previous paragraph may be appropriate.

3.41 The project team should discuss security with the officer-in-charge of the local crime prevention department and the hospital or district security officer or adviser at an early stage in the design of the building. Fire and security officers should be consulted concurrently because the demands of fire safety and security may sometimes conflict. The attention of planners is drawn to NHS Management Executive circular HSG(92)22 (in Wales WHC(92)86, and in Scotland NHS MEL(1992)35) about security and the revised NHS Security Manual to which it refers. A Supplement to the Security Manual is in preparation; this Supplement provides further guidance on security in A and E departments.
Phasing

3.42 Project teams should assess the size of the A and E department required in accordance with guidance included in other parts of this Note and construct the department in one phase wherever possible. Phased development and expansion, while not impossible, may present exceptional operational problems.
4.0 Specific functional and design requirements

Introduction

This chapter describes the individual spaces in an A and E department. Details of activities, equipment, environmental conditions and finishes are given in the activity data sheets listed in Chapter 8. Reference should also be made to the relevant Health Technical Memoranda covering Component Data (see paragraph 5.4).

Relationships of spaces

Figure 7 identifies the relationships of spaces and groups of spaces described in this chapter.

Reception

Main entrance canopy

Patients and escorts should be able to find the A and E department easily on arrival at the hospital. The entrance canopy may be designed to be sufficiently conspicuous to attract attention and should include the accident and emergency department sign(s).

The entrance canopy should be large enough to afford adequate weather protection for patients alighting from and entering vehicles and high enough to clear lights and aerials on ambulances. The space should be well lit.

Main entrance draught lobby

Access to and from the main entrance to the department should be through a draught lobby with automatic sliding doors. Separate doors should provide access for:

- patients who are ambulant or who are in wheelchairs (referred to as the ambulant patients’ entrance);
- patients on stretchers (referred to as the stretcher patients’ entrance).

The lobby is often a busy place; it will need to accommodate patients in a variety of conditions, including patients on stretchers, in wheelchairs, on foot but using walking aids, and on foot but supported by escorts. It is essential that the lobby is large enough to permit easy movement of this traffic and should have a floor covering which will trap dirt carried by footwear and on wheels, and which can be easily cleaned.

Trolley/wheelchair bay

A bay is required adjacent to the stretcher patients entrance where accident trolleys and wheelchairs can be parked and easily accessed by porters and ambulance staff, and where stretcher poles and linen can be stored. The bay should not encroach into the circulation space.

Reception area

The reception desk should be immediately visible and provide an open and friendly facility that does not give any sense of a barrier or generate a feeling for the patient of “them and us”. The overall impression must be of high-quality design that combines efficiency with elegance. Patients, escorts and staff must be able to talk and exchange information with ease.

The main functions performed at the reception desk are the reception and initial assessment of patients by a nurse (paragraph 2.17) and the formal registration of patients by receptionists: these activities include entering information from patients on a computer terminal and printing a partially completed accident record card. Space will be required at the reception desk for VDTs, keyboards, laser printers and fax machines, and a working supply of stationery and office accessories. Care should be taken with the initiation and receipt of telephone calls concerning patients, as telephone calls are a distraction and may be inappropriate to conduct in front of patients.

The reception area should be located and designed so that:

- staff at the desk can see all patients and escorts entering the department and in the main waiting and children’s waiting/play areas;
- it is obvious to patients that assessment by a nurse should precede registration. The nurse will require easy access to the “front” of the desk in order to be able to examine some patients superficially, for example to look at a lower limb;
- there is direct access to the records office. The triage bay should be nearby;
- at least one patient can be received/assessed and two patients can be registered concurrently. The reception desk illustrated on the Ergonomic Data Sheet in Appendix 2 shows:
  (i) a low but standing-height counter for patients/escorts. A small woman in a wheelchair can see over the counter. Knee
Figure 7  Intra-departmental space relationships (not to scale)
space for a wheelchair user is provided under a shelf for bags;

(ii) a desk at a level suitable for staff sitting on standard height chairs. VDTs can be housed and stationery can be stored under the counter;

(iii) an optional glazed screen between the workstations. A screen will improve privacy for patients/escorts and perhaps deter them from leaning too far over the counter into the staff space;

Chairs used by staff should be on castors to facilitate quick movement in case of potential violence.

4.11 A few informally but appropriately positioned chairs may be provided in the vicinity of the reception desk for patients/escorts who need to sit while they wait. Queuing can be reduced and patients’ privacy improved.

4.12 In case of danger from violent behaviour, receptionists should be able to raise an alarm (paragraphs 5.39 and 6.87 refer) and/or retreat into a safer space, for example the records store, until help arrives.

Triage bay

4.13 A triage bay is required to which patients needing a more thorough assessment or triage can be taken by the nurse receiving and initially assessing patients at the reception desk (see paragraphs 2.17 to 2.19 and 4.8). The member of staff carrying out the more thorough assessment or triage:

- may sit and hold a discussion with a patient and/or escort;
- may examine a patient and carry out a minor treatment, for example, the application of a dressing or a sling;
- will prepare a brief report (either on a computer terminal or handwritten).

4.14 Space should be provided for examinations and minor treatments to be carried out in privacy with the patient sitting on a small upright chair and possibly with a leg raised on a foot stool, and for parking a dressing trolley. A small desk with desk chair, two small upright chairs for the patient and an escort, and clinical handwash facilities will be required.

4.15 The triage bay should be contained by three walls and a curtain, and be located close to, and with easy access from, the nurse based at the reception desk.

Records store

4.16 A records store is required immediately adjacent to, and opening off, the reception desk, mainly for the storage of accident record cards, usually retained for one year, in filing cabinets, and of X-rays. The store may also include a photocopier, a fax machine, and cupboards and/or shelves for back-up stocks of stationery and leaflets to hand to patients and escorts, and for display. Receptionists could use a telephone here for making and receiving calls in private. Access to the records store should be limited to appropriate members of staff.

Waiting

Main waiting area

4.17 Most patients and escorts will appreciate a main waiting area which has a comfortable and relaxing environment. Finishes and furnishings should be as domestic as possible consistent with the need for durability. Different types of seating are required and should include chairs suitable for older people. The layout should be informal. There should be spaces for patients in wheelchairs and using walking aids. Consideration should also be given to the needs of pregnant and nursing mothers. Public telephones are required (see paragraphs 5.14 and 5.34). Project teams may wish to consider the provision of low-level background music and/or a TV/video system (see paragraph 2.21). These may help patients relax, alleviate the boredom of essential waiting and mask confidential discussions. TV monitors should not be mounted at an unnaturally high level for viewing. Vending machines may be provided. A supply of current reading materials should be available in a well-designed holder. Viewing materials may be provided and an appropriate space allowance will need to be made.

4.18 Consideration will also need to be given to how:

- patients/escorts are updated in respect of the waiting time for treatment (see paragraph 2.21);
- patients are called for treatment. This may be direct and personal, or remote using audio and/or visual systems (bearing in mind that some patients/escorts will be aurally and/or visually impaired) (see paragraph 5.36);

4.19 The main waiting area should have direct access from, and be overseen by, the reception desk, and have easy access to the consulting/examination/treatment rooms. The children’s waiting/play area should be adjacent and WCs for patients and escorts nearby.

Children’s waiting/play area and happy change

4.20 A waiting/play area should be provided where children and young people can wait and play or read in safety. Toys, display panels, writing surfaces and books, etc, (with appropriate storage), and seating are required for children and young people of all ages; the emphasis of the space should be on a place where children and young people can be entertained rather than where they wait. An
en-suite WC with nappy changing facilities is required. The waiting/play area should be partially glazed to permit observation from the reception desk and have easy access to an external play area, if possible (see HBN and SHPN 45 – ‘External works for health buildings’).

Infant feeding room

4.21 A room where a baby can be breast or bottle fed, in privacy, should have direct access from the waiting area. Seating and facilities for waste disposal are required. Hand-wash facilities should also be provided.

WCs for patients and escorts

4.22 WC facilities for male and female patients and escorts should be provided close to the main waiting area. Special attention should be paid to the provision of graffiti-resistant surfaces.

WC for disabled people

4.23 A WC, with a hand-wash basin, should be provided close to the main waiting area for use by all disabled people who attend, or work in, the A and E department.

Consultation, examination and treatment

4.24 Consultation, examination, treatment and associated spaces are considered as clusters of spaces or as separate spaces, as appropriate, as follows:

- consultation/examination/treatment spaces, supplies base, staff base, sub-waiting area, dirty utility/sluice room and specimen WC (paragraphs 4.25 to 4.33);
- anaesthetic/procedures/plaster room, clean procedures room, mobile X-ray equipment bay, clean utility/preparation room and dirty utility/sluice room (paragraphs 4.34 to 4.40);
- patient cleansing room and decontamination equipment store (paragraphs 4.41 to 4.45);
- resuscitation room, sitting room and visiting/viewing room (paragraphs 4.46 to 4.57);
- recovery bay (paragraphs 4.58 and 4.59);
- psychiatric interview room (paragraph 4.60).

Consultation/examination/treatment rooms

4.25 Rooms are required where consultation with and/or examination of and/or treatment of the majority of patients attending the A and E department, who may be on foot, in a wheelchair or on a trolley, can be performed. These rooms should be in an open area. The Schedule of Accommodation in this Note allows for two sizes of room for these activities:

- examination/treatment room 1 – provides space for the examination and treatment of patients who are either sitting on a chair or lying on a trolley. Up to two staff will examine/treat the patient from one side of the trolley only;
- examination/treatment room 2 – as for examination/treatment room 1, but accommodating up to four staff and access to the patient is from all sides. Planning teams may consider the provision of a plaster sink to facilitate the flexible use of this room in the event of the anaesthetic/procedures/plaster room being occupied for lengthy periods.

In both treatment rooms there will be sufficient space for any accompanying persons.

4.26 The required number and combination of these rooms will be determined locally but project teams will need to consider:

- how the room is constructed. The best compromise between the need for visual and auditory privacy, and the need for visual and auditory observation, may be for most spaces to be rooms with curtains at the doorways. Other options are cubicles with curtains, and cubicles with three full-height walls and a curtain. Rooms with full-height walls and doors will be required to accommodate:
  - children and young people. These rooms should be appropriately located, designed, decorated, furnished and equipped;
  - consultation/examination/treatment which needs to be carried out in total privacy, such as gynaecological examinations;
  - ophthalmic and ENT examinations/treatment. This room will require to be specially fitted, furnished and equipped, and have lighting which can be dimmed;
  - the examination/treatment/recovery of patients who have taken an overdose of drugs or are drunk. This room should be mechanically ventilated and sound-attenuated. Patients may recover on a mattress on the floor. Patients may be very ill and observation is critical; safety glazing should be provided in the door. Finishes should permit easy cleaning and be resistant to damage and fire. Provision should be made for hosing down and draining the floor;
- how each space is furnished and equipped. Each space must accommodate an accident trolley. Other items which can be accommodated include wall-mounted oxygen and medical vacuum outlets, clinical hand-wash facilities, a mirror for patient self-esteem, a wall-mounted X-ray viewer (with a “bright light” facility for examining small areas of X-rays), a writing flap, a VDT and keyboard, a dressings trolley, a soiled linen trolley and a small upright chair. In
addition, every treatment space should have a quality of light suitable for suturing.

4.27 To facilitate flexibility of use and efficient management, the examination/treatment rooms should surround and be accessed from an open-plan area. Direct access to the supplies base is required from the spaces. It should be possible to observe access to the spaces from the staff base.

Supplies base

4.28 The supplies base should form an island at the centre of the open-plan area and have access from all sides. Storage space is required for a wide range of sterile and clean supplies, lotions and drugs, on shelves and racks, and in drawers and lockable cupboards, as appropriate. Parking space is also required for dressing trolleys. The supplies base provides facilities for the preparation of dressing trolleys used in the consulting/examination/treatment spaces and replaces the need for a clean utility/preparation room here.

Staff base

4.29 The staff base is the communication centre for the control of clinical activity within the A and E department. Patient flow is supervised from here. Doctors and nurses carry out administrative and clerical tasks, and wait for work at the staff base. All communication systems should have a terminal here, including computer, radio, telephones, fax, call systems and alarms (see paragraphs 5.27 to 5.41).

Sub-waiting area

4.30 A sub-waiting area may be required in the vicinity of the consulting/examination/treatment spaces. The area can be used for patients waiting for:

- consultation/examination/treatment;
- an X-ray examination;
- further consultation/examination/treatment following an X-ray.

Dirty utility/sluice room

4.31 A dirty utility/sluice room is required where:

- simple blood and urine tests can be carried out;
- suction bottles can be automatically emptied, washed and disinfected;
- bedpans, urinals and vomit bowls can be stored, prepared for use and their contents disposed of following use;
- dressing trolleys and other items of equipment can be cleaned;
- materials to be reprocessed and for disposal may be temporarily held;
- liquids and Plaster of Paris waste can be disposed of;
- rubber boots and protective aprons can be stored.

It should be located close to the consulting/examination/treatment spaces. Bedpans, etc should not have to be carried through areas where patients wait. A hatch through to the specimen WC will be required.

4.32 Project teams must decide between a disposable bedpan system with bedpan macerator or a non-disposable system with bedpan washer, and plan accordingly. In making a choice, account should be taken of cost and storage needs. Additional requirements include an automatic suction bottle washer/disinfector, a sink-unit with drainer, hand-wash facilities, a worksurface, cupboards and shelves. Space should be available to park trolleys and for temporarily holding bags of linen, etc. Pedal-operated sack stands are also required. Mechanical extract ventilation should be provided.

Specimen WC

4.33 A specimen WC with wheelchair access should be located adjacent to the dirty utility/sluice room. A hatch should be provided to enable urine specimens to be passed from the WC to the dirty utility/sluice room.

Clean procedures room

4.34 A clean procedures room is similar to the anaesthetic/procedures/plaster room (see paragraphs 4.36 to 4.38), except that it is intended mainly for suturing wounds. Piped oxygen, medical vacuum and medical air (4-bar) should be supplied via a rigid ceiling pendant.

4.35 A clean procedures room is required in departments with 30,000 to 70,000 new attendances per annum.

Anaesthetic/procedures/plaster room

4.36 An anaesthetic/procedures/plaster room is required where clinical procedures can be performed in a controlled clinical environment. It should be located close to the resuscitation room to permit overflow of patients in emergency.

4.37 Facilities are required for:

- operative procedures such as the closed reduction of fractures, the application of splints and casts (including those made from Plaster of Paris), suturing of wounds, incision of abscesses and other minor operative procedures which do not require the full facilities of the operating department;
- administration of local analgesics and general anaesthetics with use of oxygen, nitrous oxide, medical vacuum and medical air (4-bar) in
connection with minor operative procedures or resuscitation;

- viewing of X-ray films;
- the movement of staff and equipment (such as anaesthesia and X-ray apparatus and cardiac resuscitation trolley) around an accident trolley. A bay is required close to the anaesthetic/procedures/plaster room for parking a mobile X-ray machine;
- storage of an immediate working supply of sterile and clean supplies, such as Plaster of Paris and anaesthesia requisites.

4.38 An anaesthetic/procedures/plaster room is required in all sizes of A and E departments. It requires mechanical ventilation to prevent the ingress of air from other areas when doors are closed, and when doors are opened briefly during a treatment procedure. (Supply air filtration and temperature control standards are described in paragraphs 6.35 to 6.40.) A ceiling-mounted “no break supply” operating lamp, which is shadowless, is required. Piped oxygen, nitrous oxide, medical vacuum and medical air (4-bar) should be supplied via two rigid ceiling pendants located diagonally to facilitate alternative positions of the patient on an accident trolley. An anaesthetic gas-scavenging system is required, as described in HTM 2022 - 'Medical gas pipeline systems'. A VDT and keyboard are also required.

Mobile X-ray equipment bay

4.39 A space for parking mobile X-ray apparatus and an X-ray protective apron rack is required close to the anaesthetic/procedures/plaster room. An electrical socket-outlet should be provided for recharging the equipment.

Clean utility/preparation room

4.40 The clean procedures room described in paragraphs 4.34 and 4.35 requires the support of an adjacent clean utility/preparation room. The clean utility/preparation room will fulfil a similar function as the supplies base to the consulting/examination/treatment spaces.

Patient cleansing room

4.41 The patient cleansing room may be used for disinfection, decontamination and isolation of patients: further information about these activities and their functional requirements are included in paragraphs 2.32 to 2.36. If appropriately located, the room may also be used for “routine” consultation/examination/treatment purposes, particularly when the other consultation/examination/treatment spaces are fully utilised and on the occasion of a major incident. Accordingly, it is recommended that the door sign for this room should be in neutral terms.

4.42 Space should be provided in the patient cleansing room for examination/treatment of a patient on an accident trolley with space for a number of staff to carry out various clinical activities (as referred to in paragraph 4.24). In addition, a shower is required. If necessary, staff may use the shower before changing into clean uniforms.

4.43 The floor should have an impervious finish, such as vinyl with welded joints and coved skirting. A hands-free telephone is required. The ventilation system should be such that material which may become airborne in the room (pathogens or radioactive particulate) does not enter the main hospital ventilation system.

4.44 It is important that, when the patient cleansing room is used for radioactive decontamination, a removable barrier is provided to discourage the tracking of contamination from the room to other parts of the A and E department. The local radiation protection adviser should be consulted about the planning, design and construction of this room.

Decontamination equipment store

4.45 A small store should be located adjacent to the patient cleansing room for the storage of decontamination materials and equipment used for cleansing patients after exposure to chemicals and for the storage of radiation monitoring equipment.

Resuscitation room

4.46 A resuscitation room is required with resuscitation bays contained by mobile screens where several patients who may or clearly require resuscitation can be assessed, treated and resuscitated simultaneously in visual privacy. Planning teams should take into consideration local policy when determining the number of bays required in a resuscitation room (see paragraph 2.44).

4.47 Space is required in a resuscitation bay for a minimum of five staff to work at speed and under stress; on occasions, more than five staff will be in attendance. Staff will need to perform clinical procedures from all sides of the accident trolley and to use a variety of equipment. The accident trolley should be capable of being rotated through 360°. Equipment will need to be parked in the bay in accordance with procedures being performed and, when required, manoeuvred into place without disturbing clinical activity. Staff will also need to take and view X-rays, view monitors and access and record data on a computer. Various storage facilities are required for a range of medical and surgical supplies and sundries.

4.48 Resuscitation bays should be located in one resuscitation room in order that use of some facilities can be shared. If resuscitation bays are accommodated in several rooms, then ceiling-mounted X-ray equipment
could only be provided in one room. In all circumstances, one resuscitation bay must be equipped for children.

4.49 Fixtures and fittings required in connection with each resuscitation bay include:

- ceiling-mounted or wall-mounted examination lamps;
- piped oxygen, nitrous oxide, medical vacuum and medical air (4-bar) outlets on the wall at the head of the accident trolley;
- an adequate number of electrical socket-outlets to minimise obstacles and danger from tangled and trailing leads. Sockets should be wall-mounted at either side of the head of the accident trolley;
- a “grab” board at the head of the accident trolley, with “shadows” of small items of equipment, instruments and medical and surgical sundries stored there;
- a worktop for preparation, and for monitors and a VDT and keyboard;
- an X-ray viewer (with a “bright light” facility for examining small areas of X-rays).

4.50 Furniture, fittings and other equipment which can be shared in a resuscitation room include:

- ceiling-mounted and mobile X-ray equipment;
- drugs (including Controlled Drugs) cupboards and refrigerator;
- shelving and racking for medical and surgical sundries, including sterile packs;
- clinical hand-wash facilities;
- a hands-free telephone and intercom station.

4.51 Planning teams will need to take into account local working practice when determining the provision of either fixed or mobile X-ray equipment. Differing requirements of medical /surgical trauma patients will determine the type of X-ray equipment installed. If ceiling-mounted X-ray equipment is provided, a gantry is required so that the equipment can traverse and be used in as many resuscitation bays as possible. The design of the X-ray system and the lighting system should be co-ordinated to ensure that use of neither installation is compromised. Consideration will need to be given to the ceiling height and protection from X-ray hazard, including use of mobile screens and lead aprons (see Appendix 1 of HBN 6 - ‘Radiology department’ and SHPN 6). See also paragraphs 2.26 to 2.29.

4.52 Locating up to five resuscitation bays adjacent to each other in a row enables space and facilities (particularly the ceiling-mounted X-ray equipment) to be used efficiently and effectively.

4.53 Patients requiring use of the resuscitation room may require surgical procedures which make them particularly susceptible to temperature changes. It is important, therefore, that the clinical environmental conditions are comparable to those specified for the anaesthetic/procedures/plaster room.

4.54 The resuscitation room should have easy unimpeded access from the stretcher patients entrance and not be isolated from other consulting/examination/treatment spaces. The relationship of the resuscitation room to the sitting room and visiting/viewing room, however, is also very important.

Sitting room

4.55 A sitting room is required which is sensitively decorated, bright, well-lit and domestically furnished where people accompanying seriously ill and injured patients may sit and talk, make telephone calls, prepare and consume beverages, and wash their hands and faces. A variety of comfortable seating should be provided for a minimum of eight people (escorts and staff).

4.56 The sitting room should be:

- adjacent to the visiting/viewing room;
- near the resuscitation room but not within earshot of any sounds which may be disturbing;
- accessible from the resuscitation room without having to pass through public areas of the department;
- accessible by, and have space to accommodate, a person in a wheelchair;
- close to a WC;
- clearly and well signposted.

Ideally, the sitting room should have a window with an outside view.

Visiting/viewing room

4.57 The decor in the visiting/viewing room should be similar to that of the sitting room. A trolley with the deceased person may be placed in a peninsular position with the head to the wall to permit access to both sides of the body. Comfortable chairs are required; consideration should be given to the height of the chairs in relation to the height of the trolley. Other furniture may include a domestic chest of drawers and/or dressing table where linen and amenities required for limited preparation of the deceased person may be stored. For infants and young children, a Moses basket or similar carrier should be available and for older children, a smaller than adult size trolley or a standard trolley adapted with paediatric bumper cushions. See also ‘Bereavement care in accident and emergency departments’.
Recovery bay

4.58 A bay is required with one or more reclining chairs, depending on the size of the department, where patients can recover or rest prior to leaving the department. Each chair space should include a reclining chair, a bedside cabinet, an easy chair and a small upright chair. Patient-to-staff and staff-to-staff call systems, and piped oxygen and medical vacuum, should be provided.

4.59 Consideration should be given to the need for supervision and observation of patients and for use of the dirty utility/sluice room (paragraph 4.31) when determining the location of the recovery bay.

Psychiatric interview room

4.60 This room enables interviews and discussions with psychiatric patients to take place in private. Furnishings should include easy chairs and an occasional table, and should be arranged as informally as possible. A panic button should be fitted and a telephone should have direct access to an outside line. This space may also function as a small group room.

Office accommodation

4.61 Most offices described below are similar in size and, providing they are appropriately located, can be used flexibly. For example, a room near the main waiting area may be used as a consultant's or sister/charge nurse's office or, alternatively, as a consulting room.

Consultant's office

4.62 A single-person office is required as an administrative base for each consultant in A and E medicine. It should be sufficiently private for confidential discussions between staff, and for interviewing patients and/or escorts. The office should accommodate an office workstation, with VDT and keyboard, seating for up to three other persons and storage for books and files. Consultant's offices should be close to each other and to the secretarial office, and associated with other office accommodation.

Business manager

4.63 A business manager based in the A and E department requires similar office facilities to those provided for a consultant.

Middle grade staff office

4.64 A multi-person office is required where middle grade staff can carry out administrative work and hold confidential discussions. Consideration should be given to the shared use of office workstations. Please note that this room is listed as Essential Complementary Accommodation.

Sister/charge nurse's office

4.65 A sister/charge nurse requires similar office facilities to those provided for a consultant, with the addition of a small night safe where patients' valuables can be held temporarily at night and weekends.

Medical staff/audit office

4.66 A multi-person office is required where medical staff can carry out administrative and clerical work, hold confidential discussions, perform audit tasks and conduct research projects. Consideration should be given to the shared use of office workstations.

Secretarial office

4.67 An office is required with facilities for secretarial activities associated with the medical and nursing management of the A and E department. A single room should accommodate the required number of office workstations.

Facilities for staff

Seminar room

4.68 A seminar room should be provided within the A and E department for teaching, tutorials, meetings, case conferences and clinical instruction. The room may also be used as a base for a clinical nurse teacher. Furniture and equipment should include upright stacking chairs with writing arms, a wall-mounted whiteboard, a mobile X-ray viewer, a video/TV monitor and a VDT and keyboard. A ceiling-mounted screen should be provided, with efficient blackout curtains and facilities for projection of slides and overhead transparencies. There should be shelving for a library of reference books and training videos and the computer facilities should be of a quality that would allow use of interactive video packages. Closed-circuit television may provide a link between treatment area(s) and the seminar room (see paragraphs 2.54 to 2.56).

Staff rest room

4.69 A rest room is required where staff can relax and take beverages and snacks. The rest room should have windows with a pleasant outlook, be comfortably furnished and have a telephone. The rest room should have direct access to the pantry and be located with other facilities for staff and away from patient treatment and traffic areas. Small lockers for the secure storage of small items of personal belongings may be located here.
Pantry

4.70 Pantry facilities are required for the safe handling of food, including the preparation of beverages and light snacks, for washing and storing crockery and cutlery, for storing a limited quantity of dry goods, and for the refrigerated storage of milk, etc. Equipment should include a stainless steel sink and drainer, an electric water boiler, a microwave cooker, a worktop with cupboards, an automatic dishwasher and a hand-wash basin.

4.71 The pantry may also be used for preparing occasional beverages for patients and escorts. For this purpose, a separate entrance should be provided so that staff can access the pantry without passing through the rest room.

Doctor’s overnight stay room

4.72 A bed/sitting room with en-suite toilet facilities is required where a doctor on duty at night can study, rest and sleep. A doctor may also use the room during the day as a place to study. This facility is listed in the Schedule of Accommodation as Essential Complementary Accommodation. However, local operational policy will determine where this room is best located.

Staff shower

4.73 A staff shower should be provided in association with other facilities for staff.

Staff WC

4.74 A staff WC should be provided in association with other facilities for staff.

Support spaces

Ambulance cleaning bay

4.75 A bay is required where ambulance staff can clean ambulances (the interior of which can occasionally become excessively soiled). A hose point should be provided. The bay should be located out of public view.

Major equipment and supplies store

4.76 A store should be provided for the storage of mobile and smaller items of equipment which are not in regular use or are being held as replacements. Floor space where mobile equipment can be parked and shelving will be required. Some equipment will be delicate and costly; therefore, sufficient space is needed for manoeuvring to permit easy retrieval, with doorways wide enough to allow the largest items to pass freely.

4.77 A back-up store for bulk supplies (other than sterile supplies) is required to supplement working stocks held in various spaces throughout the department. Racking and adjustable shelving, as appropriate, should be provided. An exchange linen trolley may be parked here or linen may be stored on shelves.

4.78 Supplies for use in the A and E department should be delivered in accordance with local procedures; for most supplies, this may involve delivery to the major equipment and supplies store and redistribution to user areas. The store should have easy access from the secondary entrance to the department.

Sterile supplies store

4.79 A back-up store for sterile supplies, such as dressing packs, syringes and needles, is required to supplement working stocks held in various spaces throughout the department.

Major incident equipment store

4.80 A store is required for the storage of major incident packs and equipment.

Medical gas cylinders store

4.81 A dedicated “ready-use store” is required, in which gas cylinders for use with anaesthetic machines and anaesthesia ventilators may be stored. It should conform with the requirements of HTM 2022 – ‘Medical gas pipeline systems’. At least one wall of this store should, where practical, be external, thus facilitating natural ventilation and the inclusion of “blow-out” panels. The store must be equipped with cylinder racks which conform with BS1 319 – ‘Specification for medical gas cylinders, valves and yoke connection’ and are capable of holding the full range of gases used in the department. The design of the store should facilitate identification of the type of cylinder and the control of full and empty cylinders.

Plaster store

4.82 A dedicated store is required for storing plaster, bandage stock and associated equipment. It should be directly accessible from the anaesthetic/procedures/plaster room.

Crutches and splint store

4.83 A crutches and splint store is required in which various sizes of different types of walking aids and splints can be stored tidily and which is capable of easy access. The store may be shared if the orthopaedic/fracture clinic is adjacent.

Cleaners’/domestic service room

4.84 Space and facilities must be sufficient for parking and manoeuvring cleaning machines and a cleaner’s trolley,
cleansing of cleaning equipment and disposal of fluids and used cleaning materials. Hand-washing facilities are also required. Shelving and vertical storage should not encroach on the working space or restrict access to the cleaners’ sink. (Not requiring a close relationship with any particular area within the department, the cleaners’/domestic service room should be located away from the principal routes used by patients.)

**Disposal hold**

4.85 A disposal hold is required where bags of soiled linen for reprocessing, SSD returns, bags of refuse for disposal and other items, as appropriate, can await removal by portering staff. Bagged items should be identified appropriately using a colour-code system in accordance with national guidance and local policy.

4.86 The floor space should be clearly sub-divided in order that the types of commodity are separate from each other. This will not only assist rapid collection but should minimise the risk of items for reprocessing being accidentally taken for disposal by incineration.

4.87 The hold area should be located near the exit from which collections will be made and could have its own external door to enable collections to be made without need to enter the department.

4.88 Project teams should examine the size of the hold in relation to the anticipated maximum load on the space, for example the largest number of bags of soiled linen, refuse and SSD returns likely to be held at any one time. The maximum load will be influenced mainly by the workload of the department and the frequency of collections. If the hold appears to be inadequate in size, consideration may be given to increasing the frequency of collection as an alternative to providing a larger hold.

**Switch cupboard**

4.89 A department switch cupboard, with lockable doors, housing the main isolators and distribution fuse switchgear should be:

- accessible directly from a circulation area (access space may be part of the circulation area);
- sited away from water services;
- lockable.

4.90 The switch cupboard, where possible, should be sited within the department. There should be clear and safe access for maintenance staff and care should be taken to ensure that safety is not compromised during maintenance from passing traffic or the opening of adjacent doors.
5.0 Other general functional and design requirements

Introduction

5.1 This chapter contains additional guidance on aspects of function and design which are common to all health buildings.

Statutory and other requirements, including Crown immunities

5.2 The guidance takes account, as far as possible, of all statutory and other requirements in force at the time of publication, but health authorities and trusts are reminded of their responsibility for ensuring compliance with all relevant statutes, regulations, codes and standards. Advice on this is given in HC(88)60/HC(FP)(88)29 (in Wales, WHC(89)20, and in Scotland, NHS Circular 1987(GEN) 4).

5.3 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 HN(90)27/LASSL(90)15 (in Wales, WHC(91)4 and in Scotland, NHS Circular No 1991 (GEN) 1, issued in January 1991, in respect of a wide range of legislation).

Building components

5.4 The Building Components Database consists of a series of Health Technical Memoranda (HTMs) 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.

Upgrading or adaptations of existing buildings

5.5 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) and Scottish Hospital Planning Note (SHPN) standards and what is possible.

5.6 Before a decision is made to carry out an upgrading project, consideration must be given to the long-term strategy 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/SHPN requirements can be met: for example, the need for accommodation with ground level access, and the adequacy and location of all necessary support services.

5.7 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, condition of 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, ease of access and facility for installation of new wiring, pipework and ducts, if required;
- the height of ceilings. Operating theatres, for example, require a minimum ceiling height. 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 hazards to disabled people;
- fire precautions;
- physical constraints to adaptation such as load-
and the difference in cost between upgrading a building and new building.

**Disabled people**

5.10 It is essential to ensure that suitable access and facilities are provided for people who have problems of mobility or orientation. This includes people who are wheelchair-bound, those who for any reason have difficulty in walking and those with a sensory handicap such as a visual or hearing impairment. Authorities are reminded of the need to comply with the provisions of:

- The Chronically Sick and Disabled Persons Act 1970 and The Chronically Sick and Disabled Persons (Scotland) Act 1972;
- The Chronically Sick and Disabled Persons (Amendment) Act 1976;
- The Disabled Persons Act 1981;
- The Disabled Persons (Services, Consultation and Representation) Act 1986;
- The Building Standards (Scotland) Regulations 1990;

5.11 Attention is drawn to BS5810: 1979 ‘Code of practice for access for the disabled to buildings’ (under review). One of the effects of the 1981 Act is to apply this British Standard to premises covered by the 1970 Act, which includes those open to the public. Practical guidance for complying with the Building (Disabled People) Regulations is issued by the Department of the Environment under Approved Document M: ‘Access and facilities for disabled people’, 1992.

**Environmental considerations and design**

5.15 The impact of any new procurement on the environment is of significant importance and is an integral part of NHS responsibility for the health and well-being of the community. Care must be taken to contain the environmental impact of activities to a practical minimum consistent with maintaining responsibilities for providing high-quality patient care. Commitment to the requirements of the Environmental Protection Act 1990 and all other relevant statutory legislation is essential. It is particularly important to:

- continue to promote the efficient use of energy in an economical and environmentally sound manner by promoting energy conservation and, where economically viable, investing in energy-saving technology and management;
- provide environmental training to appropriate staff, and ensure that all staff are aware of environmental policy and how they can contribute to the overall environmental performance;
- promote waste minimisation and reduce the environmental impact of waste through beneficial use, where practical, or safe disposal where not;
- reduce pollution to air, land and water (where practicable).

5.16 Designers should create an environment in the A and E department that will help patients feel at ease, be conducive to efficient working, and contribute to staff morale. Reference may be made to ‘Demonstrably different’, ‘First impressions, lasting quality’ and ‘Changing perspectives’, issued by the Department of Health, and ‘Environments for quality care’, issued by NHS Estates.

5.17 Indoor planting and external landscaping are of special value. Imaginative use of carpets, colour and lighting will help to produce a warm and friendly atmosphere in an A and E department.

5.18 The design process should include the choice of well-designed furniture and fittings, and co-ordination of carpets and colour.

**Art in hospitals**

5.19 Works of art and craft can make a significant contribution towards the required standard of the interior of an A and E department: this need not be limited to the conventional hanging of pictures on a wall. Every opportunity should be taken to include works by artists.
and craftspeople in appropriate spaces in the department. These may include paintings, murals, prints, photographs, sculptures, decorative tiles, ceramics, textile hangings and furniture.

5.20 Works of art and craft often lend special identity to reception or recovery spaces, and help give a sense of locality.

5.21 Advice should be sought from experts on:
- obtaining grants. In some cases, moneys for art within a capital scheme can be matched by grants from charities or regional arts boards;
- ensuring quality in all art and craft works;
- appropriately locating art and craft works;
- selecting artists and craftspeople.

Natural and artificial lighting

5.22 Sunlight enhances colour and shape and helps to make a room bright and cheerful. The harmful effects of solar glare 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.

5.23 Wherever possible, spaces to be occupied by patients, escorts or staff should have natural daylight with an outside view. Natural lighting is important to the well-being of patients.

5.24 Artificial lighting, as well as providing levels of illumination to suit 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 A and E service and a non-clinical, soft environment in as many spaces as possible.

5.25 Artificial lighting provided in spaces occupied by patients should enable changes to skin tone and colour to be clearly defined and easily identified.

5.26 Luminaires should not be mounted on ceilings immediately above positions where conscious patients lie on a trolley. This applies to all spaces where patients are consulted, examined and treated, and to the recovery bay.

Communications

5.27 Provision of effective communication systems is essential for the efficient management of an A and E department. Specialist advice should be sought, and ambulance and police services consulted, as appropriate, when systems are being considered and specified. Communication systems in six main categories are described below. See paragraphs 2.60 to 2.64 and 4.29.

Radio

5.28 Radio equipment may be required for direct communication with ambulance vehicles. See also paragraph 6.52.

Telephones

5.29 Telephones should be provided in accordance with the whole hospital policy for telephone services. Ringing telephones in and adjacent to consultation/examination/treatment spaces are a particular nuisance at times of peak activity and consideration should be given to the installation of a system which will enable calls to be intercepted at an appropriate alternative location.

5.30 Staff based in different parts of, and staff moving around, the A and E department need to communicate with each other.

5.31 Unnecessary or abortive staff movement can be reduced, and messages can be received “hands-free” of communications equipment, by provision of an intercommunication system. An intercommunication system should utilise the standard telephone system and telephone instruments, be simple to use and cover locations of high staff activity. An intercommunication system can accommodate a wide range of functions, both routine and emergency, and enable staff to communicate rapidly and when they require assistance, such as transmission of calls:
- to all telephone instruments or a selected group of telephone instruments within the A and E department. This facility can be used to locate a member of staff, for example a doctor, a senior nurse or a porter, and for emergency calls for assistance in case of clinical need or potentially violent incidents;
- between two selected telephone instruments, including:
  (i) calls for assistance. For example, a nurse working alone could open a communication channel to a staff base and call for assistance without leaving the patient;
  (ii) routine communications;
- to intercommunication systems in other departments, for example the radiology department.

See also paragraphs 6.100 and 6.101.

5.32 At least one ex-directory exchange line or direct line should be provided for communications with the emergency services. Such instruments should have a distinctive bell or buzzer.

5.33 Sufficient telephone socket-outlets should be appropriately located to enable the occasional use of
additional telephones, for example in the event of a major incident.

5.34 Public telephones will be required for patients and escorts. Consideration should be given to the installation of card-operated telephones. With regard to the provision of public telephones for disabled people and to HBN 48 - 'Telephone services' and SHPN 48 - 'Telecommunications'.

Facsimile telegraphy

5.35 Fax (facsimile telegraphy) equipment may be required for communication with various outside agencies.

Patient-to-staff and staff-to-staff call systems

5.36 Patient-to-staff call systems should be provided in all spaces where patients may be left alone temporarily, such as consultation/examination/treatment rooms and patient WCs. Staff-to-staff call systems should be provided in all spaces where staff consult, examine and treat patients. Terminals to the call systems should be located at the staff base.

Staff-to-patient communications

5.37 Project teams will need to consider how patients, including those with visual and auditory handicaps, can be kept informed of waiting time and/or called for treatment. Options include announcements:

- by a member of staff personally;
- over a loudspeaker system;
- using a visual display unit.

Personal alarm transmitters

5.38 Staff may carry personal alarm transmitters. Some transmitters are "self-contained", while others have engineering implications (see paragraph 6.86).

Fixed security alarms

5.39 Violent incidents may occur in the A and E department and staff may need assistance as a matter of emergency. A security alarm should be connected directly to at least one terminal which is continuously staffed, such as the hospital telephone switchboard or the porters' room. Actuating switches or buttons for the security alarm should be located unobtrusively at the reception desk, staff base and psychiatric interview room. (See also paragraph 6.87.)

Controlled Drugs cupboard

5.40 Repeater indicator lights from the Controlled Drugs cupboard should be provided at a continuously staffed location, for example the reception desk (see paragraph 6.69).

Fire alarms

5.41 Fire alarms should be provided in accordance with guidance referred to in other parts of this document (see paragraph 6.11).

Internal environmental engineering considerations

Ventilation

5.42 Natural ventilation is preferred unless there are internal spaces or clinical reasons that call for mechanical ventilation or comfort-cooling systems. In Scotland, comfort cooling may generally not be required.

5.43 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 practicable, core areas are reserved for rooms whose function requires mechanical ventilation irrespective of whether their location is internal or peripheral, for example, sanitary facilities and dirty utility/sluice rooms.

Anaesthetic gas scavenging

5.44 HTM 2022 - 'Medical gas pipeline systems' should be consulted for guidance on anaesthetic gas scavenging in spaces where anaesthetic gases are used.

Noise and sound attenuation

5.45 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.

5.46 Speech privacy is essential in spaces where personal and confidential discussions are held, such as interview rooms and consulting/examination/treatment spaces: discussions should be unintelligible in adjoining spaces.

5.47 Particular care should be taken where the adjoining spaces are waiting areas. Noise from treatment spaces attended by adults should not transmit to those attended by children and vice-versa.

5.48 Sound transmission can be reduced by use of sound-containing partitions and doors. Use of soft floor coverings, and acoustic treatment of walls and ceilings (where hygienically acceptable) will improve sound absorption in a space.
Finishes

5.49 The quality of finishes in all areas should be of a high standard: the cost allowance makes due recognition of this need. Guidance on the selection of finishes is provided in the relevant Health Technical Memoranda (HTMs).

5.50 Finishes should be robust enough to withstand accidental impact and additional protection should be provided at likely points of contact. Trolleys and items of mobile equipment which may cause damage should be appropriately buffered.

Colour

5.51 Colours of surfaces in spaces occupied by patients should not distort the colour rendering of light sources. It must be possible to clearly define and easily identify changes to a patient’s skin tone and colour (see also paragraph 5.25). Decor should be light and pleasant.

Floors

5.52 Floor coverings and skirtings should contribute to the provision of a non-clinical environment and, at the same time, be hardwearing. They must not present a hazard to disabled people nor restrict the movement of wheeled equipment. Floors should not be, nor appear to be, slippery and the patterning should not induce disorientation. Changes of floor level should be avoided wherever possible. Surface drag, static electricity, flammability, infection hazards and impermeability to fluids must be considered. HTM 61 - ‘Flooring’, should be consulted for advice on user requirements and performance selection.

5.53 Finishes should be appropriate for the activities to be carried out, restricted in variety for ease of cleaning and compatible with agreed cleaning routines. Care should be taken in the selection of floor finishes in spaces where Plaster of Paris splints and casts will be applied and removed.

Anti-static flooring

5.54 The ‘Report of the working party to review the anti-static requirements for anaesthetising areas’ recommends that project teams should consider, in consultation with the Department of Anaesthesia, whether they wish to use flammable anaesthetic agents. If the trend to dispense with these agents is followed, no anti-static provision will be necessary. However, in view of the historical position on the subject, suitable warning notices must be displayed.

Doors and frames

5.55 Doors and frames are particularly liable to damage from mobile equipment, and materials which will withstand this should be used. All double-swung doors should incorporate clear glass vision panels, but privacy, safety, or other considerations may require that the panels should be capable of being obscured. Where necessary, doors should be capable of being fastened in the open position. Magnetic door retainers should not restrict the movement of traffic.

Windows

5.56 In addition to the various statutory requirements concerning windows, the following aspects require consideration: illumination and ventilation; insulation against noise; user comfort; energy conservation; the prevention of glare; and the provision of a visual link with the outside world. Windows should, if possible, have a pleasant outlook.

5.57 Design should ensure that it is possible for cleaners to have easy access to the inside and outside of windows. Guidance on types of windows and safety aspects is available in HTM 55 - ‘Windows’.

Maintenance and cleaning

5.58 Materials and finishes should be selected to minimise maintenance and be compatible with their intended function. Building elements that require frequent redecoration or are difficult to service or clean should be avoided. Special design consideration should be given to corners, partitions, counters and other elements which may be subjected 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’ and HTM 61 - ‘Flooring’.

Smoking

5.59 NHSME circular HSG (92)41, entitled ‘Towards smoke-free NHS premises’, promulgated Government policy as set out in the ‘Health of the Nation White Paper, and required NHS authorities and provider units to implement policies so that the NHS became virtually smoke-free by 31st May 1993. The circular advised that a limited number of separate smoking rooms should be provided, where necessary, for staff and for patients who cannot stop smoking. In addition, Scottish NHSME circular MEL(92)24 referred to further separate guidance recommending that consideration be given on how to adequately ventilate such smoking rooms.

5.60 No provision has been made in this Note for staff or patients who wish to smoke.
6.0 Engineering services

Introduction

6.1 This chapter describes the engineering services contained within the A and E department and how they integrate with the engineering systems serving the whole site. The guidance should acquaint the engineering members of the multi-disciplinary design team with the criteria and material specification needed to meet the functional requirements.

Model specifications

6.2 The National Health Service Model Engineering Specifications, including the Scotland and Northern Ireland supplements (in preparation), 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

6.3 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.

6.4 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, reference should be made to the Scottish Office Health Building Procurement in Scotland - 'Procedures prior to approval in principle' - option appraisal of NHS Development issued under cover of SHH/DGM (1987) 13.

6.5 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.

6.6 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 system is not available, this department should be designed to stand alone. It should also be suitable for subsequent integration with a future BMS.

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

Maximum demands

6.8 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 department. As a guide and for preliminary planning purposes only, the estimated maximum demands for a department with 50,000 new attendances per annum are set out below:

<table>
<thead>
<tr>
<th>Service</th>
<th>Typical max demand</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating/ventilation/hot water (kW)</td>
<td>130-140</td>
<td></td>
</tr>
<tr>
<td>Hot water (l/s)</td>
<td>1-1.50</td>
<td>storage 375 litres (2 hours recovery)</td>
</tr>
<tr>
<td>Cold water (l/s)</td>
<td>1.25-1.60</td>
<td>storage 7,000 litres (24 hour supply)</td>
</tr>
<tr>
<td>Supply ventilation (m³/s)</td>
<td>1.70</td>
<td>clean and dirty</td>
</tr>
<tr>
<td>Extract ventilation (m³/s)</td>
<td>1.75</td>
<td></td>
</tr>
<tr>
<td>Cooling (chilled water) (kW)</td>
<td>0-20</td>
<td></td>
</tr>
<tr>
<td>Electrical (kVA)</td>
<td>30-35</td>
<td>includes essential 25-30 kVA</td>
</tr>
<tr>
<td>Medical gases (l/min)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxygen</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Nitrous oxide</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Vacuum</td>
<td>360</td>
<td></td>
</tr>
<tr>
<td>Medical air (4-bar)</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
Activity Data

6.9 Environmental and engineering technical data and equipment details are described in the Activity Data sheets which are listed in Chapter 8. They should be referred to for space temperatures, lighting levels, outlets for power, telephones, equipment details, etc.

Safety

6.10 The Health and Safety at Work etc Act 1974, as partly amended by the Consumer Protection Act 1987, together with the Workplace Regulations and the Work Equipment Regulations, impose 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 are such that articles and equipment will be safe and without risk to health at all times when being set, used, cleaned or maintained by a person at work.

Fire safety

6.11 The project team should familiarise themselves with Firecode, which contains Departmental policy and technical guidance on fire safety in hospitals and other NHS premises. In addition, the Fire Practice Note series provides guidance on specialist aspects of fire precautions. In Scotland, refer to ‘Firecode in Scotland’.

Noise

6.12 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 patient and staff discomfort. The limits and means of control advocated in Hospital Design Note 4, including its revisions and the means of control contained in Engineering Data Sheet DH1, should provide an acceptable acoustic environment. See also paragraphs 5.45 to 5.48.

6.13 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. This will be important in examination/treatment rooms, particularly where these are located adjacent to waiting areas. It will also be necessary to ensure reasonable sound attenuation between children’s and adult treatment areas.

Space for plant and services

6.14 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 access panels should be provided for this purpose;
   - for eventual removal and replacement of plant.

6.15 Recommended spatial requirements for mechanical, electrical and public health engineering services are contained in HTM 2023 - ‘Accommodation for plant and services’ (in preparation). The information in this HTM is specifically intended for use during the initial planning stages when precise dimensional details of plant are not available.

6.16 The distribution of mechanical and electrical services to final points of use should, wherever possible, 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.

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

6.18 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 isolation devices

6.19 Devices for control and safe isolation of engineering services should be:
   - located 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

6.20 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 HTM 17. This HTM also describes the requirements which should be included in the contract documents. 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. In Scotland, the building and its engineering component should be commissioned in accordance with Scottish Hospital Technical Note 1 - ‘Post commissioning documentation for health buildings in Scotland’.

MECHANICAL SERVICES

Heating

6.21 Spaces heated by low pressure hot water systems should use radiators of the low surface temperature type. Surface temperatures should not exceed 43°C. Exposed hot water pipework, accessible to touch, should be insulated. Further guidance is contained in Health Guidance Note - ‘Safe’ hot water and surface temperatures.

6.22 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. There should be adequate space below 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.

6.23 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.

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

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

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

6.28 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.

6.29 The supply plant for ancillary accommodation should be separate from plant serving the major treatment and resuscitation rooms.

6.30 A separate extract system will be required for ‘dirty’ areas, for example toilet facilities and the patient cleansing room (see also paragraph 4.43). It should operate continuously throughout the day and night. A dual motor fan unit with an automatic changeover facility should be provided.

6.31 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.

6.32 Further detailed guidance is contained in HTM 2025 - ‘Ventilation in healthcare premises - Design considerations’.

Controls

6.33 Supply and extract ventilation systems should include local controls and indicator lamps to confirm the operational status of each system. Where the system is used on a regular daily pattern, timeswitch control with manual override for a limited period should be considered. The indicators for a system serving a particular space should be in or immediately adjacent to that space. It may be appropriate to locate all indicators at the staff base. Where manual controls are available for staff use, they should be provided with labels which clearly define their function.

Substances hazardous to health

6.34 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 in their current publication EH40/94 - ‘Occupational exposure limits 1994’, updated annually, sets limits which form part of the Control of Substances Hazardous to Health Regulations 1994 (COSHH). For example, the maximum exposure limit (MEL) for isocyanates, a constituent of some plasters, is currently 0.02 mg/m$^3$ and the occupational exposure standard (OES) for gluteraldehyde is currently 0.2 ppm. Safety Action
Bulletin (SAB) (94) 21 also contains guidance on the use and management of gluteraldehyde solutions.

**Anaesthetic/procedures/plaster room**

6.35 The general principles for heating and cooling and dilution of airborne contamination within the anaesthetic/procedures/plaster room are similar to those described for operating departments in HTM 2025 - ‘Ventilation in healthcare premises’. However, the recommended fresh air supply rate is 0.3 m$^3$/s to the anaesthetic/procedures/plaster room and 0.1 m$^3$/s to the associated clean utility/preparation room. Air movement from these rooms to adjacent areas should be maintained when all doors are closed and also while one door is opened briefly. See also paragraph 4.38. In Scotland, comfort cooling will generally not be required; tempered air with humidification will usually suffice.

6.36 Refrigeration plant capacity should be related to geographic design data. The design enthalpy figures should be chosen such that they will not be exceeded for more than 30 hours in the average year. Enthalpy figures for operating departments (10 hours in the average year) are not considered necessary for clean procedures rooms.

6.37 Cooling loads are best met using chilled water from remote central plant where aspects of control, part load, noise, vibration, space and building structure can more effectively be accommodated and economically provided.

6.38 Systems should comply with HTM 2040 - ‘The control of legionellae in healthcare premises - a code of practice’.

6.39 The system should be separate from systems serving other areas. It should be controlled to reduce the ventilation rate during the night whilst also maintaining relative pressures and movement. If practicable, cooling plant should be closed down during the night. However, plant operational status, temperature indication, indicating lights and a manual override should be provided to enable staff to restore the system promptly to its full operational state. The controls should be suitable for cleaning and, if possible, they should be flush mounted.

**Resuscitation room**

6.40 The resuscitation room cooling system should be designed to maintain an internal temperature of 25°C when the external ambient is 28°C. The supply rate should provide ten air changes per hour and maintain a positive pressure within the room relative to adjacent spaces. See also paragraph 4.53. In Scotland, comfort cooling will generally not be required; tempered air with humidification will usually suffice.

6.41 The system should be controlled as described in paragraph 6.35 for the anaesthetic/procedures/plaster room.

**Hot and cold water services**

6.42 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’ (in preparation). (In Scotland, Scottish Hospital Technical Note 2 - ‘Domestic hot and cold water systems for Scottish healthcare premises’.)

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

6.44 The domestic hot water supply should be taken from the general hospital calorifier installation at a minimum outflow temperature of 60°C ± 2.5°C and distributed to all outlets such that the return temperature at the calorifier is not less than 50°C. See Health Guidance Note - ‘Safe’ hot water and surface temperatures’. In Scotland, see Scottish Hospital Technical Note 2 - ‘Domestic hot and cold water systems for Scottish healthcare premises’.

6.45 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’.

**Piped medical gases and vacuum**

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

**Pneumatic tube transport**

6.47 Pneumatic tube transport may provide a viable alternative to porters for moving specimens to the pathology department. Factors to be assessed will include:

- distance, time and cost of travel between the two locations;
- time to process specimens in the laboratory;
- proportion of specimens which require urgent results.

6.48 The total capital and revenue cost of each option should be determined in accordance with the principles set out in the Capital Investment Manual (England and Wales) or Health Building Procurement guidance (Scotland). Further guidance on pneumatic conveyor systems will be
6.49 The installation should comply in all respects with BS7671 - ‘Requirements for electrical installations’, IEE Wiring Regulations, 16th Edition (and subsequent amendments) and HTM 2007 - ‘Electrical services: supply and distribution’.

6.50 The point of entry for the electrical supply should be a switch cupboard housing the main isolators and distribution equipment. This space will also be 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 lockable in the “off” position.

6.51 The electrical installation in occupied areas should be concealed using PVC insulated cable and screwed steel conduit or trunking but, in certain circumstances, mineral-insulated metal-sheathed cables may be necessary. External installations should use PVC insulated cables in galvanised screwed steel conduit with waterproof fittings.

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

6.53 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 which came into force on 28 October 1992.

6.54 Guidance on the avoidance and abatement of electrical interference is contained in HTM 2014 - ‘Abatement of electrical interference’.

6.55 Fluorescent luminaires should comply with BS5394.

6.56 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 healthcare buildings’.

6.57 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.

6.58 Luminaires should be manufactured and tested in accordance with the requirements specified in the relevant sections of BS4533. 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, illuminations should be fixed and of a quality which will enable suturing to be undertaken.

6.59 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.

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

6.61 Mobile examination luminaires, where provided, should operate at extra low voltage, be totally enclosed and be equipped with a heat filter. The temperature of external surfaces should be such as to avoid injury to patients and staff.

6.62 Where VDTs 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. Further guidance is contained in the CIBSE Lighting Guide LG3.

6.63 The lighting of corridors, stairways and other circulation areas, which generally are not covered by activity data A-Sheets, should be in accordance with HTM 2011 - ‘Emergency electrical services’ and BS5266.

6.64 Safety lighting should be provided on primary escape routes in accordance with HTM 2011 - ‘Emergency electrical services’ and BS5266.

6.65 The ceiling-mounted minor operating theatre table luminaire in the anaesthetic/procedures/plaster room should be provided with low capacity batteries and a
change-over contactor to provide a “continuous” supply to these fittings in accordance with HTM 2011 - ‘Emergency electrical services’.

**Resuscitation room**

6.66 If ceiling-mounted X-ray equipment is to be installed in the resuscitation room (see paragraph 2.29), equipment support facilities consisting of a grid of uniformly spaced support channels will be required. Dimensions should be co-ordinated to accommodate recessed modular fluorescent luminaires. The arrangement should seek to reduce shadows from ceiling-mounted equipment. The luminaires should be switched and circuited to provide dimming.

6.67 At each entrance to the resuscitation room, if ceiling-mounted X-ray equipment is installed, a safety sign and a warning lamp should be provided in order to comply with the requirements for radiological protection. The warning lamp should give a clear indication in red when it is energised and may incorporate the legend “Do not enter”, visible only when illuminated. All warning lamps should have incandescent filaments energised from a suitable power source within the room. The operation of these lamps should be interlocked with the operation of the X-ray equipment and switched via appropriate devices.

6.68 Further guidance on lighting in major treatment and resuscitation rooms is also contained in the CIBSE Lighting Guide LG2.

**Controlled Drugs cupboard**

6.69 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.

6.70 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 BS2881. 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’. Guidance is also contained in the Scottish Home and Health Department publication: ‘Guidelines for the safe and secure handling of medicines’, issued with the NHS Circular No 1988 (GEN) 33.

**Socket-outlets and power connections**

6.72 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.

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

6.74 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 spur outlet. The spur outlet should contain an indicating light, where appropriate, and a suitable fuse.

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

6.76 Heating appliances and automatic equipment should have indicator lights to show when they are energised. Such indicators should be contained in the control panel of the apparatus, in the control switch or in the socket-outlet from which the apparatus derives its supply.

6.77 All socket-outlets in consultation/examination/treatment areas should be connected such that a supply is available from at least two separately fused circuits of the same phase.

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

6.79 Advice on the power supply and requirements for fixed and mobile radiodiagnostic equipment is contained in HTM 2007 - ‘Electrical services: supply and distribution’.

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

6.81 Where appropriate, the earth connection at the power termination should be suitable for the functional earth requirements specified by the X-ray equipment manufacturer. The purpose, characteristics and performance criteria of the earth reference terminal is described in the “protective earthing” section of the Department of Health’s specification document TRS 89.
Where appropriate, conduits and cable trunking should be installed by the electrical sub-contractor, to a layout satisfying the requirements of the X-ray equipment supplier who will normally supply and install the interconnections. Some cables have limitations on maximum length and radius of bends.

**Emergency electrical supplies**

Guidance on emergency electrical supplies is contained in HTM 2011.

**Main entrance security systems**

The main entrance should 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. Access from the A and E department to the main hospital may require similar facilities. See also paragraphs 3.35 to 3.41.


**Personal alarm transmitters**

Local security policies should determine at the planning stage whether or not staff are to be issued with personal alarm transmitters. If these are to be supplied, conduits and accommodation for transmitting/receiving equipment and propagating devices, such as induction loops and/or aerials, will be required to suit the selected system. See also paragraph 5.38.

**Security alarm**

A security alarm actuating switch or button is required at the reception desk and staff base. It should be connected to a continuously staffed area in the hospital. See also paragraph 5.39.

**Staff location system**

The hospital staff location system should be extended to include this department. Further guidance is contained in HTM 2015 - ‘Bedhead services’ (Parts 2 and 4 in preparation).

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**Patient-to-staff and staff-to-staff call systems**

The patient-to-staff and staff-to-staff call systems may be hard-wired or radio systems. In all cases they must be electromagnetically compatible (see also paragraphs 6.52 to 6.54).

Patient-to-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, 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.

Staff-to-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.

A visual and audible indication of operation of each system should be provided at the staff base to give responding staff unambiguous identification of the call source. Further guidance is contained in HTM 2015.

**Telephones**

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

The resuscitation and anaesthetic/procedures/plaster room should be provided with splashproof line jack units and wall-mounted, “hands-free” telephones with volume control. They should be fitted with indicating call lights, bells or buzzers of subdued tone and muting switches.

Instruments in the recovery bay should be fitted with indicating call lights, bells, buzzers of subdued tone and muting switches.

The patient cleansing room should be provided with a splashproof line jack unit.

At least one ex-directory line should connect directly with the local ambulance services control centre. It should have a distinctive bell or buzzer.

Additional socket outlets should also be provided in appropriate areas to cater for major incidents.
6.99 Coin- and/or card-operated payphones, depending on local policy, should be provided in the main waiting area.

6.100 Self-contained intercommunication systems are relatively inflexible and limited in the extent of their economic application. Any subsequent modifications to them usually involve disproportionate cost. In only very rare instances can such systems be justified for functional or clinical reasons.

6.101 A properly planned telephone system will provide prompt intercommunication facilities between all extensions. Abbreviated dialling can be used for a range of frequently called extension numbers. Consequently, reasons for providing a separate intercommunication system should be clearly shown.

6.102 Further guidance on telephone systems is contained in HBN 48 and HTM 2055 - 'Telecommunications (telephone exchanges)' (in Scotland, SHPN 48 - 'Telecommunications').

Music and television

6.107 Conduits for television/video and background music system outlets should be provided in the main waiting area (see paragraph 4.17).

Lightning protection

6.108 Protection of the building against lightning should be provided in accordance with HTM 2007 and BS6651: 1992.

INTERNAL DRAINAGE

General

6.109 The primary objective is to provide an internal drainage system which:
- uses the minimum of pipework;
- remains water and air tight at joints and connections;
- is sufficiently ventilated to retain the integrity of water seals.

Data links

6.104 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, then the A and E 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 (see paragraph 4.68).

Clocks

6.105 Clocks may be of impulse, synchronous or battery/quartz type, except in the anaesthetic/procedures/plaster room and in the resuscitation room where they should display “real time”, “elapsed time” and have a sweep second hand.

Radio (ambulance services)

6.106 Depending on local policy, where radio equipment is required for direct communication with ambulance vehicles, conduits and accommodation for transmitting/receiving equipment will be required. See also paragraphs 5.27 and 5.28.
Operational considerations

6.113 The shower in the patient cleansing room is unlikely to be used for washing down radioactive or hazardous chemical contamination. However, should the need arise, the amount of radioactive or chemical contamination removed by the shower is likely to be small. Therefore, and due also to dilution, no special facilities are required. Further advice should be obtained from the appropriate radiation protection adviser and emergency planning officer.

6.114 The drain from the dirty utility/sluice room and the anaesthetic/procedures/plaster room should be trapped to retain plaster products for subsequent and appropriate disposal (see also paragraph 4.32).
7.0 Cost information

Introduction

7.1 For all types of health buildings, it is important that building costs and revenue expenditure are kept as low as possible consistent with acceptable standards. Within this general context, Health Building/Hospital Planning Notes provide a synopsis of accommodation for health buildings which the Department of Health/Scottish Home and Health Department recommends for the provision of a given service.

Cost allowance

7.2 The attention of project managers is drawn to guidance in the Business Case Guide within the Capital Investment Manual (CIM) (England and Wales only - for Scotland see Health Building Procurement in Scotland) which reflects the important changes that have taken place over recent years, with both the introduction of the NHS reforms and the changing patterns of health care delivery. CIM has not been promulgated for use in Scotland, and procurement procedures are currently under review. This new process is intended to reduce unnecessary and often expensive planning work which may subsequently prove to be abortive.

7.3 Departmental Cost Allowance Guides (DCAGs) should be used as reference costs at an early planning stage to establish a cost target that ensures developments are designed in an economical manner without impairing their functional requirements. They provide a cost related solely to the work carried out within the confines of a specific department; to this cost must be added allowances for related works outside the department, such as energy and services sources, corridors, lifts, other non-usable space requirements and all external works.

7.4 A full schedule of all current DCAGs is available from NHS Estates. A schedule of Departmental Cost Allowances for use in Scotland is available from the Estates Division, Management Executive NHSS.

7.5 The cost allowances cover the building and engineering requirements set out in this Note. In costing the functional units, it has been assumed that the A and E department will be incorporated into an acute general hospital where the common use of services will be available.

Regional locational factors

7.6 The cost allowances associated with this Note are based upon national average price levels in England and Scotland as appropriate.

7.7 The Capital Investment Manual Cost Forms (OB1, 2 and 3 and FB 1, 2, 3 and 4) require adjustment to be made to the cost allowances to cover for any local market conditions. In Scotland, guidance for the assessment of local market conditions is to be included in an annex to the Scottish Health Buildings Schedule of Departmental Cost Allowances.

7.8 NHS Estates produces ‘Quarterly briefing’ which provides regular updates on regional locational factors applicable to England and Wales only. Scottish regional local factors will be updated each year and published in conjunction with cost allowances. For regional locational factors applicable to Northern Ireland, advice must be sought from the Central Office.

Functional unit

7.9 The functional units for an A and E department are:

- 20,000 new attendances per annum;
- 30,000 new attendances per annum;
- 50,000 new attendances per annum;
- 70,000 new attendances per annum.

Note that all the above figures relate to new attendances only.

7.10 The Schedule of Accommodation includes allowances which assume a rate of about 15% for return attendances per annum. Project teams planning A and E departments which vary significantly from this rate will need to make appropriate adjustments to the Schedule of Accommodation. The activity spaces and areas used for costing the functional units are listed in the Schedule of Accommodation at the end of this chapter.

Essential Complementary Accommodation (ECA)

7.11 ECA comprises activity spaces which are essential to the running of the accident and emergency department, but which in certain circumstances may be available in an
adjacent location in the hospital. The amount of ECA which will need to be provided as part of an individual project will therefore vary according to the extent of the provision elsewhere. The ECA costed in this Note is listed in the Schedules of Accommodation at the end of this chapter.

Dimensions and areas

7.12 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 and SHPN 40.

7.13 For development planning and at the earliest stage of a design, it will be helpful for designers to have data available which will enable them to make an assessment of the sizes involved. For this reason, the areas prepared for the purpose of establishing the cost allowances are included at the end of this chapter.

7.14 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.

Circulation

7.15 The circulation space comprises space for departmental corridors, a heating and ventilation zone adjacent to external walls, small vertical ducts and spaces occupied by partition walls, and allows for planning flexibility; circulation space, as described, is included in the cost allowances.

7.16 It is also important to remember that the circulation figures included in the Departmental Cost Allowance Guides for this Note are those anticipated for new purpose-built premises with no constraints. Where constraints are encountered, for example in the refurbishment or conversion of older types of property, this circulation figure would be likely to increase accordingly; therefore some adjustment will be necessary to the circulation figure.

Communications

7.17 Staircases, lifts and plantrooms, with the exception of an electrical switch cupboard, battery cupboard and a standard enclosure for medical gas isolation points, are not included in the cost allowances, and, together with corridors that serve as inter-departmental links, are classified as on-costs to the departmental cost.

Land costs

7.18 As normal for Departmental Cost Allowance Guides, 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 submissions, as detailed in the Capital Investment Manual (in Scotland, ‘Health Building Procurement in Scotland’), and could therefore be an important part of the overall cost viability of the scheme.

Engineering services

7.19 The following engineering services, as described in Chapter 6 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
  Heating: low pressure hot water heating system with thermostatic radiator control, maximum touch temperature 43°C.

  Ventilation: mechanical supply and extract to meet the clinical and functional requirements. Includes cooling to the anaesthetic/procedures/plaster room and resuscitation room. (Share of central ventilation and cooling plant included.)

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

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

  Medical gases: piped supplies of oxygen, medical vacuum and medical air to clean procedures room, anaesthetic/procedures/plaster room and resuscitation room, also nitrous oxide to anaesthetic/procedures/plaster room and resuscitation room. Anaesthetic gas scavenging to anaesthetic/procedures/plaster room. Oxygen and vacuum to examination/treatment rooms, recovery bay and patient cleansing room.

- Electrical services
  Departmental distribution switchboard.

  Building management system.

  Lighting system: general lighting as required by tasks. Fluorescent, tungsten, safety and emergency luminaries as appropriate. Dimming included for examination/treatment room used for ophthalmic and ENT purposes.
Power system: socket-outlets and other power outlets for fixed and portable equipment (including power supply for ceiling-mounted X-ray equipment). Supplementary equipotential earth-bonding connections. Standby and safety installations from the main hospital supplies.

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

Clocks (part of wired system).

Staff location: extension from hospital system.

Staff-to-staff and patient-to-staff call system.

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

Data transmission: conduits only.

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

Departmental building management system.

- **Equipment (Group 1)**
  
  Minor operating theatre table luminaires in anaesthetic/procedures/plaster room and major treatment room. Fixed pendants in anaesthetic/procedures/plaster room and clean procedures room.

  X-ray viewers in consultation/examination/treatment, major treatment/plaster, major treatment, and resuscitation rooms.

  Controlled Drugs cupboard

  Bedpan washer

  Washer/disinfector

  Water boiler

  Dishwasher
### Schedules of accommodation

<table>
<thead>
<tr>
<th>Para. no.</th>
<th>Activity space</th>
<th>Space Area m²</th>
<th>Total area m²</th>
<th>Total area m²</th>
<th>Total area m²</th>
</tr>
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<tr>
<td>4.5</td>
<td>Main entrance/draught lobby</td>
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<td>1 20.0</td>
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<tr>
<td>4.8</td>
<td>Reception desk</td>
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<td>4.17</td>
<td>Main waiting area</td>
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<td>4.20</td>
<td>Children’s waiting play area</td>
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#### Clinical areas

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<tr>
<td>4.13</td>
<td>Triage bay</td>
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<td>1 5.0</td>
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<tr>
<td>4.24</td>
<td>Examination/treatment room - 1 sided</td>
<td>8.5</td>
<td>6 51.0</td>
<td>8 68.0</td>
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<td>Examination/treatment room - 2 sided</td>
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<td>Dirty utility/laundry disposal room</td>
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<td>Specimen WC</td>
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<td>4.46</td>
<td>Resuscitation space: 4-bays</td>
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<td>-</td>
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<tr>
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<td>Psychiatric interview room</td>
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#### Waiting/storage/utility areas

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<tr>
<td>4.57</td>
<td>Visiting room/Viewing room</td>
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<tr>
<td>4.58</td>
<td>Recovery bay</td>
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<tr>
<td>4.7</td>
<td>Trolley/wheelchair bay</td>
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<tr>
<td>4.39</td>
<td>Parking bay for mobile X-ray</td>
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<td>1 14.0</td>
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<tr>
<td>4.28</td>
<td>Supplies base (incl. staff base)</td>
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#### Office accommodation

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<tr>
<td>4.62</td>
<td>Consultants office</td>
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<tr>
<td>4.63</td>
<td>Business manager</td>
<td>9.0</td>
<td>1 9.0</td>
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<td>1 9.0</td>
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<tr>
<td>4.65</td>
<td>Sister/Charge nurse</td>
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<tr>
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<tr>
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#### Facilities for staff

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<td>4.69</td>
<td>Staff rest room</td>
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<td>10.0</td>
<td>1 10.0</td>
<td>1 16.0</td>
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<tr>
<td>4.70</td>
<td>Pantry</td>
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<tr>
<td>4.68</td>
<td>Seminar room</td>
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<td>1 24.0</td>
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<td>Staff WC type 1</td>
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#### Stores/utility rms & support spcs

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<td>Decontamination equipment store</td>
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<td>4.75</td>
<td>Ambulance cleaning bay (Ext. Cost)</td>
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</tr>
<tr>
<td>4.76</td>
<td>Main equip. &amp; supplies store</td>
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</tr>
<tr>
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<td>Cleaners/domestic service room</td>
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<td>1 10.0</td>
<td>1 10.0</td>
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**Net total**

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<td>ADD - circulation</td>
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<table>
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<th>Departmental areas</th>
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<tr>
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<td>ADD - circulation</td>
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### Essential Complementary Accommodation

<table>
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<tr>
<th>Para. no.</th>
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<th>Space Area m²</th>
<th>Planning m²</th>
<th>Engineering m²</th>
<th>Circulation m²</th>
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<tr>
<td>5.0</td>
<td>Middle Grade staff office</td>
<td>9.0</td>
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<td>0.3</td>
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<td>5.1</td>
<td>Doctors overnight stay room</td>
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Schedule as revised September 1998
### Schedule as revised September 1998

#### HBN 22 – Accident and emergency department

<table>
<thead>
<tr>
<th>Para. no</th>
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<th>Space area m²</th>
<th>Qty</th>
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<tbody>
<tr>
<td><strong>Patients area</strong></td>
<td></td>
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<td>4.5</td>
<td>Main entrance/draught lobby</td>
<td>20.0</td>
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<td>Reception desk</td>
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<td>4.17</td>
<td>Main waiting area</td>
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<td>4.20</td>
<td>Childrens waiting/play area</td>
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<td>4.21</td>
<td>Feeding room</td>
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<td>4.22</td>
<td>Patients and escorts WC - type 2</td>
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<td>WC for Disabled People - type 5</td>
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<td>4.30</td>
<td>Sub-Waiting Area</td>
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<td><strong>Clinical areas</strong></td>
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<td>4.13</td>
<td>Triage bay</td>
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<tr>
<td>4.24</td>
<td>Examination/treatment room - 1 sided</td>
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<td>Resuscitation space: 2-bays</td>
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<td>Resuscitation space: 3-bays</td>
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<td>Resuscitation space: 4-bays</td>
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<td>Records store</td>
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<td>4.28</td>
<td>Supplies base (inc. staff base)</td>
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<td>Major incident equipment store</td>
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<td>4.81</td>
<td>Medical gas cylinders store</td>
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<td>1</td>
<td>9.0</td>
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<td>4.83</td>
<td>Crutches &amp; splint store</td>
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<td>1</td>
<td>10.0</td>
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<tr>
<td>4.82</td>
<td>Plaster store</td>
<td></td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>4.84</td>
<td>Cleaners/domestic service room</td>
<td>10.0</td>
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<td>10.0</td>
</tr>
<tr>
<td>4.85</td>
<td>Disposal hold</td>
<td></td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>4.89</td>
<td>Switch cupboard</td>
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</tbody>
</table>

Net total 886.5

ADD - planning provision 5% 44.3

Total 930.8

ADD - engineering zone 3% 27.9

ADD - circulation 33% 307.2

Total 1,265.9

**Departmental areas** 1,265.0 m²
8.0 Activity data

Introduction

8.1 “Activity data” 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, up-dated twice yearly. It comprises three types of information sheet: activity space data sheets (known as A-Sheets), their supporting activity unit data sheets (known as B-Sheets) and A-Sheet component listings (known as D-Sheets).

8.2 A-Sheets record in more detail than is described in this volume each task or activity that is performed in a particular activity space (which may be a room, space, corridor or bay), together with environmental conditions and the technical data necessary to enable the activities to be performed. Each A-Sheet also contains a list of the titles and code numbers of the relevant B-Sheets.

8.3 B-Sheets provide narrative text and graphics to scale relating to one activity. They show equipment fitted or supplied as part of the building, and the necessary engineering terminals.

8.4 D-Sheets provide information about the total quantities of components (excluding those in Group 4 - see paragraph 1.12) extracted from all B-Sheets selected for inclusion in an individual A-Sheet.

8.5 Activity data is only available in the form of magnetic media, but this may be used to generate paper copies where required.

8.6 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 LSI 6AE.

Activity data applicable to this volume

8.7 The A-Sheets recommended for the activity spaces described in this volume are either new sheets, amended ones or selected from existing sheets. A list of A-Sheet code numbers and titles is given at the end of this chapter.

8.8 Further activity data sheets may be selected, or drawn up by project teams to their own requirements, for any services not described in the volume or included in the list.

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

Lists of activity data A-Sheets

8.10 The activity data A-Sheets listed below may not carry a title identical to the activity spaces detailed in this volume. Use of the appropriate A-Sheet code number will, however, result in the correct activity space being accessed.

8.11 The activity data A-Sheets are listed below in the same order as the spaces to which they relate are listed in the Schedule of Accommodation (Chapter 7).

8.12 Some of the A-Sheets listed below relate specifically to an accident and emergency department of a certain size. For smaller or larger sizes of department the A-Sheets will need to be amended as appropriate.

Note: The following applies to the MS.Dos application only.

During the currency of this Note, a MS.Windows application is being introduced with the following consequences:

A-Sheets are replaced by room data sheets.
B-Sheets are replaced by assemblies.
The term “D-Sheets” is omitted from component listings.

<table>
<thead>
<tr>
<th>Activity space</th>
<th>A-Sheet code no</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Recovery bay: pre-discharge, 2 spaces</td>
<td>B2515</td>
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<tr>
<td>2. Consultation/examination/treatment room, 1-sided</td>
<td>C0220</td>
</tr>
<tr>
<td>3. Consultation/examination/treatment room, 2-sided</td>
<td>C0221</td>
</tr>
<tr>
<td>4. Triage bay Accident and emergency</td>
<td>C0310</td>
</tr>
<tr>
<td>5. Staff rest: 10 persons</td>
<td>D0503</td>
</tr>
<tr>
<td>6. Staff rest: 7 persons</td>
<td>D0505</td>
</tr>
<tr>
<td>7. Parking bay: accident trolley/wheelchair A &amp; E - 30,000 attendance</td>
<td>G0126</td>
</tr>
<tr>
<td>8. Parking bay: accident trolley/wheelchair A &amp; E - 50,000 attendance</td>
<td>G0127</td>
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<tr>
<td>Activity space</td>
<td>A-Sheet code no</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------</td>
</tr>
<tr>
<td>9. Parking bay: accident trolley/wheelchair</td>
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<tr>
<td>A &amp; E - 70,000 attendance</td>
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<tr>
<td>10. Parking bay: mobile X-ray equipment</td>
<td>G0508</td>
</tr>
<tr>
<td>11. Seminar room: 10 persons</td>
<td>H0519</td>
</tr>
<tr>
<td>12. Main entrance/draught lobby</td>
<td>J0109</td>
</tr>
<tr>
<td>13. Reception/records: open counter, up to 70,000 attendances</td>
<td>J0426</td>
</tr>
<tr>
<td>14. Reception/records: open counter, up to 30,000 attendances</td>
<td>J0427</td>
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<tr>
<td>15. Waiting: nappy changing room</td>
<td>J0702</td>
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<tr>
<td>16. Infant feeding room</td>
<td>J0705</td>
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<tr>
<td>17. Main waiting: up to 30,000 attendances</td>
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</tr>
<tr>
<td>18. Main waiting: 50,000 attendances</td>
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<tr>
<td>21. Sub-waiting: 6 persons</td>
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<td>22. Sub-waiting: 3 persons</td>
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<tr>
<td>23. Sitting room: 8 persons</td>
<td>J1312</td>
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<tr>
<td>24. Visiting room/viewing room</td>
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<tr>
<td>25. Waiting/play area: up to 6 children &amp; young people</td>
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<tr>
<td>26. Waiting/play area: up to 12 children &amp; young people</td>
<td>J1408</td>
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<tr>
<td>27. Switchgear: room/cupboard</td>
<td>K0101</td>
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<tr>
<td>28. Bay: ambulance cleaning</td>
<td>K0314</td>
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<tr>
<td>29. Office: sister/charge nurse</td>
<td>M0214</td>
</tr>
<tr>
<td>30. Office: Type 5</td>
<td>M0221</td>
</tr>
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<td>31. Office: business manager</td>
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<td>Type 3 workstation</td>
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<td>32. Office medical: consultant, senior staff</td>
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<td>33. Office: medical/audit/staff, 2 workstations</td>
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<tr>
<td>35. Duty room: overnight stay, en-suite</td>
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<tr>
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<td>37. Office secretarial: 3 persons</td>
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<td>38. Office secretarial: 4 persons</td>
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<td>39. Pantry: 30 persons</td>
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<td>42. Staff base/supplies base, 70,000 attendances</td>
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<td>44. Shower: 1 person</td>
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<td>45. Washroom/WC: 1 person with mirror</td>
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<td>46. Washroom/WC: 1 place, with calls</td>
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<td>47. Washroom/WC: assisted WC, wheelchair user, personal washing</td>
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<td>48. WC specimen collection: WC/handrinse basin, wheelchair user</td>
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<td>49. Patient cleansing room: en-suite rinse basin</td>
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<td>50. Store: splint/crutch</td>
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<td>51. Store: major incident</td>
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<td>52. Main store: major equipment/supplies, A &amp; E up to 30,000 attendances</td>
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<td>53. Store: decontamination, A &amp; E</td>
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<td>54. Store: gas cylinders, ready use storage</td>
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<td>55. Main store: major equipment/supplies, A &amp; E 50-70,000 attendances</td>
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<td>56. Store: sterile supplies</td>
<td>W1309</td>
</tr>
<tr>
<td>57. Store: splint/crutch</td>
<td>W1311</td>
</tr>
<tr>
<td>A &amp; E 70,000 attendance</td>
<td></td>
</tr>
<tr>
<td>58. Store: gas cylinders, ready use storage</td>
<td>W1313</td>
</tr>
<tr>
<td>A &amp; E 50-70,000 attendance</td>
<td></td>
</tr>
<tr>
<td>59. Record store: A &amp; E 30,000 attendance</td>
<td>W1315</td>
</tr>
<tr>
<td>60. Record store: A &amp; E 50,000 attendance</td>
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</tr>
<tr>
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<td>65. Resuscitation space: 3 bays with X-ray ceiling-mounted.</td>
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</tr>
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</tbody>
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Appendix 1

Information management and technology network diagram (Figure 4) - Glossary

Introduction
1. This glossary explains the meaning of those terms used in connection with “Station functions” in Figure 4 (paragraph 2.63 of this Note) that are not self-explanatory.

Ambulance contact
2. A facility to exchange patient information with ambulance services directly by means of a computerised communications network.

Appointments
3. Maintaining, or making enquiries of, the appointments systems for the accident and emergency department and, for example, the out-patients department.

Care planning
4. Access to a system which supports the:
   • systematic planning of care, appropriate to a patient’s assessed needs;
   • the calculation of the amount of nursing resource, and the correct skill mix, necessary to deliver the planned care.

Clinical coding
5. The process by which clinical information, for example diagnoses, symptoms and treatment, is entered into a computer in a coded form.
6. It is noted that one element of the NHS IM&T strategy is the development of a thesaurus of coded clinical terms and groupings.

Community contact
7. A facility to exchange patient information with community, primary care and/or other sectors or agencies, for example Social Services Department, either by electronic mail or directly by means of a computerised communications network.

Contracting
8. A facility which enables the activities of an A and E department to be monitored against its contracts and assists with the management of extra-contractual referrals.

Decision support
9. Access to a system which can present either clinical or management information in a way that assists the process of decision-making or planning. Systems typically make strong use of graphical displays and allow a level of statistical analysis or “what if” modelling.

GP contact
10. A facility to exchange patient information with general practitioners, either by electronic mail or directly by means of a computerised communications network.
11. This facility is also a feature of the NHS IM&T strategy.

Health records
12. Access to health records held electronically as text, coded data or digitised images, for example X-rays.

Nursing management system
13. The “patient assessment”, “care planning” and “staff rosters” functions are usually combined in a single nursing management system.

Orders
14. Electronically placing orders for tests, for example blood tests and X-rays, and clinical services, for example physiotherapy and audiology.
15. This function may also include the ability to enquire on the status of orders placed previously, for example “received”, “being processed” and “completed”.

Order communications system
16. The “orders” and “results” functions are usually combined in an order communications system.
Patient assessment

17. Access to a system which supports the structured assessment of a patient’s requirement for clinical care and the systematic collection of data associated with the assessment.

Results

18. Electronically receiving results of orders (paragraph 14), for example results of blood tests and X-rays, direct from clinical service departments.

19. This function may also include the ability:
   · for urgent results to be “automatically” referred for the attention of the responsible clinician;
   · to enquire on a series of results relating to a single patient.

Staff rosters


Supplies, stock control and ordering

21. Electronically placing orders for non-clinical services, for example for repairs or supplies.

22. This function may also include the ability to enquire on the status of orders placed previously, for example “received”, “being processed” and “completed”.

Waiting lists

23. Access to a clinician’s waiting list management system
Ergonomic data sheets

Ergonomic data sheets are included in Appendix 2 for:

- Entrance lobby;
- Reception counter;
- Triage bay;
- Examination/treatment room 1 (up to two staff);
- Examination/treatment room 2 (up to four staff);
- Anaesthetic procedures/plaster room;
- Clean procedures room;
- Resuscitation room (one bay);
- Resuscitation room (two bays);
- Resuscitation room (three bays).
Activities:
Moving accident trolley through 2 sets of double doors which form a lobby. The lobby length should allow one set of doors to close before the other set is opened to minimise draughts.

NHS Estates Ergonomic Data Bank
Component-user data sheet, not to scale

Entrance lobby
Accident and emergency dept.

Users:
2 persons moving trolley
Trolley with 2 side attendants

Notes
1. Preferred minimum (restricted minimum, not recommended for general use, see explanatory notes).
2. Though the lobby length should allow for one set of doors to close before the other set opens at normal walking speed, the mechanism should not be set such that the second set will not open until the first has closed. In an emergency where speed of passage is important, such an arrangement could cause a delay and accidents.
3. Where the entrance lobby is to be used by the public, frameless glass doors should incorporate highly visible markings to aid visually impaired users.
Activities:
Sitting whilst interviewing patients in some degree of privacy, entering and looking up details on a computer, using patient record documents, appointment cards, telephone. Observation of entrance and waiting area.

Reception counter
Accident and emergency dept.

User:
Assessment nurse, receptionists and patient (with or without escort), patient may be ambulant, semi-ambulant or in a wheelchair.

NHS Estates Ergonomic Data Bank
Component-user data sheet, not to scale

Notes
1. The worktop height should be 700 for setting to use the keyboard. The counter depth should be 800 to allow adequate space for the computer. A counter depth of 800 should also help protect staff, whilst still allowing receptionist and patient to hear each other. The computer should be protected by a raised area, though this should not throw shadows on the screen.
2. An adjustable height (430-530), swivel chair with casters is required for the receptionist. A footrest should be provided.
3. Each workstation should incorporate an alarm button for staff to summon assistance.
4. Mobile under-worktop storage units for personal belongings are preferred for greater flexibility.

Preferred minimum
(Recommended minimum not recommended for general use, see explanatory notes)
Activities:
Standing whilst interviewing and assessing patient in some degree of privacy, administering first aid, entering and looking up details on a computer. Clinical handwashing. Observation of reception and waiting area.

NHS Estates Ergonomic Data Bank
Component-user data sheet, not to scale

Triage bay
Accident and emergency dept.

Users:
Nurse and patient (with or without escort), patient may be ambulant, semi-ambulant or in a wheelchair.

Notes
Preferred minimum
(Restricted minimum, not recommended for general use, see explanatory notes).

1. The computer should be on a worktop 800 high to facilitate use whilst standing.
2. It should be possible to park a patient trolley adjacent to the bay for transporting a patient who has collapsed. Alternatively, the bay should be large enough to include a patient trolley.
3. Attention should be given to the lighting of the triage bay so that the nurse can see the pallor of the patient, and to ensure that no reflections or glare fall on the computer screen.
4. The bay should incorporate an alarm button for staff to summon assistance.
Activities:
Facilities for carrying out clinical examinations and treatment of patients who are either sitting on a chair or lying on a trolley. The patient will walk into the room, or be in a wheelchair, but may transfer to the trolley. The patient may undress, with or without assistance. Examination/treatment will be performed by 1-2 staff who, when the patient is lying on the trolley, will work from one side. Facilities for recording patient data, storage of dressings, either on the dressings trolley or elsewhere, and disposal of soiled dressings should be provided, as should facilities for clinical handwashing and X-ray viewing.

NHS Estates Ergonomic Data Bank
Component-user data sheet, not to scale

Examination/treatment room 1
Accident and emergency dept.

Users:
Up to 2 staff and patient (with or without escort), patient may be ambulant, semi-ambulant or in a wheelchair.

Notes
1. The trolley should be adjustable in height to facilitate patient transfer, especially from a wheelchair, as well as being adjustable for the requirements of different staff and treatments.
2. Patient notes could be made on a writing flap or entered onto a computer which should be on a 800 high workstation to facilitate use while standing.
3. Consideration could be given to the children's room having a sound attenuated door.
4. An emergency call system for the staff and a nurse call system for the patient should be provided.
Activities:
Facilitate for carrying out clinical examinations and emergency medical and nursing procedures. The patient may walk into the room or be in a wheelchair but will transfer to the trolley or may be brought into the room on a trolley. The patient may undress with assistance. Procedures will be performed by 1–4 staff who may need to work from all sides of the trolley. Facilities for recording patient data, storage of dressings, affair on the dressings trolley or elsewhere, and disposal of soiled dressings should be provided, as should facilities for clinical handwashing and X-ray viewering.

NHS Estates Ergonomic Data Bank
Component-user data sheet, not to scale

Examination/treatment room 2
Accident and emergency deat.

Users:
Up to 4 staff and patient (with or without escort), patient may be ambulant, semi-ambulant, in a wheelchair or on a trolley.

Notes
- 1. The space should be adequately in height to facilitate patient transfer, especially from a wheelchair, as well as being adjustable for the requirements of different staff and treatments.
- 2. Patient notes could be made on a mobile pad or entered onto a computer which should be on a stand to facilitate use whilst standing.
- 3. Consideration could be given to the children's room having a sound attenuated door.
- 4. An emergency call system for the staff and a nurse call system for the patient should be provided.

Preferred minimum (illustrated minimum, not recommended for general use, see explanatory notes).
Activities:
Facilities for performing minor operative procedures. Facilities and space for application of plaster of Paris splints and casts, taking X-rays, X-ray viewing and clinical handwashing should be provided.

Anaesthetic / procedures / plaster room
Accident and emergency dept.
Users: 2 staff and patient

NHS Estates Ergonomic Data Bank
Component-user data sheet, not to scale

Notes
Preferred minimum
(Restricted minimum, not recommended for general use, see explanatory notes).
1. Open shelving with tote boxes is the most appropriate for storage of medical supplies for the treatment room. Shelves should not be higher than 1700. If shelves are provided over a 900 high worktop, the worktop should not be deeper than 800, the shelf depth 300 and the max. shelf height 1800.
2. Space is adequate for the manoeuvring and use of mobile X-ray equipment. Parking space for the equipment must be provided inside or outside the treatment room.
3. In addition, space is provided for manoeuvring and using the plaster trolley.
4. A clock with second hand sweep is required for monitoring the operating procedures and should be in view of the anaesthetist.
Activities:
Facilities for performing minor operative procedures. Facilities and space for: taking X-rays; X-ray viewing and clinical handwashing should be provided.

Clean procedures room
Accident and emergency dept.

Users:
2 staff and patient

Notes
Preferred minimum
(Restricted minimum not recommended for general use, see explanatory notes).

1. Open shelving with tote boxes is the most appropriate for storage of medical supplies for the treatment room. Shelving should not be higher than 1700. If shelves are provided over a 900 high worktop, the worktop should not be deeper than 600, the shelf depth 300 and the max. shelf height 1650.

2. Space is adequate for the manoeuvring and use of mobile X-ray equipment. Parking space for the equipment must be provided inside or outside the treatment room.

3. A clock with second hand sweep is required for monitoring the operating procedures and should be in view of the anaesthetist.
Activities:
Facilities for patients who arrive on a trolley, seriously ill or injured, to be assessed and resuscitated in visual privacy. Facilities for performing emergency medical procedures by a minimum of 5 staff who need space to work at all sides of the patient trolley and space to use equipment and view the monitors. Facilities and space for recording and accessing patient data, storage of medical supplies, taking X-rays, X-ray viewing and clinical handwashing should be provided.

NHS Estates Ergonomic Data Bank
Component-user data sheet, not to scale

Resuscitation room (one bay)
Accident and emergency dept.

Users:
Minimum of 5 staff and patient

Notes
10:10/12:30
Preferred minimum
(Restricted minimum, not recommended for general use, see explanatory notes).

1. Many more than five staff may be working at speed and under stress around the patient, the zone for working around patient trolley reflects this possibility.
2. A variety of equipment will be used and will need to be manoeuvred quietly into place without disturbance to procedures already being carried out and will be parked in different places according to the treatment being carried out. The zone for manoeuvring and parking equipment reflects this. Adequate sockets should be provided to prevent obstacles and danger from tangled and trailing cables.
3. There is a requirement for fixed and mobile storage for medical supplies, as well as a drug cupboard, fridge, preparation worktop, location for computers for inputting and accessing data about the patient, X-ray viewing, clinical handwashing and storage of incidental equipment. This can occur in the 600 wide zone for fixed equipment/parking for mobile equipment.
4. With a ceiling mounted X-ray system equipment being used, the patient does not have to be moved. The room will require an adequate ceiling height and some protection from X-ray hazard, such as a screen and lead aprons. Should a mobile X-ray be used instead, the floor area will need to be increased and parking for the machine provided inside or outside the resuscitation room.
5. A hands-free telephone and intercom should be provided.
Activities:
Facilities for patients who arrive on a trolley, seriously ill or injured, to be assessed and resuscitated in visual privacy. Facilities for performing emergency medical procedures by a minimum of 5 staff who need space to work at all sides of the patient trolley and space to use equipment and view the monitors. Facilities and space for: recording and accessing patient data; storage of medical supplies; taking X-rays; X-ray viewing and clinical handwashing, should be provided.

NHS Estates Ergonomic Data Bank
Component-user data sheet, not to scale

Resuscitation room (2 bay)
Accident and emergency dept.

Users:
Minimum of 5 staff and patient / bay.

Notes:
Preferred minimum
(Restricted minimum: not recommended for general use, see explanatory notes).

1. Open shelving, or mobile units, with tote boxes is most appropriate for storage of medical supplies for the resuscitation room. Shelves should not be higher than 1700. If shelves are provided over a 900 high worktop, the worktop should not be deeper than 600, the shelf depth 300 and the max shelf height 1000.

2. If a ceiling mounted X-ray system is installed which incorporated facilities for chest X-rays, the room can also provide X-ray facilities for patients not requiring the resuscitation room when it is available.

3. One or two doors and individual or shared facilities for each trolley space, such as clinical handwashing, can be provided to suit individual demand.
Activities
Facilities for patients who arrive on a trolley, seriously ill or injured, to be assessed and resuscitated in visual privacy. Facilities for performing emergency medical procedures by a minimum of 5 staff who need space to work at all sides of the patient trolley and space to use equipment and view the monitors. Facilities and space for recording and accessing patient data, storage of medical supplies, taking X-rays, X-ray viewing and clinical handwashing should be provided.

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