

HEALTH BUILDING NOTE 20

Facilities for mortuary and post-mortem room services

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Executive summary

HBN 20 'Facilities for mortuary and post-mortem room services' provides guidance to NHS organisations on planning and designing comprehensive NHS mortuary and post-mortem facilities. It includes accommodation for:

- the receipt, storage, viewing and removal of bodies;
- post-mortem examinations;
- visiting relatives/friends;
- staff support facilities;
- teaching and research.

This guidance may be used where the full facilities are not necessary, for example where a body store with viewing only is required. It may also be used when planning a joint NHS/public mortuary and post-mortem facility.

Recent years have seen an increase in throughput to hospital mortuaries, which has resulted in a shortage of body storage spaces and even post-mortem tables in some cases. This document sets out the factors that need to be considered when calculating requirements for body storage spaces and post-mortem tables.

It recommends that temporary body storage facilities may be used to cope with both expected increases in deaths (for example due to seasonal variations) and unexpected increases (for example due to major disasters). Decisions about temporary storage facilities should be planned in advance and agreed with the trust board.

Example schedules of accommodation for a range of mortuary and post-mortem facilities are listed at the end of this document.

This document builds on and replaces Health Building Note (HBN) 20 – 'Facilities for mortuary and post-mortem room services'.

Significant changes since the previous edition of this guidance

Since the previous edition of this guidance (HBN 20, 2001), the following changes have been made:

1. The information has been rationalised and reduced to cut out duplication, enabling the user to easily find specific information.
2. All references have been updated. Where necessary (for example in the case of superseded British Standards), relevant changes have been made to ensure that the guidance reflects the new standards. References that are no longer relevant have been deleted.
3. The text has been updated with respect to the Disability Discrimination Act 1995 (Building Regulations Approved Document M: 'Access to and use of buildings' and BS 8300:2001 'Design of buildings and their approaches to meet the needs of disabled people – Code of Practice').
4. The engineering chapter has been updated.

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1 General service considerations

INTRODUCTION

1.1 This document gives guidance on the planning and design of comprehensive NHS mortuary and post-mortem (PM) facilities. It covers body receipt and storage, body viewing, accommodation for visiting relatives, examination by PM, and the demonstration of PM findings in cases of clinical interest and for teaching purposes. The guidance may be used where the full facilities are not necessary, for example where a body store with viewing only is required. It may also be used when planning a joint NHS/public mortuary and PM facility.

1.2 Whilst this guidance provides information that is current at the time of publication, there are obviously wider considerations associated with the subjects covered, and other related published guidance must therefore be taken into account. Additionally, some aspects of this guidance may be amended or qualified in the future. Project teams should consequently ensure that they check the currency of documents referred to within the text. Details of these are given in the reference section of this document.

FUNCTIONS OF A MORTUARY AND POST-MORTEM FACILITY

1.3 A mortuary and PM facility fulfils five functions which, so far as possible, should be kept physically separate. These five functions are:

- a. the receipt and storage of bodies;
- b. investigations into the cause of death by performing a PM examination of the body;
- c. the demonstration of PM findings in cases of clinical interest or for teaching purposes;
- d. the viewing and/or identification of a body;
- e. accommodating visiting relatives/next of kin.

1.4 In a complete facility, it must be possible for these five functions to be carried out simultaneously in safety and privacy within the overall accommodation, which should be designed to achieve this end. In all facilities the receipt, temporary storage, viewing and collection of bodies must be achieved safely, and with discretion and

dignity. Procedures for body viewing must also respect the sensitivities of the bereaved.

1.5 Post-mortems may be required on:

- a. deaths occurring in hospital, which are covered by the local hospital trust;
- b. people brought to the A&E department who are dead on arrival;
- c. deaths occurring outside the hospital in the case of joint NHS/public mortuaries.

ASSESSMENT OF SCALE OF PROVISION

1.6 The size and type of facility required will depend upon the maximum number of bodies to be stored, and the maximum number of foreseeable PMs to be carried out. In circumstances where PMs are not carried out on-site, mortuary facilities only will be required.

Calculating requirements for number of body storage compartments and post-mortem tables

1.7 Recent years have seen an increase in throughput to hospital mortuaries. The end result is that many mortuaries have insufficient body storage compartments. A number may also have insufficient PM tables. Failure to provide sufficient body storage compartments and/or PM tables can lead to the need for expensive reconfigurations of facilities at a later date.

1.8 There is no simple formula for calculating requirements. The experience of the mortuary manager and senior technician should be used to identify future needs, drawing heavily on mortuary records as well as service plans. The following factors should be taken into account.

1.9 Where the planned facility replaces an existing facility, assess the adequacy of the existing facility using:

- information on current usage of the body store, looking at occupancy over the last three years, identifying peaks and troughs and paying particular attention to Bank Holidays and seasonal variations;
- information on number of PMs performed, looking at average daily figures, identifying any uneven

distribution of workload, and considering any requirements for teaching facilities;

- information on arrangements for disaster planning;
- critical analysis of circumstances where occupancy of the body store has risen to 95% or greater;
- information on planned service changes (including A&E department closure/relocation/opening) that might be expected to alter any of the following:
 - in-patient death rate;
 - patient throughput;
 - patient population;
 - location of mortuaries (especially where mergers are planned, and mortuaries may be combined).

1.10 Additional factors that need to be considered in deciding the number of PMs tables are:

- a. the need for pathologists to be able to perform efficiently more than one PM examination at a single attendance in the mortuary;
- b. an assessment of the length of time normally required to perform a PM and the time required for preparation of the body prior to and after the examination;
- c. the number of pathologists, the estimated time they could devote to PM work, and the number of mortuary staff available to assist them. Pathologists may need to work simultaneously at adjacent PM tables.

1.11 Current mortuary practices should be reviewed with a view to streamlining or improving processes. This should involve discussions with other relevant stakeholders, including registrars, crematoria, funeral directors and local religious and community leaders. If the facility also acts as a public mortuary, it will be necessary to involve the police and coroner's office. In some instances it might be necessary to provide designated PM tables for unlawful deaths. These should be located in an area that can be closed off from the rest of the department.

1.12 Where an entirely new facility is planned, in addition to the above factors, the following should be taken into account:

- the anticipated (live) patient throughput to the hospital;
- the likely in-patient death rate (based either on local information or national figures for relevant patient groups);

- the potential for seasonal variation (for instance, this is likely to be higher in an acute hospital than in an ambulatory care unit. It is also likely to be higher in areas that experience seasonal population changes, for example tourist areas and holiday resorts);
- the effect on other local mortuary facilities (that is, is this facility going to lead to a reduced demand for local alternatives?).

General issues

1.13 Occupancy is likely to increase during periods of epidemics or other widespread illness (most often during winter) and at Bank Holidays due to delays in funeral/removal arrangements. There should be sufficient body storage compartments (some of which may be of a temporary nature) and the capacity to carry out the required number of PMs to cope with an average winter increase in deaths.

Temporary increases in body storage requirements

1.14 Temporary body storage may be needed in a variety of circumstances, including:

- expected increases in deaths, for example during winter and/or due to seasonal variations in certain locations/circumstances;
- unexpected increases in deaths, for example due to major disasters and epidemics;
- planned decreases in capacity, for example due to refurbishment of facilities;
- unplanned decreases in capacity, for example due to damage to existing facilities.

1.15 Planned or expected lack of capacity can be dealt with in a variety of ways:

- by negotiation with other local mortuaries (both public and private);
- by negotiation with funeral providers, crematoria and registrars to speed up throughput;
- the purchase or rental of extra "flat-pack" fridges installed in a suitable space, preferably within or adjacent to the mortuary;
- the provision of a cold room with thermal curtain and storage racks, which may be used as a normal store room when not in use for bodies;
- the installation of a temporary, custom-built, freestanding refrigerated store, which is secure, suitably screened and adjacent to the mortuary, with a discreet covered access and egress point.

1.16 Areas where bodies are stored, even temporarily, should always be monitored by CCTV.

1.17 In developing plans for dealing with major disasters, trusts should identify external space that could be made available for mobile body stores.

1.18 The use of refrigerated vehicles or trailers, double occupancy of trays, trolleys and tables, and the laying of bodies on or off trays or stretchers on the floor is never acceptable. Where a temporary refrigerated body store is installed, it must be secure and discreet, both in appearance and in its siting. It may be necessary to install fencing to prevent the temporary facility being overlooked. Where emergency procedures are brought into action to cope with an increased demand for body storage, the dignity of the dead must be upheld at all times.

1.19 Decisions about temporary storage facilities should be planned in advance and agreed with the trust board. This should include procedures for dealing with both expected and unexpected increases in numbers of deaths. Trusts should also expect suppliers of temporary facilities to provide guidance on the use of equipment.

JOINT NHS/PUBLIC MORTUARY AND POST-MORTEM FACILITIES

1.20 NHS trusts should consult with local authorities to ascertain whether joint mortuaries (on a cost-sharing basis, including capital costs) could meet the needs of both organisations. The main advantages of such arrangements are:

- a. all PMs can be carried out in the hospital, including those on patients who died outside of hospital. Hospital medical staff with an interest in the examination can attend more easily. The pathologist is more likely to be fully briefed on the events prior to death. Easy access to laboratory facilities for investigations on specimens obtained during the PM, and access to patient records, enhance the educational value of the PM and its role in clinical quality assessment and medical audit;
- b. staff time may be saved;
- c. the bereaved may feel more comfortable visiting a hospital that is familiar to them rather than a public mortuary, especially if there are PM findings to explain;
- d. the potential for reduced capital and revenue costs as a result of economies of scale.

1.21 When a joint NHS/public mortuary and PM facility is being planned, the following factors should be considered:

- a. the need for suitable arrangements to cope with increased vehicular traffic to the mortuary and receipt of bodies arriving from outside the hospital out of normal working hours;
- b. the need for additional security arrangements, for example lockable body store facility and safe storage of clothing and other belongings removed from bodies;
- c. the need for the coroner or forensic pathologist to have exclusive use of the mortuary, or part of it, on particular occasions. Consideration should be given to a second PM room;
- d. the need for the coroner's officers, police, persons identifying the body, photographic and video recording crews and other personnel to attend as necessary. This will have an impact on permanent and intermittent space requirements;
- e. the likelihood of there being a greater number of malodorous or verminous body cases from community-based deaths. For example, even greater consideration should be given to the location and orientation of the mortuary to minimise problems that may arise from solar gains when dealing with a malodorous body. Good ventilation is a crucial consideration here;
- f. the need for facilities for the cleansing and containment of infections associated with unclean human remains;
- g. the likelihood of major forensic work being undertaken, for example in cases of suspected homicide. This would be decided locally after consultation with, for example, the Home Office pathologist, the coroner and the police. The following facilities may be required: deep-freeze body storage compartments; mobile imaging facilities, or easy access to a radio-diagnostic department which may need to be open outside normal working hours; photographic facilities; a direct private telephone line; and additional storage areas;
- h. the need for an observation gallery or tiered area, physically separated from the PM room, for several people to view PMs;
- j. the need for additional body storage spaces and PM tables due to local authority demands may warrant the appraisal of alternative systems of body storage and provision in the PM room (that is, double-ended body stores, tray storage using the tray as an alternative to the PM table-top), and the provision of more than one PM room;
- k. the enhanced need for adequate air-conditioning of the mortuary and PM room because of heat

generated by photographic and video recording equipment and/or solar heat gain;

- m. the need for even greater care in terms of the selection of the mortuary site, in view especially of (a) and (e).

2 General functional and design requirements

INTRODUCTION

2.1 This chapter provides guidance on a range of topics which should be taken into account when designing a mortuary and PM facility.

SECURITY

2.2 The nature of the work that takes place within the accommodation may attract unwanted visitors. Unauthorised entry must be prevented for reasons of both health and security. If the mortuary may be staffed at any time by only one person, a risk assessment should be carried out to take account of the particular risks associated with lone working. Consideration should be given to security issues that might arise due to out-of-hours delivery of bodies to the mortuary. Visitors and undertakers will only gain access to the mortuary after operating a bell or audio-intercom at the appropriate entrance (see [paragraph 2.24b](#)). Audio-visual intercoms and video surveillance should be provided, and should link back to the main hospital security centre.

STORAGE

2.3 As well as the routine need to safeguard supplies of linen, instruments and cleaning materials against theft, there are special needs for storage in a mortuary and PM facility:

- a. staff change their clothes in the facility. Storage lockers will therefore be needed for holding personal clothing and other personal items, as well as stocks of clean protective garments;
- b. it is the usual practice to remove from bodies, for safekeeping, all valuables that have not been removed previously. Secure storage facilities will be required for this purpose. The storage of valuables removed from infectious or contaminated bodies should be considered;
- c. some bodies are admitted fully-clothed. It is usual for the police to secure items of value in these cases, but if the clothes are not to be removed until the time of the PM examination, a local policy to determine how the possessions of the deceased are to be held is required, and lockable storage space may be needed in the mortuary.

INFORMATION TECHNOLOGY

2.4 The information technology (IT) system selected should offer a wide range of facilities, and be consistent with local and NHS IT strategies. It must operate for the whole mortuary and PM room facility, and should be determined locally.

2.5 Examples of data handling needs which could be met by the installation of a comprehensive IT system include:

- within the mortuary and PM room facility:
 - (i) operating an administration service for bodies;
 - (ii) maintaining records;
 - (iii) managing materials;
 - (iv) managing statistical information.
- with other hospital departments/other hospitals:
 - (i) receiving results from the histopathology department;
 - (ii) receiving patient records.

2.6 Project teams should:

- consider the IT needs of the service at an early stage;
- review current IT developments;
- ensure that sufficient account is taken at the design stage in terms of space and engineering requirements of the IT equipment.

DISABLED PEOPLE

2.7 It is essential to ensure that suitable access and facilities are provided for people who have problems of mobility or orientation. This includes those who have difficulty walking, and may use sticks, crutches or other assistive devices, and those who have a visual or hearing impairment, as well as those who use a wheelchair. Full access to all administration and support areas is required. Wheelchair access to body handling areas and the PM room should be considered carefully, as wheelchairs should not cross clean/dirty area boundaries. A separate wheelchair may be kept for use

in dirty areas only. Authorities are reminded of the need to comply with the provisions of:

- the Disability Discrimination Act 1995;
- BS 8300, 2001;
- The Building Regulations 2000 Approved Document M: 'Access and Facilities for Disabled People', 2004.

2.8 Project teams are encouraged to refer to HBN 40. This gives guidance and a set of ergonomic data sheets on access, space and equipment relating to disabled people in health buildings. Refer also to [Appendix 3](#).

2.9 If public telephones are provided in the department, the telephone equipment/handset should be fitted with an inductive coupler to assist people using a hearing aid.

SMOKING

2.10 There must be no smoking in the mortuary or PM room and associated work areas. Smoking will only be permitted in accordance with the trust's policy.

INTERNAL ENVIRONMENTAL CONSIDERATIONS

2.11 Good interior design can contribute to staff morale and the aim should be to create a pleasant, comfortable and safe environment throughout the facility within the constraints of mortuary practice. Interior design should also be sensitive to the needs of bereaved relatives visiting the facility.

2.12 Interior design should facilitate the function of the accommodation and provide an efficient and safe working environment in the work activity areas.

2.13 The choice of suitable colours, textures, finishes and lighting in all areas is important.

Natural and artificial lighting

2.14 Daylight should be incorporated wherever possible with windows that maximise light but maintain privacy. Glare should be minimised and may be controlled by curtains or blinds. Solar gain can be mitigated by external screens or by the shape of windows and depth of reveals. (See Health Technical Memorandum (HTM) 55 – 'Windows' and the CIBSE Lighting Guides LG2 and LG3.)

2.15 The position and design of windows should ensure that the internal mortuary and post-mortem spaces cannot be seen from outside. Where provided, roof lights should not enable visual access from the floors above.

2.16 Because natural lighting is variable in quality and quantity, the provision of a comprehensive artificial lighting installation is essential. Artificial lighting should be capable of providing the required level of illumination at all times; it also has an important contribution to make to the aesthetic appeal of the interior. The design should provide task lighting of the required intensity with low-contrast glare-free background illumination. The body viewing room and reception area should have dimmable lights.

FITTINGS AND EQUIPMENT

2.17 Fittings and equipment should be made of robust, impervious, non-rusting, non-decaying and non-staining materials, which will not deteriorate under continuous hard use. They should be designed for ease of cleaning (on all sides of all fittings wherever possible) and be free from sharp corners or projections to prevent accidents. Refer to HTM 58 – 'Internal doorsets'.

2.18 Ledges in the details of floors, walls and door junctions should be avoided. All joints should be sealed. Robust thresholds are required in areas where body trolleys circulate.

2.19 Doors need to be an adequate width to allow for the safe passage of trolleys. Hinged doors that are capable of being held open other than manually should be considered. In wet areas, such as PM rooms, doors must be protected from splashes.

FLOORS AND DRAINAGE

2.20 It is important to select a floor covering that contributes towards the creation of an attractive environment, but which does not present a hazard to people or the movement of wheeled equipment. It is important that whatever floor covering is chosen can be effectively cleaned, maintained and, where necessary, repaired (see HTM 61 – 'Flooring'). Vinyl anti-slip floor is often difficult to keep clean (due to grit type surface) and its iron-based particles produce stains, particularly visible on light-coloured flooring. Floors should not present, or appear to present, a slip hazard. Surface drag, static electricity, flammability and infection hazards are other factors which need to be considered. (See also [paragraph 2.23](#).) Skirtings should be coved for ease of cleaning.

2.21 Floors should be finished to falls to drainage channel. The location and position of channels depends on the floor fall design. Consideration must be given to the type of PM table and body handling system installed, as some require a level area around the PM table. Channel gratings should be designed in short sections, which can be easily lifted and disinfected by submersion in a sink or container.

2.22 Drains should be of sufficient diameter to prevent blockages, particularly waste pipes from sinks (see HTM 64 – ‘Sanitary assemblies’).

MAINTENANCE AND CLEANING

2.23 Regular and intensive cleaning must be a feature of this accommodation. Materials and finishes should be selected to minimise maintenance and be compatible with their intended function. Work surfaces should be made from impervious materials. Building elements that require frequent redecoration or are difficult to service or clean should be avoided. Special design consideration should be given to entrances, corners, partitions, counters and any other elements that may be subjected to heavy use. Soft floor finishes may be selected for areas used by visitors and for staff office accommodation. Wall coverings should be chosen with cleaning in mind. Health Technical Memoranda 56, 58 and 61 give guidance on these aspects for partitions, internal doorsets and flooring.

COMMUNICATIONS

2.24 The provision of an effective communications system is necessary for the efficient management of a mortuary and PM room facility. Communications requirements can be considered in five main categories:

- a. telephones: these will be provided in accordance with hospital policy for communication between internal departments and with external services. In addition to the normal hospital telephone exchange facility, at least one direct line and one dedicated fax line should be installed. In dirty work areas, the use of wall-mounted, hands-free telephones and loudspeaking instruments may need to be considered (see paragraphs 6.117–6.121);
- b. visitors and undertakers/staff call: there is a need for visitors and undertakers to alert staff on their arrival at the mortuary. A simple bell/audio-intercom with appropriate notice should be provided at the appropriate entrances. Staff call bells should be located in the technicians’ office (see paragraphs 6.122–6.127);
- c. intercom: the major communication needs within the mortuary and PM facility, and between it and the pathology laboratory, should normally be satisfied by an automatic telephone system (see paragraphs 6.117–6.121); Consideration might also be given to visual communication between the body handling area and the PM room, for example by CCTV or the installation of a glazed screen with internal blinds operable from both sides;
- d. dictation facilities: a custom-built dictation system, suitable for the conditions within the PM room, may be provided (see paragraph 5.33);
- e. information technology (see paragraphs 2.4–2.6 for details).

ACTIVITY DATABASE

2.25 The Activity DataBase (ADB) data and software assists project teams with the briefing and design of the healthcare environment.

2.26 Room data sheets provide an activity-based approach to building design and include data on personnel, planning relationships, environmental considerations, design character, space requirements and graphical layouts. Schedules of equipment/components are included for each room, which may be grouped into ergonomically arranged assemblies.

2.27 Schedules of equipment can also be obtained at department and project level.

2.28 Fully loaded drawings may be produced from the database.

2.29 Reference data is supplied with ADB, which may be adapted and modified to suit the users’ project-specific needs.

2.30 For further information refer to the ADB section available from a link on NHS Estates website (<http://www.nhsestates.gov.uk>).

3 Risks associated with a mortuary and post-mortem facility

INTRODUCTION

3.1 A mortuary and PM facility poses a number of health and safety risks. These include:

- a. physical risks: accidents and injuries may be associated with the use of equipment and heavy loads. The risks associated with lifting and dragging bodies should be assessed. Slipping and falling due to the presence of fluids on the floor, and accidental cuts, either with sharp instruments, bone fragments, or corners of a fitting, are significant risks in the PM room and body handling area;
- b. infection risks: arising from exposure to infectious agents, which might be present in bodies received for storage and/or PM. Infectious material may be dispersed in the form of aerosols and/or body fluids. Infection may occur as a result of inhalation, ingestion, or splashing into the eyes of infectious agents. It is important to be aware that infection issues may not only result from the work of pathologists and mortuary technicians but may arise as a result of contamination of visitors and contractors working in the facilities;
- c. electrical risks: arising from incorrect or poorly maintained fittings and connections. The danger of electrocution arising from the contact of water with electricity must also be borne in mind when specifying electric appliances and switches (see [paragraph 6.98](#)). This is particularly important in the PM room;
- d. chemical risks: associated with noxious and/or flammable chemicals, possible fixatives, solvents, and disinfectants which are used regularly in the mortuary and PM room;
- e. radiation risks: radioactive materials following their use for diagnosis and/or treatment and still present in the body, or from imaging equipment used in the PM room).

INFECTION RISKS

3.2 'The Management and Control of Viral Haemorrhagic Fevers' published by the Advisory Committee on Dangerous Pathogens (ACDP) in December 1996 – which includes guidance on the handling of Hazard

Group 4 VHF of concern in the UK (that is, Lassa Fever, Crimean/Congo Haemorrhagic Fever, Ebola and Marburg viruses) – advises that a PM examination on a person known to have died of VHF exposes staff to unwarranted risk and should not be performed. In exceptional circumstances, limited sampling may be necessary to establish or eliminate diagnosis of VHF or provide an alternative diagnosis. This should only be carried out after consultation with the appropriate specialists and by an experienced doctor adopting stringent protective measures. If the body is in an isolator, it is preferable to take the specimens before moving the body.

3.3 The Department of Health issued guidance in September 2000 on two further Hazard Group 4 pathogens, entitled 'Hendra Virus and Nipah Virus – Management and Control'. This advises that a PM examination on a person known to have died from either the Hendra or Nipah virus exposes staff to unwarranted risk and should not be performed. If the diagnosis is in doubt, a High Security Infectious Disease Unit should be contacted for advice.

3.4 Rabies is classified by the ACDP as a Hazard Group 3 organism. The 'Memorandum on Rabies – Prevention and Control', published by the Department of Health in February 2000, advises that a PM should only be performed when absolutely necessary and when diagnosis cannot be made by any other means. Where a PM is necessary this should be conducted with regard to stringent precautions, and staff should be immunised against rabies. Post-mortems should only be performed in mortuaries with appropriate physical containment features, following HSAC guidance on safe working in the PM room.¹

3.5 A mortuary and PM room built to the standards of this guidance will be adequate for dealing with bodies infected with the following Hazard Group 3 organisms: M tuberculosis; Hepatitis B virus; Hepatitis C virus; and Human Immunodeficiency Virus.

¹ See [Appendix 1](#) for further guidance and a definition of Hazard Groups 1–4

RISKS ARISING FROM THE USE OF FORMALIN

3.6 Formalin, a solution of formaldehyde gas in water, is commonly used as a fixative to preserve tissues for microscopic examination. The vapour that arises from solutions exposed to the air is pungent and an extreme irritant to the eyes and respiratory tract even at very low concentrations. Skin exposure may lead to sensitisation.

3.7 The Control of Substances Hazardous to Health Regulations 1999 (COSHH) require that exposure to formaldehyde be controlled as low as possible below the maximum exposure limit of 2 ppm (2.5 mg m³) in the air for both the eight-hour and 15-minute reference periods. (See also 'Occupational Exposure Limits', HSE Guidance Note EH40, which is revised annually.)

3.8 Prospective users of the facility should be consulted to determine precisely what activities involving formalin are being planned. Employers have a duty to limit exposure of their employees and others to formaldehyde under the terms of Sections 2, 3 and 4 of the Health and Safety at Work etc Act 1974.

3.9 As well as strict controls over the use, storage and transport of formalin, continuous mechanical ventilation is necessary in areas where formalin is handled in order to minimise the concentration of formaldehyde in the air to as far below the prescribed limit as is possible. COSHH requires that such local exhaust ventilation undergo a thorough examination and test at least once every 14 months. Personal exposure to formaldehyde should also be monitored at least annually.

3.10 Formaldehyde should be provided on tap. The mixing and storage of formalin should preferably take place in the specimen store where continuous mechanical ventilation is provided. Where formalin is made up in the dirty utility room, continuous ventilation will be needed here. Alternatively, formalin may be provided on tap to the point of use, for example the dissection benches (see paragraphs 5.28 and 5.36).

RISKS ASSOCIATED WITH DISPOSAL OF WASTE

3.11 Waste arising in the mortuary and PM room will fall into five categories:

- a. disposable, generally single-use items such as paper shrouds, swabs, dressings, disposable protective clothing and gloves;
- b. human tissues and body fluids;
- c. discarded syringes, needles and other sharps;
- d. discarded chemicals such as used fixative solutions;
- e. clean waste arising from office activity.

3.12 Waste in categories (a)–(d) is both a potential risk to health and offensive for those who are required to deal with it prior to final disposal. For safe waste disposal, arrangements for clear segregation and appropriate containment of the different types of waste, from source to final disposal point, are essential. (For further information see HTM 2065 – 'Healthcare waste management: segregation of waste streams in clinical areas'.)

3.13 Most items to be discarded come under the term "clinical waste". For operational detail and categorisation using colour-coded containers, reference should be made to 'The Safe Disposal of Clinical Waste', Health Services Advisory Committee and Health & Safety Commission, and to 'Safe working and the prevention of infection in the mortuary and post-mortem room', Health Services Advisory Committee. (Reference should also be made to HGN – 'Safe disposal of clinical waste' and HTM 2075 – 'Clinical waste disposal/treatment technologies'.)

3.14 Waste organic solvents awaiting disposal will need to be stored in well-ventilated areas. The Health and Safety Executive in their publication EH40 'Occupation Exposure Limit', updated annually, sets limits which form part of COSHH regulations 1999.

3.15 In a mortuary and PM facility, two basic provisions are necessary to enable the safe management of waste. These are:

- a. a sluice or sluices for material suitable for direct discharge to the drains (subject to the consent of the appropriate water authority);
- b. adequate secure storage space for material in bags, packages or drums awaiting removal for appropriate treatment and disposal.

3.16 Since the beginning of 2002, a UN type-approved rigid container has been required for transporting clinical waste by road.

RISKS ARISING FROM HANDLING RADIOACTIVE BODIES

3.17 Where radioactive compounds have been used for treatment or diagnosis during the life of the subject under examination, this may present a radiation hazard. This hazard extends to clothing and bed linen.

3.18 The majority of diagnostic investigations are undertaken with a radioactive isotope known as Technetium-99m. This isotope has a short life of only six hours, and thus PM examinations and embalming, burial etc can usually take place 48 hours after administration of the substance. The external radiation hazard associated with most diagnostic investigations will be

small, and special requirements are usually not necessary.

3.19 A number of therapeutic procedures are undertaken in cancer centres that involve large doses of unsealed radioactive substances being administered. Most notably amongst these is the use of Iodine-131 to treat thyroid cancer and Strontium-89 for bone metastases. Virtually all the substances used have relatively long half-lives.²

3.20 The design of the facility should adhere to guidelines set out in the Ionising Radiations Regulations and statutory requirements of the Radioactive Substances Act 1993/2000. Further guidance on dealing with radiation risks is given in [Appendix 2](#).

3.21 Where mortuaries are separate from hospitals and are handling a radiation hazard for the first time, there is a requirement for them to notify the HSE.

3.22 The special problems of infection and radiation risks associated with a mortuary and PM facility should be discussed at a local level, and the advice of the hospital health and safety advisor, Infection Control Team member and Radiation Protection Adviser sought in the early stages of planning.

DESIGN CONSIDERATIONS FOR MINIMISING RISKS

3.23 The risks associated with a mortuary and PM facility can be minimised not only by careful work practice, but also by the design of the accommodation in terms of layout. It is essential that the design team and other planners involved with a mortuary and PM facility consult with those operating and using the service. A project team should be set up under the leadership of a project director. Membership should include:

- a trust executive representative;
- a histopathology/mortuary manager;
- representatives of the operators and internal users of the mortuary service (that is, mortuary technicians, pathologists, hospital ward and hospital mortuary administrators, technical support and/or bereavement care officer);
- representatives from the infection control, health and safety, and estates teams.

3.24 This team should draw on both past experiences and future plans for the mortuary service. Internally, it is important to canvass the views of all users and operators and any other organisations affected by the proposed changes. Externally, commissioners, local mortuary service providers and users (for example coroners, police, funeral directors, universities, laboratories, external pathologists etc), and current and future mortuary equipment and materials maintenance contractors and suppliers should be widely consulted. Reference should also be made to good practice in other mortuary operations, both locally and nationally. Equipment manufacturers should also be consulted at a very early stage in the planning process, as the type of PM tables, benches, refrigerators and trolleys selected can have a significant impact on working and handling procedures.

3.25 For reasons of infection control, a mortuary and PM facility must comprise dirty and clean areas, a fact that needs to be considered at the planning stage, and which will determine working practices within these areas. The employment of stringent hygiene practices and appropriate disinfection and cleansing agents on working surfaces, together with the immunisation of staff and provision of suitable protective clothing, is also essential.

² Further information on specific design requirements and procedures for mortuaries and PM rooms handling bodies that have undergone such cancer treatments is given in [Appendix 2](#)

4 Location and layout

LOCATION

4.1 The location of a mortuary and PM facility needs careful consideration.³ The following factors should be taken into account:

- a. the need for adequate vehicular access from the service road;
- b. where the facility is located on a hospital site, the functional layout of the hospital and the need for the mortuary to be discreetly sited away from clinical, kitchen and dining areas, with no direct entry to public and staff thoroughfares;
- c. the desirability for the mortuary to be located at ground level;
- d. the need for convenience of access by the various users (staff, visitors and undertakers);
- e. the need for the mortuary to be associated with, or near, a histopathology laboratory;
- f. the number of external entrances required (see paragraph 5.3). The need for out-of-hours access should also be considered;
- g. the need to ensure that the exhaust from ventilation systems servicing the mortuary can be discharged safely. The siting of extract vents should be very carefully considered (see paragraphs 6.56 and 6.60);
- h. the availability of space, that is, the size and shape of the site and the overall development control plans;
- j. the local strategy for energy conservation, for example length of service runs, position and size of energy centre;
- k. the costs of the development, both capital and revenue;
- m. the number of staff.

4.2 Convenient and separate access will be needed for staff, visiting relatives and undertakers (see paragraph 5.3). There should be easy access and parking for

hearses. The immediate entrance for hearses should be screened from public view, and should be secure and accessible via a service road.

4.3 Planning decisions and site possibilities determine whether the mortuary and PM facility will be located in separate, purpose-built accommodation on the hospital site or attached to the hospital building (see Figures 1 and 2). The above listed requirements are most easily met when the mortuary is located independently but near the service zone. If this is not possible, the mortuary should be planned in a discreet location not readily overlooked by clinical, kitchen and dining areas and avoiding public and staff thoroughfares.

LAYOUT

4.4 All the demands listed above will affect the layout of the facility, particularly the provision of separate access and circulation routes for visitors and staff to obviate the risk of visitors straying into work areas (for example the PM room). The relationships of individual spaces to each other are shown in Figure 3. The layout given assumes that double-ended body stores are used.

4.5 For the purpose of infection control, the facility must comprise clean activity areas, transit areas, and dirty activity areas. The work-flow should be planned so as to minimise and obviate, where possible, the need for movement of people and materials from potentially dirty activity areas to clean activity areas.

4.6 “Dirty” activity areas include:

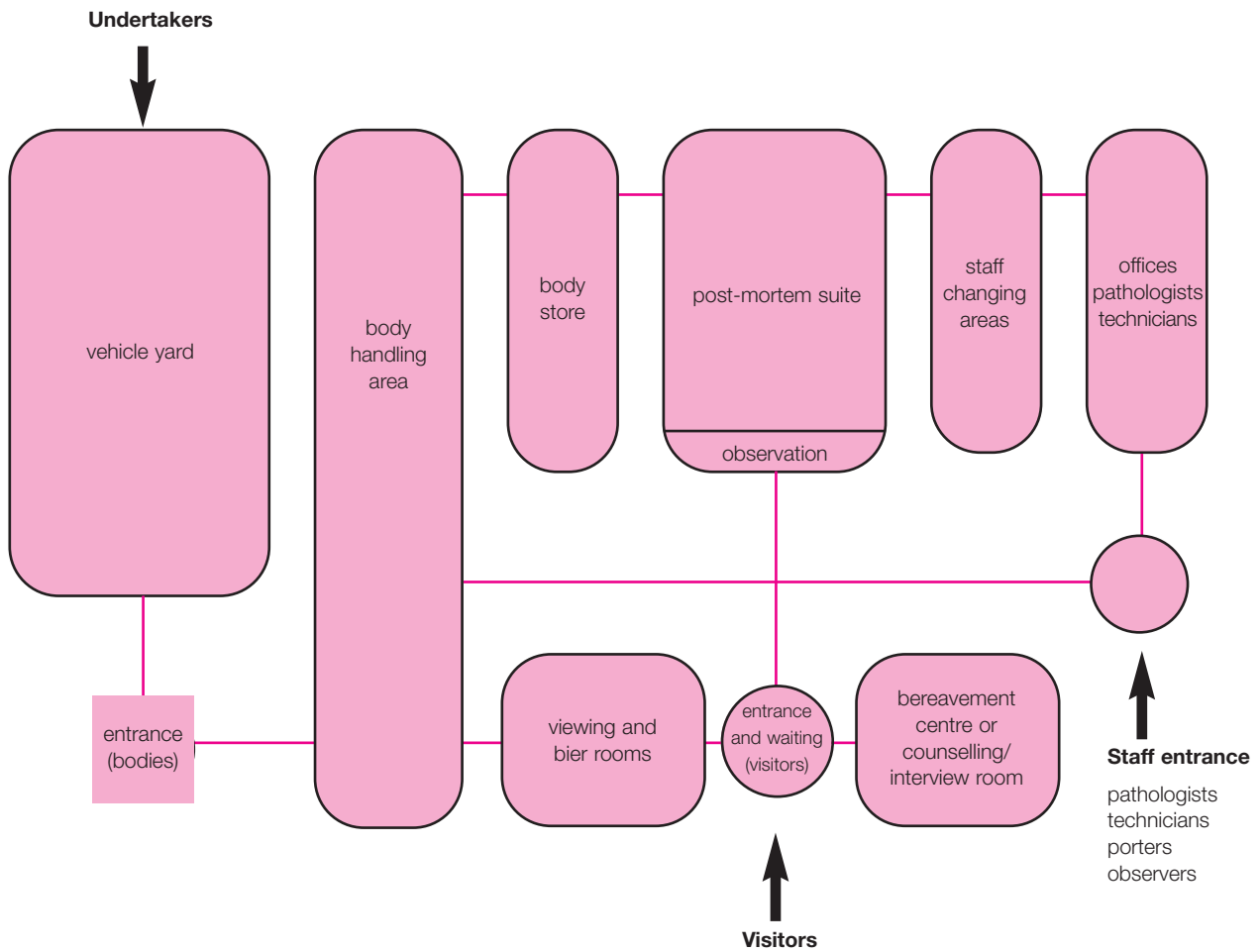
- the PM room;
- the dirty utility room/instrument store;
- the body store;
- the disposal room.

4.7 “Clean” activity areas include:

- the reception area;
- waiting room(s);
- bereavement/interview/counselling room(s);
- viewing room(s);

³ The location of the mortuary should be in accordance with the trust’s estate strategy

Figure 1 Department free-standing



- bier room(s);
- offices;
- the general purpose and linen store;
- the observation area;
- the staff changing areas;
- the specimen store;
- visitors' toilets;
- cleaners' room
- staff support facilities.

4.8 "Transit" activity areas include:

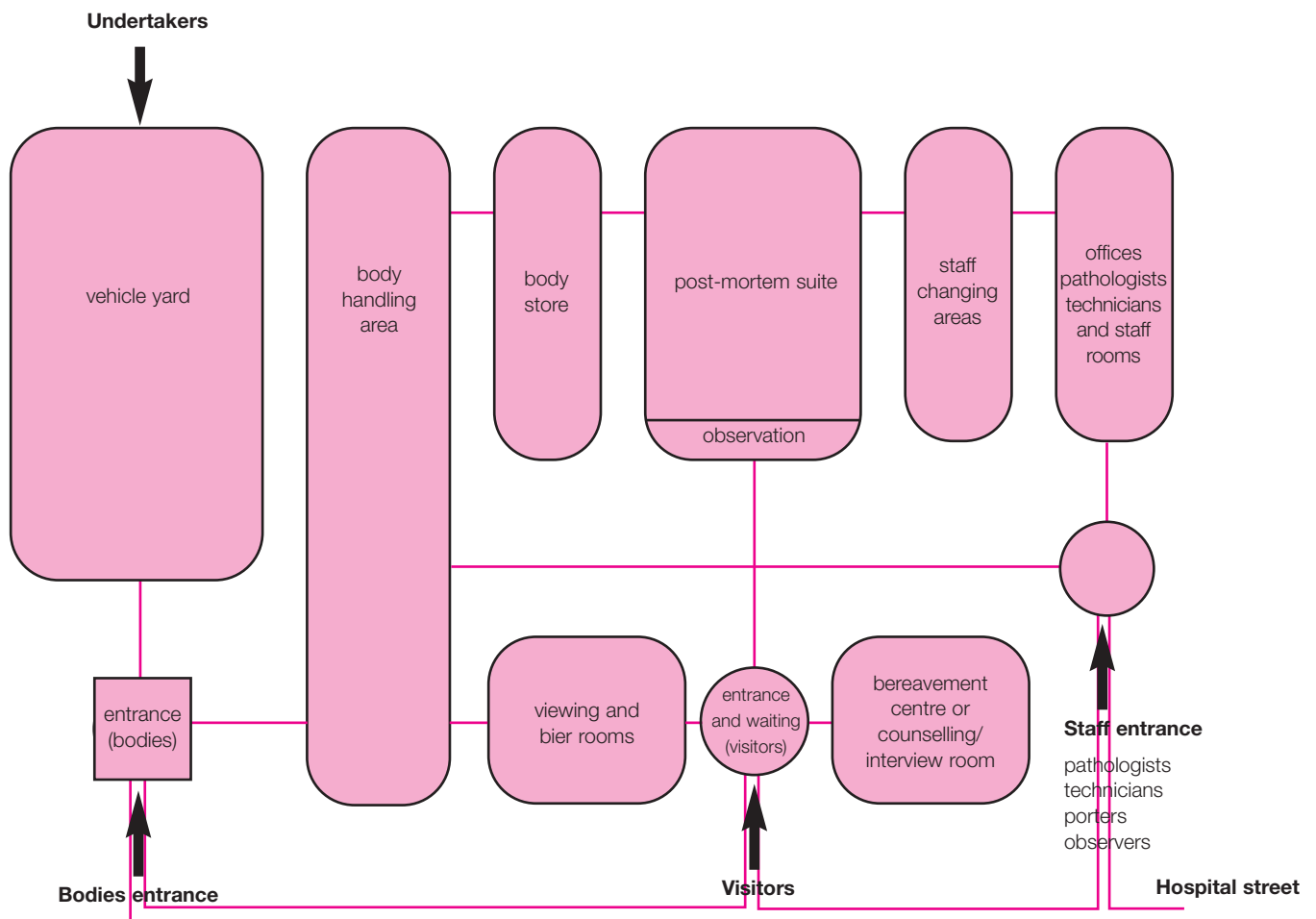
- the body handling area;
- the disposal room (where this leads off the PM room);
- the PM transit area.

4.9 The PM room should be directly connected to the body store, the dirty utility room/instrument store and PM transit area, through which access is gained to the staff changing area and from there the circulation routes. It may also be connected to the disposal room, although access to the disposal room from outside the PM room must be provided for the depositing and collection of securely packed waste and dirty linen bags (appropriately colour-coded). Where the disposal room leads off the PM room, waste and dirty linen generated in the PM suite must be bagged up within the PM suite and simply deposited in the disposal room for temporary storage. Ideally the disposal room should be accessible from the dirty utility. Unauthorised entry to the mortuary and free movement between the different areas should be prevented.

4.10 Disposal areas should be organised so that clinical waste, linen and domestic waste are not mixed together prior to collection.

4.11 Operational practice should ensure that all work with bodies, organs and unfixed specimens is strictly

Figure 2 Department attached to main building



limited to the dirty activity areas. Specimens should be brought out of the PM room only in suitable containers, and only after these have been subjected to appropriate surface cleansing and decontamination. The specimens store should be adjacent to the PM room. There should be a hatch between the PM room and the store for taking in specimens, and separate access to the store from the corridor for collecting the specimens. The holding and transfer of specimens within the mortuary and subsequent transport to the pathology department are subject to guidance contained in 'Safe working and the prevention of infection in the mortuary and post-mortem room', Health Services Advisory Committee.

STAFF CHANGING

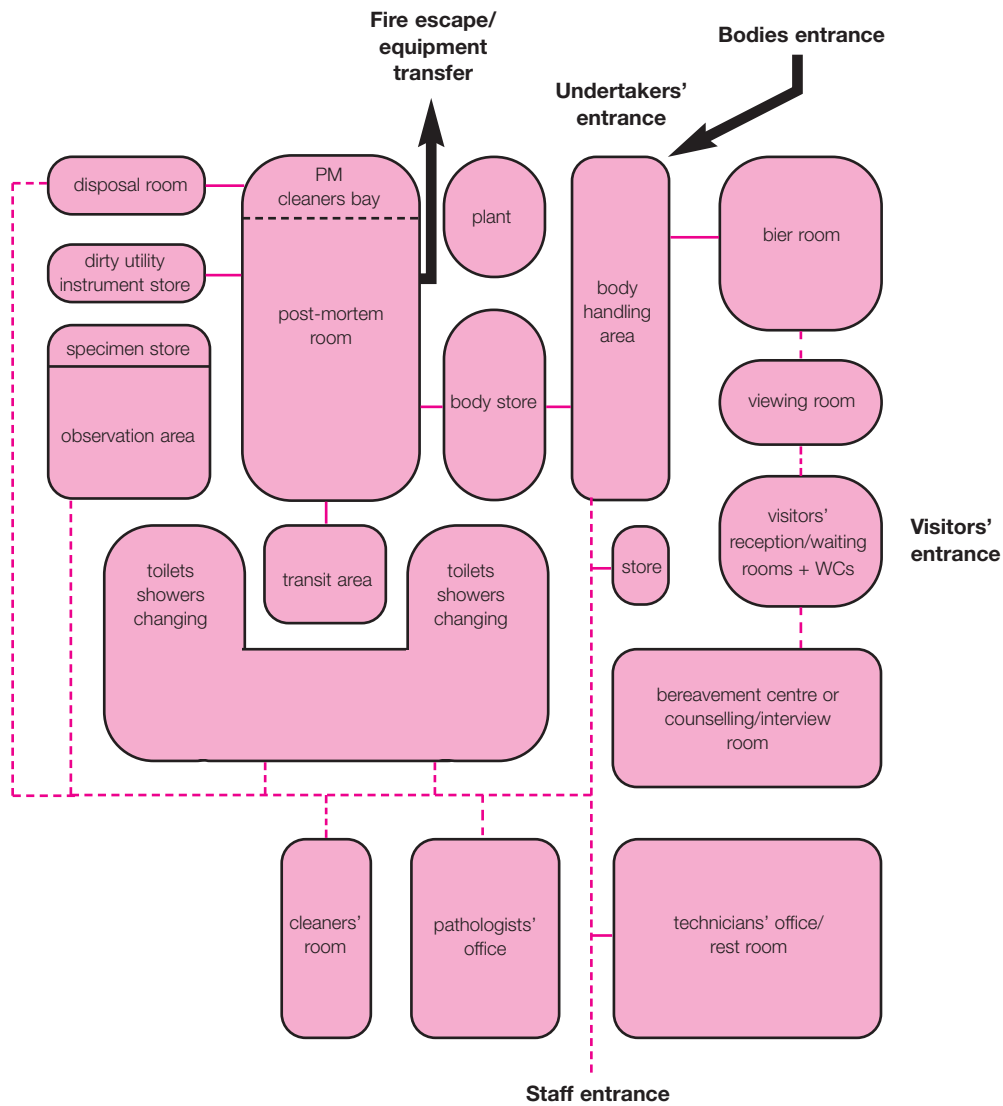
4.12 Staff and non-mortuary personnel must remove outer garments (overcoats, jackets and hospital white coats worn outside the mortuary) before entering the PM room. This will take place in the staff changing

area. Lockers should be provided for holding personal clothing and other personal items. If radioactive bodies are handled in the department, radioactive monitoring equipment and decontamination spill kits must be located in the staff changing area (see [Appendix 2](#)).

4.13 Boots and stocks of protective garments (as prescribed by local policy) should be stored in the PM transit area, leading off the staff changing area and from where access is gained to the PM room. Staff should change into boots and protective garments in the PM transit area before entering the PM room.

4.14 Staff and others should discard used protective clothing and boots within the PM suite, and change into slip-on footwear before moving into the connecting staff changing area. Reusable protective clothing should be bagged up before transferring to the disposal room.

Figure 3 Layout of department



5 Specific functional and design requirements

INTRODUCTION

5.1 This chapter provides guidance on the functional requirements and design implications for each of the activity spaces within the mortuary and PM facility (see [Figure 3](#)).

5.2 Activities, equipment, detailed environmental conditions and finishes of walls, floors and ceilings are given in the Activity Data Sheets. Reference should also be made to the relevant HTMs covering Component Data (listed at the end of this document).

ENTRANCES AND SIGNPOSTING

5.3 The number of entrances will be determined by whether the building is free-standing or linked directly to other hospital buildings. If the former, three entrances are required: one for staff, one for the delivery of bodies from the hospital or community (if appropriate) and for collection by undertakers, and one for visiting relatives and friends. If the latter, the number of entrances required will depend on whether staff, relatives and the arrival of bodies from the hospital share a common approach and then follow separate traffic routes to the individual entrances to the relevant parts of the mortuary, or whether there is direct access from a hospital street to the different parts of the mortuary. In either case, an entrance will be needed for collection of bodies by undertakers and, if appropriate, bodies arriving from outside the hospital. (See [Figures 1](#) and [2](#).) External doors may also be needed for fire escape. (For further information refer to NHS Estates' guidance on 'Wayfinding' and 'Firecode'.)

5.4 Bodies should not be taken in and out of the building within sight of patients and/or visitors. The external entrance for the collection of bodies and, if appropriate, delivery of bodies should be covered and screened from the view of patients and the public. The layout should also prevent overlooking of the body handling area within the building from outside by the provision of lobby doors or screening. The external entrance should be overlooked by the technician's office unless audio-visual intercoms are in operation. There should be sufficient space for large vehicles to manoeuvre. An exit to a subsidiary road, and nearby car parking space, is also desirable. (Reference should be made to HBN 45 – 'External works for health buildings'.)

5.5 All external entrances should normally be kept locked. The entrance for relatives, which may be via a lobby, should lead into the visitors' waiting room (see paragraph 5.8). A bell/audio-intercom with a clear and appropriate notice should be provided at all entrances for visitors to summon the attention of mortuary staff (see [paragraph 2.24b](#)).

BODY VIEWING SUITE

5.6 This should comprise, at the very least, a separate entrance, a waiting room, an interview/counselling room, access to sanitary facilities (wheelchair-accessible), a viewing room and a bier room.

5.7 In the waiting room, interview/counselling room, viewing room and bier room, a serene and reassuring environment is desirable. The choice of suitable colours, textures and lighting is important. It should be possible to dim the lights in the viewing and bier rooms. Ventilation should be such that comfortable conditions are maintained in these areas, and it should prevent the entry of odours from other parts of the mortuary. It should not be possible to hear sounds from the body handling area.

5.8 The waiting room should contain comfortable chairs and a small table. Lighting should be non-institutional, with natural light where possible. An adjacent wheelchair-accessible WC is required. It should adjoin the viewing room with a door between them, and should also be readily accessible to mortuary staff.

5.9 The interview/counselling room should contain comfortable chairs and a small table. It may be used by the coroner's officers or mortuary staff to explain findings from PMs or to comfort relatives of the deceased. Consideration should be given to more extensive bereavement facilities, which may be provided in lieu of the interview/counselling room. A bereavement centre may be provided to deal with all aspects of bereavement care following a death in hospital, including issuing the death certificate, retrieval of the deceased's belongings, organising tissue donations, and offering advice and information to the bereaved.

5.10 The viewing room should connect with both the waiting room and the bier room. The wall adjacent to the bier room should incorporate a sliding viewing

window at a suitable height to allow wheelchair users to touch and view the body. The window should be covered by easily-drawn curtains or blinds. A connecting door to the bier room will be necessary for visitors wanting direct access to the body. Furnishings in the viewing room need only be minimal, but chairs may be needed for those who become unsteady. Preventing the transfer of unwanted odours from the bier room to the viewing room should be considered.

5.11 The bier room should adjoin the body handling area and the viewing room. A body to be viewed may be prepared in the body handling area and laid out on a draped bier trolley which will then be wheeled into this room. Connecting doors between the two should allow easy, noiseless passage of the trolley, and while viewing is in progress, be kept securely shut. Flooring in the bier room should be washable and continuous with that of the body handling area or the connecting link between the two.

5.12 Both the viewing room and the bier room should be capable of minor adaptation to suit the needs of all religious beliefs and for devising more appropriate arrangements for viewing bodies of infants. Where facilities for ritual washing are required, these will have to be sited in an area that is accessible to visitors and also suitable for wet working. Religious beliefs may have an effect on the orientation of the body wash station.

BODY STORE AND BODY HANDLING AREA

5.13 A refrigerated body store is required:

- a. to maintain bodies and/or fluids in a condition whereby the maximum scientific information can be obtained from a PM and subsequent analytical investigations;
- b. to limit tissue decomposition while burial or cremation arrangements are being made;
- c. to hold bodies and the occasional specimen for longer periods in conditions of security.

5.14 Bodies usually remain in the mortuary for one to four days. Sometimes the period is longer if further investigations have to be carried out by the pathologist, or if the next-of-kin are difficult to trace.

5.15 The body handling area should be adjacent to the PM room and adjoin the bier room. Space is required in the body handling area for parking and manoeuvring trolleys. Body weighing facilities are required. Body weighing may be carried out either on a separate weighing machine or on a trolley which incorporates a weighing mechanism. The former will create greater space requirements. Space is also required for the reception of bodies on trolleys from the hospital; the labelling or identification of bodies and entering details in

a record book or computer; the removal, recording and storage of personal effects; the placing of shrouds on bodies; the transfer of bodies to the refrigerated body store; the removal and transfer of bodies from the body store to the PM room (where double-ended body stores are not available) or to the bier room; the removal of bodies from the store; and confirmation of identity before handing over to undertakers or for police identifications. Consideration should be given to the use of mobile and fixed hoists, which will have implications on space requirements. If bodies are to be prepared and/or undressed in the body handling area, there should be at least one screened bay to provide some privacy.

5.16 A writing surface is required in the vicinity for the record ledger, although the recording of bodies is sometimes carried out in the technicians' office if it adjoins the body handling area.

5.17 The body store consists of a number of labelled compartment bays (refrigerated at approximately 4°C), each containing between three and five racks for holding the body trays upon which bodies are stored. Individual compartment bays may either be physically separated from one another or may be open between one another in a continuous run. The former may be used to store radioactive bodies and other high-risk bodies. Compartment bays may either have a door at one end or may be double-ended in the case of passthrough fridges; the latter, although more expensive and requiring additional space on the PM room side to allow for the extraction of bodies, are preferable for reasons of hygiene and efficiency. Depending on the size of the installation, a number of the compartment bays should be deep-freeze, and an extra wide compartment bay(s) should be provided to accommodate obese bodies.

5.18 All doors to the refrigerated compartment bays must open to give access to the body trays and also be constructed in such a manner that they will not fall closed while in use. All doors should be fitted with locks. High quality hinges and locks are an important consideration. Locks should also be operable from inside the compartment bay for safety purposes. All compartment bays should be capable of being drained.

5.19 Internal rollers and racking holding body trays should be removable to permit clear entry to the compartment bay for cleaning purposes. The bottom tier of racking should be no lower than the lowest position of the body hoist or adjustable-height mortuary trolley, so that trays bearing bodies do not have to be lifted by the mortuary staff. The refrigeration plant must be fully accessible for maintenance.

5.20 Hand hygiene facilities and wash-down points must be provided in the body handling area. The floor should be self-draining towards a drainage outlet.

5.21 Lockers for the storage of personal effects removed from bodies should be provided in a secure area.

5.22 The frequent movement of mortuary trolleys, which could be heavily-laden, and mobile hoists, has implications that must not be overlooked. Corners, doors and certain areas of walls must be protected against damage. Doorways through which trolleys are to pass must be wide enough to reduce the chances of collision and consequent damage to property and injury to staff.

5.23 The trolley area is for the parking of trolleys and the hoist when not in use. It should be in an out-of-the-way part of the body handling area.

Finishes

5.24 The floor of the body handling area must be hardwearing, non-slip, and impervious to water and disinfectant. The floor should be self-draining towards channels and gullies to allow for drainage after cleansing. Floors falling into gullies are easier to clean than those falling to channels. The walls should be capable of withstanding regular washing or hosing down, and should meet the raised junction with the floor at a waterproof joint. Ceilings and, where relevant,

ceiling suspension grids should be capable of withstanding frequent washing down.

Ventilation

5.25 Mechanical ventilation should be provided to the body handling area so that air flows from this area into the PM room. Where there is direct access from outside to the body handling area, it will be necessary to provide some form of lobby, with two sets of doors.

POST-MORTEM ROOM

5.26 The PM room, which is also known as the autopsy room, serves to carry out several functions. These include the opening of bodies, the weighing and dissection of organs, and demonstration of PMs to clinical staff. The police or other authorities may be present during forensic examination procedures. Bodies are brought from the body store on a hydraulic body hoist or trolley and transferred onto a PM table. In the case of full-body handling systems the body remains on the body tray during the PM, supported on the PM station. The dissection of organs should take place on a dissecting bench running along a length of wall. The observation area should overlook part of the dissecting bench.

5.27 Bodies for examination will be drawn directly from a double-ended body storage compartment into the PM room. Space will be needed in the PM room for safely manoeuvring trolleys, for loading or transferring bodies



Post-mortem room showing down-draught ventilated post-mortem tables and pull-through fridges

onto the PM table or station, and for storing and using a second hoist (where used), without risk of accident or injury. Equipment selection has consequences for space requirements and room layouts.

5.28 Tissues, organs and/or fluids obtained during PM examination are infused in fixative in various-sized containers. This work will be carried out at the dissection bench (see paragraph 5.36). The samples may be held for a short time within the PM suite or specimen store prior to dispatch to the pathology department or other departments.

5.29 Most PM rooms will require a minimum of two PM tables to permit the pathologist to carry out several examinations at one attendance. In some instances it may be appropriate due to the low workload to only provide one PM table.⁴

5.30 Post-mortem tables should be easily cleanable and free from traps for potentially infected material. Downdraught ventilated PM tables offer microbiological improvements over conventional PM tables, although they will be more expensive and may be difficult to install, clean and service. Installation and associated cost implications need to be carefully considered. Some of the installation issues could be simplified by selecting a full-body handling system where the PM table is formed by sitting the trays on suitable brackets on arms by the benches. The tray can then be “plugged” into the benches, reducing the need for floor services.

5.31 Adjustable-height tables should be provided to comply with European standards for working heights. Consideration should also be given to rotating tables.

5.32 Each table should have a hot and cold water supply and a waste outlet of about 75 mm diameter, fitted with a suitable, readily accessible trap and drain pipe. They should be fixed to the floor, located over a drain and be supplied with water at low pressure.

5.33 During an examination, there may be a need to dictate findings, take X-rays, examine X-ray films taken earlier, and use other portable electrical equipment. Special safety precautions are required when using fixed and portable electrical equipment in the PM room. Services outlets should be provided on the plinth of the PM table or overhead for ease of access. (See paragraphs 6.95–6.103.)

5.34 The dissecting bench should have raised edges and slope to a sink(s), which should be deep enough for the washing of organs. There should be provision for running water over the bench itself. The drainage flow



Adjustable-height post-mortem table

of water should be checked and confirmed. The positioning of sinks along the dissecting bench should suit the pattern of working agreed upon by the staff. A sluice is required for the opening of intestines and disposal of contents. A low-pressure water pipe should be provided, preferably in the wall of the sink(s). A standing waste is required. A filter trap is necessary. A dissecting bench should be located facing the observation area. Access to power outlets might be required.

5.35 The bench should be easily cleanable and have no traps for infected material. Preferably, it should be wall-mounted. It should have a specific dissecting position for each PM table. Each position should have a linear exhaust ventilation grille in an upstand at the rear. The recommended size of, and performance data for, the extract grille are described in Chapter 6. There should be several weighing machines of simple design.

5.36 Tissue samples for microscopic examination will be prepared at the dissection bench in the PM room before further processing in a tissue processor in the pathology department. Raw tissue is placed into small plastic cassettes for formalin fixation and then processing in the pathology laboratory. Alternatively, larger tissue samples are left in formalin fixative for a day or so and then trimmed down to fit into the cassettes.

5.37 An emergency eye wash should be provided in close proximity to the PM suite.

Finishes and fittings

5.38 Walls and floors must be finished with hard and durable surfaces which are easy to clean, impervious to liquids and resistant to disinfectants. Floors must be very hard-wearing, non-slip, and raised at the junction

⁴ This document provides costings for PM suites containing two, three and four PM tables with the option of a single PM table in a separate room for special procedures



Dissecting bench with weighing stations

with the walls. The floor should be self-draining towards channels or gullies, with the possible exception of a 2000 mm fascia in front of the body fridges for transferring bodies. The gulley should also include a sump pot which will prevent human tissue accidentally dropped from being washed down the drain. The design of the floor and the cleaning regime are important, and users should be consulted at an early stage of the design process. Joints in flooring and joints between floors and walls should have waterproof seals.

5.39 When selecting ceiling materials, account should be taken of the damaging effect of the damp atmosphere following frequent cleaning of the room with

hot water. The ceiling must be jointless. Access panels must be sealed (see HTM 60 – ‘Ceilings’).

5.40 Plastic laminate on wood, and wooden fittings, are not suitable as fixed work surfaces. Porcelain and stainless steel are satisfactory materials for sinks. Porcelain, although having a high-quality finish, is expensive and liable to damage. All fittings should be ergonomically designed. All taps should be elbow-operated or hands-free.

Lighting

5.41 The PM room should have ample daylight. Distribution and location of windows should take into account the need to maintain total privacy, and to prevent glare and excess solar gain. High-level windows

are generally preferable to rooflights. The windows should preferably face east or north. To avoid loss of control of air movement by the ventilation system, these windows must be fixed and non-openable. Artificial lighting should provide good general illumination, with higher levels for task lighting over the PM tables and dissecting benches. Approved colour-rendering light sources should be used in conjunction with high-efficiency luminaires. See also [paragraph 2.14](#).

Acoustics

5.42 Some acoustic control will be needed in the PM room to provide a suitable working environment, particularly where dictating equipment is used. There should also be control of noise breakout from the PM room to the body viewing areas. See also paragraphs [6.22–6.23](#).

Ventilation

5.43 Special attention must be given to the need for adequate ventilation in the PM room:

- a. to minimise the spread of offensive odours;
- b. to minimise the possibility of infection of staff and visitors by contaminated airborne droplets;

c. to maintain a comfortable working environment.

Careful attention must also be given to the siting of the point of discharge (see [paragraph 6.56](#)).

5.44 The air supply to the PM room in conjunction with the extract should promote good air distribution without generating undue turbulence at the working positions. Ventilation at the rear of the dissecting bench is essential, and the exhaust volume resulting from a properly designed bench will comprise a significant proportion of the total extract from the PM room. Supplementary exhaust grilles should be sited at low level. The control of air movement in the PM room may be achieved partly by using air supplied to the body handling area, the observation area (when provided), and by air drawn into the PM room from other areas of the accommodation. Consideration should also be given to the use of ventilated PM tables.

5.45 The design philosophy for air movement control and the recommended supply and extract rates are detailed in [paragraphs 6.52–6.70](#).

5.46 When not in use, the ventilation system for the PM room can be shut down, provided it is allowed to run on for a limited period (a minimum of 30 minutes) after final cleaning of the room to purge residual odours and to assist in the drying of washed surfaces.



Dissecting bench with completely separate observation area

5.47 No naturally ventilated space should communicate with the PM room without an intervening lobby or corridor.

PROJECT OPTION OF A POST-MORTEM TABLE IN A SEPARATE ROOM

5.48 Where a project need for several tables has been identified and/or there is a joint NHS/public mortuary facility, or there is a significant undergraduate teaching commitment, one table should be located in a separate PM room for the following reasons:

- a. forensic PMs – requiring lengthy examination, privacy, the presence of police, photographic equipment and crew – can be performed here without disruption of routine work;
- b. post-mortem examinations for teaching purposes can be conducted without distraction or haste;
- c. when necessary, examinations of malodorous, decomposing bodies, or bodies of patients of known or suspected infection risk may be undertaken in the separate room. The number of people in attendance will be limited, and the area exposed to potential contamination and requiring cleansing reduced. In addition, the examination need not wait until the end of the day's work, as would be good practice if all the tables were in one room.

DIRTY UTILITY/INSTRUMENT STORE

5.49 This room should open directly off the PM room. It serves as a dirty utility room and for the storage of instruments. It is preferable for the door to swing into the dirty utility. Access from the dirty utility to the disposal hold is useful. An automated washer-disinfector, which meets BS 2745 and the requirements of HTM 2030, should be provided for the cleansing and disinfection of instruments after use. Where sterilization of instruments is required, it is recommended that they are appropriately transported to the sterile service department for processing. Chemical solutions may also be prepared or dispensed in this room, according to local policy (see [paragraph 3.10](#)).

5.50 Sinks will be required for washing and disinfecting bowls and instruments. Waterproof aprons, if used, will also be washed in this room, and facilities are needed for them to be hung to dry.

5.51 The reserve stock of instruments, unused specimen jars and chemical solutions may be held in this room.

5.52 A wash-basin with hands-free tap controls is needed. A flushing sluice may be sited in this room or immediately outside it within the PM room.

POST-MORTEM TRANSIT AREA

5.53 Entry to the PM room will be via the PM transit area, which leads off the staff changing area and separates clean and dirty activity areas.

5.54 Staff entering the PM room will need to change into protective clothing. Suitable shelving, racks and hooks should be provided within the PM transit area for the storage of protective clothing and boots.

5.55 Staff should discard used protective clothing within the PM transit area or PM room. Separate bins for the disposal of single-use items and collection of re-usable items pending cleaning should be provided.

5.56 Hand hygiene facilities with hands-free tap control should be provided for the washing of hands following the removal of protective clothing.

5.57 Staff must pass through a boot wash before entering and upon leaving the PM room. Boots should be stored in the PM transit area.

STAFF CHANGING AREAS

5.58 There are two options for providing staff changing facilities:

either

- Two sets of WCs/showers and lockable storage spaces can be provided to allow for flexible use by both sexes or different staff groups (according to local policy). Hand-washing facilities should be provided.

or

- A mixed changing facility with cubicles can be provided, together with dedicated WCs.

This issue should be addressed at the briefing stage.

OBSERVATION AREA

5.59 Depending on local procedures and the nature of the work being carried out, the PM room may require an observation area which is physically separate from the PM room, for clinical staff to observe a PM examination. The only entrance should therefore be from outside the PM room. This facility may also be required as part of undergraduate or postgraduate education and, in the case of coroners' PMs, for use by persons connected with the coroner's office. A dissecting bench should be provided along the wall of the PM room adjoining the observation area for the demonstration of pathological findings in organs. A full-height glazed divider will protect viewers from splashes during the demonstration of findings and should be designed to provide a good view of the dissection bench. Video/intercom facilities

should be provided enabling two-way speech. The observation area should accommodate 6–8 people and should be raised or tiered to ensure a good view of the PM room. A writing shelf should be provided. Planning teams should consider the needs of disabled visitors.

5.60 Air supplied to the observation area should contribute to the control of air movement within the PM room as a whole (see paragraphs 5.43–5.47). The ducting from the linear exhaust ventilation grille at the rear of the dissecting bench may be incorporated into the divider separating the observation area from the PM room.

5.61 The availability of an observation area will obviate the need for clinical staff and others attending a PM and demonstration of findings to change into protective clothing. The size of the observation area will vary according to local arrangements. If there are overwhelming reasons for clinical staff and others to be admitted into the PM room, they will be required to enter via the PM transit area, change into the protective clothing provided and observe the agreed local protocol. Extra facilities for storing personal clothing and valuables may be required in such circumstances.

5.62 Local policy may seek to limit direct observation during PM examination and may arrange for the demonstration of case findings to take place in, for example, the hospital education centre or pathology department seminar room. Where it is policy to use audio-visual aids for demonstration/teaching purposes, appropriate facilities for recording will be required in the PM room.

SPECIMEN STORE

5.63 Tissue samples for microscopic examination in the pathology department, together with retained organs in fixative, may be kept in the specimen store for certain periods. Shelves made from impervious material will be required for holding jars or containers of various sizes. Floor space, or space below high benching, may be required for formalin containers. The room must be continuously ventilated because of the hazard arising from formalin used in the specimen containers. (See paragraphs 3.6–3.10 for further information on the use of formalin.) The specimens store should be linked to the PM room by a hatch to allow specimens to be taken from the PM room without walking from a dirty area into a clean one.

PATHOLOGISTS' OFFICE

5.64 The function of the pathologists' office is to provide space for consultations and writing reports. It should have a window for natural ventilation and light, and should be entered from the circulation route leading to the staff changing area and the body handling area.

TECHNICIANS' OFFICE/REST ROOM

5.65 This room should have access to the body viewing facilities. It should be situated near the body handling area and the undertakers' entrance so that bodies may be registered and labelled before being deposited in the body store. It should be entered from the circulation route leading to other parts of the mortuary. The staff call bells for undertakers and visitors will need to be located here (see paragraph 2.24b). Apart from clerical functions, the office will be used for relaxation between work periods. It should be furnished with a desk(s), chairs, shelves and filing cabinet. An external window that overlooks the external entrance (unless an audio-visual intercom is in operation) and one that overlooks the body handling area should be provided. Lockers should be provided to enable technicians to store clothing and personal effects in this room.

5.66 A staff beverage and snack area with a sink should be provided in an adjacent room or, where this is not practical, within a designated area in the technicians' room. In larger facilities a separate staff rest room will be required. Food preparation and consumption must be strictly confined within these areas.

DISPOSAL ROOM

5.67 The disposal of used items will depend on whole hospital policy but will be in accordance with the Health Services Advisory Committee and Health and Safety Commission's document on 'The Safe Disposal of Clinical Waste', 2nd edition 1999. A disposal room is required with adequate space for the temporary storage of securely packed refuse and dirty linen bags (appropriately colour-coded) with easy access for their collection, preferably from the dirty utility room. Refer to 'Total healthcare waste management', NHS Estates, 2004.

CLEANERS' ROOM

5.68 A cleaners' room should be provided to service the department. There should be lockable cupboard space for secure storage of stock, and shelves for holding in-use materials. There should be adequate space for manoeuvring machines, for emptying and filling buckets and bowls, and the routine servicing and cleaning of equipment. There should be unrestricted access to the sink, and to a wash-hand basin. This room and equipment should not be confused with the cleaning of the PM room, which has its own dedicated cleaning facilities and equipment.

GENERAL-PURPOSE AND LINEN STORE

5.69 A general-purpose store will be needed for a wide variety of stock items and linen that do not require specialised environmental conditions. As stock

dimensions vary considerably, adjustable shelving would be an advantage. Adequate floor space should be allowed for the storage of bulky goods. Good natural or mechanical ventilation is required.

5.70 Arrangements for supplies and storage facilities will be in accordance with whole hospital policies for supplies and associated services. Storage is required for clean supplies of general utility and toilet items and for linen, including drapes, shrouds, white coats, protective clothing, disposable items, towels and other linen, and for the reserve stock of cleaning materials.

5.71 The store must be accessible to staff servicing both the body handling and viewing areas, and the PM room activity requirements.

TRAINING AND TEACHING FACILITIES

5.72 In-house training of pathologists and technicians will be possible in a mortuary and PM room facility that meets the building space and design standards of this document.

5.73 If the teaching of undergraduate medical students is to take place in the accommodation, and their numbers necessitate additional space and facilities, this should be provided as part of the overall requirements for the facility.

6 Engineering services

GENERAL ENGINEERING CONSIDERATIONS

6.1 This section provides general engineering guidance for healthcare facilities. Some aspects will be applicable to all facilities, while others will only be applicable to certain departments.. Designers should ensure they read this document as a whole, since further engineering requirements are outlined in other chapters.

Introduction

6.2 Engineering services account for a significant proportion of the capital cost and a continuing charge on revenue budgets. The project design engineer should ensure economy in provision, whilst achieving functional requirements and maintaining clinical standards.

6.3 Lifetime costs should be identified as part of the cost-benefit analysis.

6.4 Energy usage has a major impact on the environment. Heating, ventilation, cooling and lighting should be automatically controlled when not in use (for example at night or weekends).

6.5 Engineering installations should provide an organised and systematic arrangement that can be modified to facilitate changes in service requirements. This should be achieved by distributed systems with vertical or horizontal services ducts. These should be readily accessible so they can be remodelled and maintained with minimal disruption to the facility.

Model specifications

6.6 The National Health Service Model Engineering Specifications 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. In addition, the reader is directed towards the range of Health Technical Memoranda (HTMs) relevant to this facility.

Energy conservation and sustainability

6.7 The commitment of the NHS to sustainable development is encapsulated in the document 'Sustainable development in the NHS'. Whilst this document considers a wide range of sustainability issues, one area identified as having a major impact on

the environment is the use of energy. The minimising of environmental impact by ensuring that energy is only used necessarily and efficiently is considered in this section with regard to:

- a. natural daylighting;
- b. natural ventilation;
- c. night set-back;
- d. building regulations;
- e. heat recovery.

6.8 Efforts should be made to maximise the use of natural lighting. Passive solar design (PSD) should be employed to ensure, insofar as it is possible, that staff areas are located where they can benefit from natural daylight whilst other areas, for example stores, toilets and utility rooms, are located towards the core of the facility.

6.9 Areas where glare may be a problem, for example rooms where VDUs are routinely used, should similarly be located away from direct natural daylight.

6.10 Natural ventilation of rooms should be employed wherever this is appropriate. The design should incorporate measures for minimising solar heat gains, which, if uncontrolled, will precipitate a need for mechanical ventilation. Measures to minimise the need for cooling should include locating temperature-sensitive accommodation away from south-facing fascias, shading windows with brise soleil, and using solar-reducing glass where this is cost-effective.

6.11 Energy-using systems including heating, ventilation, cooling and lighting should be controlled to reduce energy input to the facility, or sections of it, when it is not in use, for example at night or weekends.

6.12 Energy recovery systems should be considered for air-conditioning and ventilation systems.

Design for safety

6.13 Health and safety legislation imposes a statutory duty on all persons who design, manufacture, import, supply, install or erect "articles for use at work" through a range of co-ordinated health and safety regulations

enacted under the Health and Safety at Work etc Act 1974.

6.14 Key safety regulations relating to healthcare premises and equipment are:

- a. The Construction (Design and Management) Regulations 1994;
- b. The Management of Health and Safety at Work Regulations 1999;
- c. The Workplace (Health, Safety and Welfare) Regulations 1992;
- d. The Provision and Use of Work Equipment Regulations 1998;
- e. The Health and Safety (Safety Signs and Signals) Regulations 1996;
- f. The Noise at Work Regulations 1989;
- g. The Pressure Systems Safety Regulations 2000;
- h. The Pressure Equipment Regulations 1999;
- j. The Gas Safety (Installation and Use) Regulations 1994;
- k. The Control of Substances Hazardous to Health (COSHH) Regulations 2002.

6.15 Designers should be particularly aware of the role of engineering design in the control of infection, particularly in respect of water services (see HTMs 2027 and 2040) and ventilation systems (see HTM 2025).

6.16 Clearly-identified devices for the control and isolation of primary engineering services should be located in areas where they can be protected against unauthorised interference, ideally in plantrooms, engineering service spaces, or circulation areas.

6.17 The need to employ formal “Permit to Work” and “Permit to Use” procedures should be noted, particularly in respect of electrical systems (see HTMs 2020 and 2021) and medical gas systems (see HTM 2022).

Ventilation (substances hazardous to health)

6.18 Local exhaust ventilation will be required where exposure by inhalation of substances hazardous to health cannot be controlled by other means. The Health and Safety Executive publication EH40, ‘Occupational Exposure Limits’, updated annually, sets limits that form part of the Control of Substances Hazardous to Health Regulations 2002 (COSHH).

Fire safety

6.19 The policy in respect of fire safety is set out in the ‘Firecode’ series of documents. Additionally, the Fire Practice Notes series provides further guidance on specialist aspects of fire precautions. The trust should satisfy itself that the design meets the objectives of Firecode by either compliance with HTM 81 or a fire-engineered solution that achieves similar objectives.

6.20 It is important to establish during the design stage those aspects of fire strategy that may affect the planning of a project. At appropriate stages of the design process, the architect and engineer should discuss and verify their proposals with the relevant Building Control/Approved Inspector, and ensure that the project team and all other planning staff are fully acquainted with the fire safety strategy for the design. This will include operational aspects (staff responsibilities etc), equipment provision, and building and engineering layouts. HTMs 57–60 provide detailed information for the selection of fire-resistant building components and materials.

Fire detection and alarm systems

6.21 A fire detection and alarm system complying with HTM 82 should be installed throughout the facility.

Noise

6.22 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 general discomfort. The limits and means of control advocated in HTM 2045, ‘Acoustics’ should provide an acceptable acoustic environment.

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

Space requirements for services and plant

6.24 A high level of availability of engineering plant and services is critical to the ability of the facility to function safely and efficiently. It is therefore essential that building design should incorporate adequate space for the installation and maintenance of plant, ductwork, pipework and cabling.

6.25 Space for plant and services should provide:

- a. easy and safe means of access;
- b. secure accommodation protected from unauthorised access;

- c. adequate space around plant and services to permit inspection and maintenance;
- d. sufficient space to permit redundant plant to be removed without the need to dismantle other major plant.

6.26 Recommended spatial requirements for engineering plant and services are contained in HTM 2023. Further useful information regarding the provision of space for plant is contained in BSRIA Technical Note TN 9/92, and for building services distribution systems in BSRIA Technical Note TN 10/92.

6.27 Space should be allowed within walls and above ceilings to facilitate the concealment of electrical and mechanical services where possible. Securable demountable panels should be provided to allow access to control and isolation valves as well as any equipment that is necessarily concealed within the spaces. Each panel should be clearly, but discreetly, marked to identify the controls or equipment to be found behind the panel.

6.28 In general, but with the exception of drainage and, when appropriate, heating pipework, engineering services should not be brought from the above-ceiling space of a floor below. Service distribution to a particular area should be contained in service spaces on that floor.

6.29 Wherever possible, access to plant and services should be from plantrooms or maintenance areas. Where this is not possible, every endeavour should be made to effect access from general circulation areas and not from operational spaces.

6.30 In areas where wall-mounted heat emitters are installed, they should be contained within a 200 mm wide perimeter zone. The 200 mm zone, together with the space for minor engineering ducts required to service the emitter, is included in the building circulation allowance. The amount of space required for wall-mounted emitters can be limited by the use of ceiling-mounted radiant panels as an alternative.

6.31 Care should be taken to ensure that noise and structure-borne vibration cannot be transmitted from plant to areas external to the plantroom.

Engineering commissioning

6.32 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 'Guidance to engineering commissioning' (IHEEM, 1995). Flow measurement and proportional balancing of air and water systems require adequate test facilities to be incorporated at the design stage. Guidance is also

contained in a series of commissioning codes published by the Chartered Institute of Building Services Engineers.

Maximum demands

6.33 The estimated maximum demand and storage requirements, 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 facility.

SPECIFIC ENGINEERING CONSIDERATIONS

Mechanical engineering services

6.34 Mechanical services may include the following:

- heating system;
- hot and cold water systems;
- ventilation systems;
- refrigeration plant;
- environmental control and building management systems;
- compressed air.

6.35 For the purposes of this document the installation is deemed to include each system from the point of entry to the facility to the final connection to service outlets or specific equipment. Reference should be made to Activity Data Sheets for individual space technical design data.

Heating system

6.36 A building management system (BMS) should control the heating system in zones to ensure that it is automatically set back or turned off when the facility, or zones within the facility, is/are not in use. Heating throughout the facility should be controlled to a minimum "set back" temperature of 12–15°C during "out-of-use" hours. The BMS should be equipped with a manual override to permit restoration of the plant to full operational status at short notice.

6.37 In general areas space heating requirements can be met by either wall-mounted low-pressure hot water radiators or ceiling-located low-pressure hot water emitters. Radiators should not be installed in areas to be hosed down.

6.38 The surface temperature of wall-mounted radiators should not exceed 43°C. Ceiling-mounted radiant panels can exceed this surface temperature and will allow floor space savings. Exposed heating pipework at temperatures above 43°C and accessible to touch, should be encased or insulated. Further information is

given in the Health Guidance Note (HGN) – “Safe” hot water and surface temperatures’.

6.39 Radiators should be located under windows or against exposed walls. There should be space between the top of the radiator and the window sill to prevent curtains reducing the output. There should be adequate space underneath (at least several inches) 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.

6.40 All radiators should be fitted with thermostatic control valves. These should be of robust construction and selected to match the temperature and pressure characteristics of the system. The thermostatic head should incorporate a tamper-proof facility for pre-setting the maximum room temperature. It should be controlled via a sensor located integrally or remotely. To provide frost protection, the valve should not remain closed below a fixed temperature.

6.41 Radiators should be used to offset only building fabric heat loss in mechanically ventilated rooms. All rooms should have local heating controls; the facility should be controlled throughout by the BMS.

6.42 Ceiling heating panels may operate at higher surface temperatures than 43°C as long as the surface is not readily accessible. Heating panels should run around the perimeter of the building. Panels should not be located over workstations or in other locations where they might radiate directly down on the occupants for a prolonged period.

6.43 Ceiling panels should be selected to aesthetically match the adjacent ceiling and should be sealed to the adjacent ceiling by means of a gasket or similar device.

6.44 Heating loops of ceiling panels should be controlled by automatic valves located above the ceiling and actuated from room thermostats. In large spaces several loops should be provided, each controlled from its own thermostat, to serve separate zones within the space.

Hot and cold water systems

6.45 Hot and cold water storage and distribution systems should be designed in accordance with the requirements of HTM 2027 and HTM 2040. For the post-mortem and support areas, entirely separate hot and cold water systems should be provided to eliminate the possibility of cross-infection of the general domestic water systems. This requires that separate water storage tanks and hot-water calorifiers be provided for these areas.

6.46 Whilst cold water storage at high level will be the norm, care should be taken to ensure that all equipment proposed for the facility is capable of operating from the available static head. Where the static head is insufficient, a pressurisation set incorporating dual pumps should be installed.

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

6.48 The domestic hot water supply should be taken from the calorifiers installation at a minimum outflow temperature of 60°C ± 2.5°C and distributed to all outlets in a manner that ensures a return temperature to the calorifiers of at least 50°C. Exposed hot water pipework, accessible to touch, should be encased or insulated. Further information is given in HGN – “Safe” hot water and surface temperatures’.

6.49 Where possible, automatic water-conserving taps actuated by proximity detectors should be used. When specifying taps for cleaning troughs, consideration should be given to the use of automatic mixer units providing water at a set temperature for a predetermined length of time.

6.50 All taps in working areas should be hands-free. Post-mortem tables should be fitted with individual low-pressure water hoses, the hoses being supplied with temperature-controlled water from a local thermostatically-controlled valve. PM tables arranged in “island” locations should be provided with water services and associated drainage connected into the base of the table from a floor duct with access provided to all valves and controls within the plinth of the table.

6.51 Wash-down facilities should be provided from a separate water supply system incorporating hose, hosereel and spray gun.

General ventilation requirements

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

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

6.54 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.

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

6.56 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.

Ventilation cooling systems

6.57 Cooling loads for ventilation systems should be met either by the central water chiller plant or by packaged, remotely located, water chiller plant dedicated to the facility. Direct expansion systems are not advocated unless the refrigeration load is small, since direct expansion plant can only be controlled in steps, unlike chilled water which can be continuously modulated.

6.58 Heat rejection plant should consist of air-cooled condensers. Wet cooling towers must not be used.

Specific ventilation requirements

6.59 The PM room, observation area and the body handling area, together with the associated dirty utility room, PM transit area and staff changing areas, should have a supply and extract ventilation plant dedicated to this suite of accommodation.

6.60 Filtration on the extract system in the PM room is not considered necessary, but it is essential that the exhaust air outlet is located sufficiently well away from opening windows and air intakes.

6.61 The minimum recommended total fresh air supply rate to the PM room is 10 air changes per hour, including the proportion of this air that is being supplied via the observation area. Cooling of the air supply may be desirable to avoid inadvertent opening of windows in warm weather. The recommended total extract rate from the PM room is 12 air changes per hour, including the extracted air at the dissection benches.

6.62 Ventilation to the post-mortem suite should be arranged for an inward flow of air from PM room to body store and inward flow to PM room and specimen room from adjacent accommodation to minimise the migration of unpleasant odours. Similarly, public and administration areas which are mechanically ventilated should be designed for an outward air flow.

6.63 Supply air to the post-mortem room should be introduced at high level, and exhaust air at low level from the PM tables and dissection benches, in order to offer maximum protection for the staff. The air supply should ideally be admitted by high-level laminar flow or displacement diffusers to minimise the quantity of entrained air drawn from below. It is for this reason that the ventilation system should be capable of offsetting the room cooling requirement without the addition of supplementary cooling systems.

6.64 The Department of Health standard for containment of formaldehyde vapour at a dissection bench is to maintain a concentration below 1 ppm. Each dissecting position will usually be accommodated in a continuous run of benching which should not be more than 650 mm from front to rear and which should be provided with a continuous upstand at the rear. Each dissecting position (and the workbench in the dirty utility room with 0.6 m grille) should have a linear extract grille with its face flush with the upstand. The bottom of the grille should be as close as practicable to the level of the working surface. For practical cleaning purposes the minimum height of the bottom of the grille opening above the working surface is likely to be 75 mm.

6.65 In practice, a working zone 1.2 m long should suffice at each dissecting position. It is recommended that the extract grille should also be 1.2 m long and 150 mm high. For optimum extract performance, it should be mounted on a purpose-designed plenum box (incorporating guide vanes as necessary) to ensure that, as far as practicable, there is a uniform face velocity of 1 m per second along the total length, and across the full height of the extract grille opening. The grille should be readily demountable to permit periodic internal cleaning of the plenum box and any guide vanes. Proprietary benches up to 860 mm deep are available complete with slot extract, which are able to provide the required level of containment.

6.66 As an alternative to conventional dissection benches, consideration should be given to downdraught dissecting benches, which alleviate the problems associated with splashing.

6.67 Continuously operating extract ventilation is required for the specimen store, which may be connected to the central dirty extract system or a dedicated exhaust system. An air flow switch in the extract connection from the specimen store should be arranged to energise a light over the specimen store door which should remain illuminated only when air flow is established, and a notice should be provided on the door warning not to enter unless the light is on.

Ventilation controls

6.68 Ventilation systems should be controlled by a Building Management System (BMS) which will automatically set back or turn off plant when a department is not in use. Ventilation systems and associated heating systems should be controlled to ensure a “set back” temperature of 12–15°C during “out of use” hours to facilitate rapid warm-up if necessary, and the BMS should be equipped with a manual override to permit restoration of the plant to full operational status at short notice.

6.69 Supply and extract ventilation systems should include local indicator lamps to confirm the operational status of each system.

6.70 Where manual controls are available for staff use, they should be provided with labels that clearly define their function.

Body store refrigeration plant

6.71 The refrigerating plant should be housed in a well-ventilated plantroom with compressors mounted on plinths to facilitate servicing. The size of the room should be sufficient to accommodate, in addition to the compressor plant, the associated switchgear and distribution board, and the room should permit access from outside the building.

6.72 Designs which locate the condensing units above the body store are not recommended, but when this arrangement is unavoidable, consideration should be given to the provision of adequate space and heat rejection from the equipment.

6.73 Unless defrosting is incorporated into the system, weekly defrosting of the coils should be allowed. Suitable drainage trays connected to piped drains will be required, and the pipes should be protected by electrical tracer tapes where the temperature is likely to fall below freezing point.

Pneumatic tube system

6.74 The need for a pneumatic tube conveyor system for the transportation of specimens to/from the pathology labs should be considered if the likely throughput and distance between departments justify its inclusion. This would be integrated to form part of the site-wide pneumatic tube installation.

Compressed air

6.75 The need for compressed air for air-operated tools which may be required for certain procedures should be established with the users. A separate compressed air plant consisting of air intake filter, compressor with after-cooler, pressure-reducing valve, appropriate non-return

valves, an air receiver with pressure relief valve, isolating valves, gauges and switches, an operating and indicating system, and a test point should be provided.

Fire protection systems

6.76 Fire protection systems should comply with the requirements of HTM 81 – ‘Fire precautions in new hospitals’.

6.77 Dry risers should be provided adjacent to stairwells with branch hose connections at each landing. First aid hose reels and sprinkler systems will not generally be provided unless there is a specific requirement to do so by the local fire authority.

6.78 Where there are major IT equipment rooms located within the facility, there may be a need for the provision of a gas extinguishing system.

Drainage services

6.79 The internal drainage system should:

- use the minimum of pipework;
- remain water- and air-tight at joints and connectors;
- have sufficient ventilation to retain the integrity of water seals;
- include clear labelling of waste pipes that may contain radioactive waste or effluent.

6.80 The facility should be provided with a system of soil and waste drainage including anti-siphon and ventilation pipework in accordance with BS EN 12056-1.

6.81 Where plastic pipework materials are used, suitable intumescent collars should be fitted when breaching fire compartments, and acoustic wrapping should be applied when drainage runs above noise-sensitive areas.

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

6.83 Macerators should discharge with a short branch to a vertical stack or horizontal drain. The waste pipe should not be installed above or close to heating or hot-water mains. If a macerator discharges to a 100 mm drain, frequently-used large-volume appliances should

be situated upstream of its connection to provide additional flushing.

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

Electrical engineering services

6.85 Electrical services include the following:

- main intake switchgear and distribution board;
- emergency electrical supplies;
- small power distribution systems;
- lighting systems;
- IT cabling systems;
- telephone systems;
- security systems;
- staff call system;
- lightning protection.

6.86 Electrical installations should comply with BS 7671 and HTM 2007 – ‘Electrical services supply and distribution’.

6.87 Care should be taken to avoid mains-borne interference and electrical radio frequency interference affecting diagnostic and monitoring equipment, computers or other sensitive electronic equipment.

Switchcupboard

6.88 The departmental switchcupboard which houses the main isolators and distribution board should be:

- sited within the department away from public areas;
- accessible directly from a circulation area providing clear and safe access for maintenance staff (access space may be part of the circulation area). Care should be taken to ensure that safety is not compromised during maintenance by passing traffic or the opening of adjacent doors.
- sited away from water services and lockable.

6.89 Wherever possible, equipment should be mounted at a height that gives safe and easy access from a standing position. All switchgear should be lockable in the “off” position.

Emergency electrical supplies

6.90 Emergency electrical provision should comply, as a minimum, with the requirements of HTM 2011 – ‘Emergency electrical services’.

6.91 The emergency generator providing electricity in the event of a main supply failure should be capable of providing full (100%) backup, to the exclusion of refrigeration plant serving air-conditioning and comfort cooling plant.

6.92 If an existing generator is to be used, the extent of emergency coverage will be dependent on the spare capacity available, subject to a minimum provision. If this minimum requirement cannot be met, it will be necessary to either replace the existing generator with a larger set, or provide an additional generator dedicated to the facility.

6.93 Equipment and systems that cannot tolerate the delay inherent in bringing a generator supply on line, including computers, should be further protected against outages by the provision of solid-state non-interruptible power supplies.

6.94 In the event of a main supply or local final circuit failure, escape routes should be illuminated by self-contained, battery-powered luminaires charged continuously from the main supply and capable of providing illumination for a period of three hours.

Small power distribution systems

6.95 Depending upon the available capacity of the emergency generator installation it may be necessary to provide separate essential and non-essential small power distribution systems as detailed in HTM 2011.

6.96 Thirteen-amp switched and shuttered socket-outlets in accordance with the requirements of the room data sheets should be provided, connected to ring or spur circuits.

6.97 Where there is separation between essential and non-essential small power distribution, socket-outlets served by the essential distribution should be clearly marked with an engraved red capital letter “E”.

6.98 In areas where it is required to hose down for cleaning, power outlets should be water resistant IP65 rated “commando” style.

6.99 Where equipment is permanently installed or where there is a possibility of equipment theft, switched double-pole 13-amp spur outlets should be used in preference to socket-outlets. The spur outlet should incorporate a red neon lamp indicating when the supply to the equipment is live.

6.100 Equipment requiring a three-phase supply should be permanently connected to a separate sub-circuit. The sub-circuits, incorporating a circuit breaker, should be fed from the distribution board and terminate in a local isolator.

6.101 Adequate provision should be made in circulation areas, for example corridors and lobbies, to permit the use of domestic cleaning equipment having flexible cords up to 9 metres long.

6.102 Isolation switches should be provided immediately adjacent to all engineering plant and equipment, clearly labelled to identify the equipment to which they relate.

6.103 Heating appliances and automatic equipment should be provided with red neon lamps indicating when they are energised. The neon lamps should be incorporated in the control panel of the equipment, in the control switch, or in the socket-outlet or spur unit from which the equipment derives its supply.

Lighting systems

6.104 To achieve energy efficiency, lighting systems should be designed to:

- maximise natural daylight;
- avoid unnecessarily high levels of illumination;
- incorporate efficient luminaires, control gear and lamps;
- incorporate effective controls.

See CIBSE guide F for further information.

6.105 For detail regarding illumination levels, designers should consult BS EN 12464, BS EN 60598-2-25 and IEC 60598-2-25.

6.106 Lighting within the facility should be coordinated with architectural design. In particular, there should be collaboration to ensure that decorative finishes are compatible with the colour-rendering properties of lamps and that the spectral distribution of the light source is not adversely affected. See also 'Lighting and colour for hospital design – A report on an NHS Estates-funded research project' (Dalke et al, 2004).

6.107 Lighting switches should be provided in easily-accessible positions within each area, and at appropriate locations in corridors and general circulation areas. In areas with multiple luminaires, switching should permit the selection of luminaires appropriate only to that area requiring illumination.

6.108 Where local circumstances permit, the provision of time switches or occupancy controls using infrared, acoustic or ultrasonic detectors should be considered.

6.109 Generally, luminaires should be fitted with fluorescent lamps equipped with low-loss or high-frequency control gear. Where luminaires are infrequently used, or where the design intent of the architect in respect of ambience dictates, compact fluorescent, LV or tungsten lamps may be used.

6.110 Colour-corrected lighting should be provided in all work rooms.

6.111 Where necessary, general lighting should be supplemented with dedicated task lighting. In the bier room and other areas used by relatives, lighting should be provided and selected to create a domestic rather than an institutional ambience.

6.112 In areas where VDUs are in use, lighting should be designed to avoid any bright reflections from the screen. Generally, the lighting in such circumstances should comply with the guidance given in CIBSE LG3.

6.113 Safety escape lighting should be provided on primary escape routes in accordance with the provisions of HTM 2011, BS EN 12464, BS EN 60598-2-25 and IEC 60598-2-25.

Fire detection

6.114 Fire detectors throughout the facility should generally be of the ionisation type.

IT and telephone systems

6.115 The approach to provision of IT and telephone infrastructure within the facility may be conditioned by existing systems within the hospital. However, where possible a structured wiring system as described in the HGN 'Structured cabling for IT systems' should be provided. This will permit a unified approach to the provision of cabling for:

- voice systems;
- data systems;
- imaging systems;
- alarm systems.

Whilst this "universal" cabling system is initially more expensive than separate voice and data systems, the long-term cost of ownership is less.

6.116 In determining the nature of the IT system to be provided, it is necessary to identify:

- areas to be served;
- whether structured cabling will be used;
- what density of outlets is to be provided (not less than two per workstation);

- whether wiring will be on a “flood” or “as required” basis;

Telephone systems

6.117 The extent and complexity of telephone equipment and associated infrastructure will be dependent on the size of the facility. Guidance on telephone systems is contained in HTM 2055 – ‘Telecommunications (telephone exchanges)’.

6.118 As stated in the section on IT above, it may be beneficial to integrate voice cabling with the structured wiring system for IT if provided.

6.119 Incoming calls to the facility should in general be routed through the reception. However, depending on the size of the establishment, a limited number of direct dial inwards (DDI) lines may be considered desirable.

6.120 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.

6.121 Where coin- and/or card-operated payphones are provided, at least one payphone should be suitable for use by disabled persons. It should be wheelchair-accessible and fitted with an inductive coupler to assist people using a hearing aid. Payphones should incorporate acoustic hoods to facilitate privacy.

Security systems

6.122 Any parts of the facility that are only used during the day should be protected “out of hours” by an intruder alarm system complying with BS 4737 or BS 5979 as appropriate.

6.123 Points of ingress and egress from the facility should be monitored by high-definition CCTVs equipped with pan and tilt facility and capable of producing high-quality images at low levels of light. Positioning of cameras should be determined with care, selecting optimum positioning for maximum field of coverage. Monitors should be sited at a location that is permanently manned whilst the facility is in use.

6.124 Entrances to work areas and other sensitive areas should be protected by one of the variety of electronic access control systems available.

6.125 Consideration should be given to the need for personnel attack alarms to be available to staff, preferably of a type capable of identifying the location of a member of staff in difficulty.

Call systems

6.126 Staff call points should be provided in all spaces accessible to the public.

6.127 Each call unit should comprise a push-button or pull cord, reassurance lamp and reset unit. A visual and audible indication of operation of each call point should be provided in the reception area to give responding staff unambiguous identification of the call source, with a repeater unit in the staff rest room, if provided.

Lightning protection

6.128 Protection of the building against lightning should be provided in accordance with HTM 2007 and BS 6651.

7 Cost information

INTRODUCTION

7.1 For all types of health building, it is important that building costs and revenue expenditure are best value and consistent with acceptable standards. In applying the guidance in this document to determine a detailed design, the need for economy should always be of prime concern, and the activities should be carefully considered so that, where appropriate, space can be shared for similar activities which are programmed to take place at different times. The solution should not be detrimental to the proper functioning of the spaces involved nor to the needs of users.

DEPARTMENTAL COST ALLOWANCE GUIDES

7.2 Departmental Cost Allowance Guides (DCAGs) related to this document are officially notified in *Quarterly Briefing*, published by NHS Estates.

7.3 The attention of the project team is drawn to guidance given in the Capital Investment Manual (Business Case Guide) published by The Stationery Office. This process is intended to reduce unnecessary and often expensive planning work that may subsequently prove to be abortive, and emphasises the necessity for a sound business case in support of both the capital and the revenue expenditure involved. The Capital Investment Manual also states that the capital works estimate of the intended scheme must be based, wherever applicable, on industry norms such as the DCAGs plus a percentage to cover for on-costs.

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

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

ON-COSTS

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

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

LOCATIONAL FACTORS

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

SCHEDULES OF ACCOMMODATION

7.9 Example schedules of accommodation are listed at the end of this chapter. The examples have been built up for five different types of mortuary and PM department (including a mortuary-only department). **The examples are not to be taken as ideal provision for any particular project.** DCAGs have been calculated based on these departmental examples.

The examples included are as follows:

Example 1: Mortuary: body viewing and body storage for 10 bodies

Example 2: Mortuary and post-mortem: body viewing, body storage for 25 bodies and 2 PM tables

Example 3: Mortuary and post-mortem: body viewing, body storage for 35 bodies and 2 PM tables

Example 4: Mortuary and post-mortem: body viewing, body storage for 75 bodies and 3 PM tables

Example 5: Mortuary and post-mortem: body viewing, body storage for 100 bodies and 4 PM tables

Example 6: Bereavement centre

Example 7: Temporary body storage for 25 bodies

DIMENSIONS AND AREAS

7.10 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 [Appendix 3](#).

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

7.12 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.

7.13 Planning of the building efficiently may also necessitate variation of areas; for instance, in the refurbishment or conversion of older property:

- a. rooms tend to be larger than the recommended area;
- b. some rooms may be too small or in the wrong location for efficient use;
- c. circulation space tends to form a larger than normal proportion of the total area.

CIRCULATION

7.14 Space for circulation – that is, all internal corridors, small vertical ducts and spaces occupied by partitions and walls – is included in the total areas given in the example schedules. Provision is also made for a 5% planning zone and a 3% addition for an engineering zone adjacent to the external walls. These areas are all included and, therefore, costed in the DCAGs.

7.15 These percentage increases to the nominal areas are included in the ECA and optional accommodation.

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

therefore some adjustment may be necessary to the circulation figure.

COMMUNICATIONS

7.17 Staircases, lifts and plantrooms, with the exception of the combined electrical switchroom, and refrigeration plantroom (which will usually house the electrical switchgear), are not included in the DCAGs relevant to this department. Costs related to these elements, along with a suitable space allowance, should be made in the on-costs.

LAND COSTS

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

EQUIPMENT

7.19 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 that 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.

Group 1 items are provided for in the cost allowance associated with this guidance. The Equipment Cost Allowance Guide (ECAG) specifies a sum of money for the functional unit for Groups 2 and 3.

ENGINEERING SERVICES

7.20 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

- a. Heating – low pressure hot water system, maximum surface temperature 82°C.
- b. Ventilation – mechanical supply and extract for the PM suite and mechanical extract for the specimen store to meet clinical and functional requirements; other areas will be mainly naturally ventilated.
- c. Cold water service – centrally supplied to service points including drinking water and fire hose reels with a segregated supply to the PM suite. Storage tanks excluded.
- d. Hot water service – centrally supplied at 60°C with a segregated supply to the PM suite. Storage excluded.

Electrical services

- a. Departmental distribution switchboard.
- b. General lighting as required by tasks.
- c. Fluorescent, tungsten, safe light and emergency luminaires as appropriate. Dimming included for viewing and bier rooms.

- d. Socket-outlets and other power outlets for fixed and portable equipment. Safe supply system for socket-outlets in PM suite and other sluiced areas included.
- e. Supplementary equipotential earth bonding connections.
- f. Standby and safety installation from the main hospital supplies.
- g. Dictation system for PM room.
- h. Bell push system for all departmental entrances.
- j. Fire alarm system.
- k. Impulse clocks.
- m. Staff location extension to the hospital system.
- n. Telephone internal distribution cabling and outlets. (Hand-sets excluded.)

Equipment (Group 1)

- a. Body storage chambers and associated refrigeration plant. Disposal macerator.

SCHEDULES OF ACCOMMODATION

Example 1: Mortuary: body viewing & body storage for 10 bodies

| Activity Space | Qty | Area | Total Area | Para Ref | Notes |
|--|-----|------|--------------|-----------------|--|
| <i>Entrance facilities</i> | | | | | |
| Entrance: visitors | 1 | – | – | Para 5.3, 5.5 | Circulation provision |
| Entrance: staff | 1 | – | – | Para 5.3 | Circulation provision |
| Entrance: bodies | 1 | – | – | Para 5.3, 5.4 | Circulation provision Includes access/parking for hearses |
| <i>Mortuary facilities: Body viewing</i> | | | | | |
| Public telephone: single booth, accessible | 1 | 2.0 | 2.0 | Para 2.9 | – |
| Waiting room: 5 persons | 1 | 11.0 | 11.0 | Para 5.8 | Relatives & visitors |
| Interview & counselling: 5 persons | 1 | 9.0 | 9.0 | Para 5.9 | – |
| Body viewing room | 1 | 8.0 | 8.0 | Para 5.10 | – |
| Bier room | 1 | 10.0 | 10.0 | Para 5.11 | – |
| WC & handwash: accessible, wheelchair-assisted | 1 | 4.5 | 4.5 | Para 5.8 | – |
| <i>Mortuary facilities: Body storage & handling</i> | | | | | |
| Body store & handling area: 2 bays single-ended, 10 bodies | 1 | 18.0 | 18.0 | Para 5.13, 5.15 | 5 refrigerated bodies 5 obese refrigerated bodies |
| Parking bay: mortuary trolley | 1 | 3.0 | 3.0 | Para 5.23 | – |
| Plantroom: refrigeration & switchgear | 1 | 7.5 | 7.5 | Para 6.71 | – |
| <i>Staff support facilities</i> | | | | | |
| Office change & rest room with beverage & snack preparation bay: 2 technicians | 1 | 13.0 | 13.0 | Para 5.65, 5.66 | – |
| Staff changing room: 3 places | 2 | 7.5 | 15.0 | Para 5.58 | See HBN for optional provision |
| WC & wash: ambulant | 2 | 2.0 | 4.0 | Para 5.58 | – |
| Shower: ambulant (non-patient) | 2 | 2.5 | 5.0 | Para 5.58 | – |
| <i>Support facilities</i> | | | | | |
| Store: general & linen | 1 | 3.0 | 3.0 | Para 5.69 | Includes clean protective garments |
| Hold: disposal | 1 | 6.0 | 6.0 | Para 5.67 | – |
| Cleaners' (Housekeepers') room | 1 | 5.5 | 5.5 | Para 5.68 | – |
| Switchgear cupboard | 1 | 2.0 | 2.0 | Para 6.88 | – |
| Net Allowance | | | 126.5 | | |
| 5% Planning Allowance | | | 6.5 | | |
| Total | | | 133.0 | | |
| 3% Engineering Allowance | | | 4.0 | | |
| 20% Circulation Allowance | | | 26.5 | | |
| Total Allowance | | | 163.5 | | |

Example 2: Mortuary & post-mortem: Body viewing, body storage for 25 bodies & 2 PM tables

| Activity Space | Qty | Area | Total Area | Para Ref | Notes |
|--|-----|------|--------------|-----------------|---|
| <i>Entrance facilities</i> | | | | | |
| Entrance: visitors | 1 | – | – | Para 5.3, 5.5 | Circulation provision |
| Entrance: staff | 1 | – | – | Para 5.3 | Circulation provision |
| Entrance: bodies | 1 | – | – | Para 5.3, 5.4 | Circulation provision Includes access/parking for hearses |
| <i>Mortuary facilities: Body viewing</i> | | | | | |
| Public telephone: single booth, accessible | 1 | 2.0 | 2.0 | Para 2.9 | – |
| Waiting room: 5 persons | 1 | 11.0 | 11.0 | Para 5.8 | Relatives & visitors |
| Interview & counselling: 5 persons | 1 | 9.0 | 9.0 | Para 5.9 | – |
| Body viewing room | 1 | 8.0 | 8.0 | Para 5.10 | – |
| Bier room | 1 | 10.0 | 10.0 | Para 5.11 | – |
| WC & handwash: accessible, wheelchair-assisted | 1 | 4.5 | 4.5 | Para 5.8 | – |
| <i>Mortuary facilities: Body storage & handling</i> | | | | | |
| Body store & handling area: 5 bays double ended, 25 bodies | 1 | 37.0 | 37.0 | Para 5.13, 5.15 | 15 refrigerated bodies 5 obese refrigerated bodies 5 deep freeze bodies |
| Parking bay: mortuary trolleys & X-ray machine | 1 | 9.0 | 9.0 | Para 5.23 | – |
| Plantroom: refrigeration & switchgear | 1 | 10.0 | 10.0 | Para 6.71 | – |
| <i>Post-mortem facilities</i> | | | | | |
| Post-mortem room: 2 tables | 1 | 70.0 | 70.0 | Para 5.26 | Includes allowance for 5 double ended body store bay access |
| Store: specimen | 1 | 5.5 | 5.5 | Para 5.63 | – |
| Dirty utility & instrument store | 1 | 12.0 | 12.0 | Para 5.49 | – |
| Post-mortem room transit area with staff changing | 1 | 10.0 | 10.0 | Para 5.53 | – |
| Medical observation area: 6–8 persons | 1 | 8.0 | 8.0 | Para 5.59 | – |
| Parking bay: cleaning machine | 1 | 1.5 | 1.5 | Para 5.68 | – |
| <i>Staff support facilities</i> | | | | | |
| Office: 2 pathologists | 1 | 12.0 | 12.0 | Para 5.64 | – |
| Office change & rest room with beverage & snack preparation bay: 2 technicians | 1 | 13.0 | 13.0 | Para 5.65, 5.66 | – |
| Staff changing room: 3 places | 2 | 7.5 | 15.0 | Para 5.58 | See HBN for optional provision |
| WC & wash: ambulant | 2 | 2.0 | 4.0 | Para 5.58 | – |
| Shower: ambulant (non-patient) | 2 | 2.5 | 5.0 | Para 5.58 | – |
| <i>Support facilities</i> | | | | | |
| Store: general & linen | 1 | 6.0 | 6.0 | Para 5.69 | Includes clean protective garments |
| Hold: disposal, dual access | 1 | 6.0 | 6.0 | Para 5.67 | – |
| Cleaners' (Housekeepers') room | 1 | 5.5 | 5.5 | Para 5.68 | – |
| Switchgear cupboard | 1 | 2.0 | 2.0 | Para 6.88 | – |
| Net Allowance | | | 276.0 | | |
| 5% Planning Allowance | | | 14.0 | | |
| Total | | | 290.0 | | |
| 3% Engineering Allowance | | | 8.5 | | |
| 20% Circulation Allowance | | | 58.0 | | |
| Total Allowance | | | 356.5 | | |

Example 3: Mortuary & post-mortem: Body viewing, body storage for 35 bodies & 2 PM tables

| Activity Space | Qty | Area | Total Area | Para Ref | Notes |
|--|-----|------|--------------|-----------------|---|
| <i>Entrance facilities</i> | | | | | |
| Entrance: visitors | 1 | – | – | Para 5.3, 5.5 | Circulation provision |
| Entrance: staff | 1 | – | – | Para 5.3 | Circulation provision |
| Entrance: bodies | 1 | – | – | Para 5.3, 5.4 | Circulation provision Includes access/parking for hearses |
| <i>Mortuary facilities: Body viewing</i> | | | | | |
| Public telephone: single booth, accessible | 1 | 2.0 | 2.0 | Para 2.9 | – |
| Waiting room: 5 persons | 1 | 11.0 | 11.0 | Para 5.8 | Relatives & visitors |
| Interview & counselling: 5 persons | 1 | 9.0 | 9.0 | Para 5.9 | – |
| Body viewing room | 1 | 8.0 | 8.0 | Para 5.10 | – |
| Bier room | 1 | 10.0 | 10.0 | Para 5.11 | – |
| WC & handwash: accessible, wheelchair-assisted | 1 | 4.5 | 4.5 | Para 5.8 | – |
| <i>Mortuary facilities: Body storage & handling</i> | | | | | |
| Body store & handling area: 7 bays double ended, 35 bodies | 1 | 50.0 | 50.0 | Para 5.13, 5.15 | 25 refrigerated bodies 5 obese refrigerated bodies 5 deep freeze bodies |
| Parking bay: mortuary trolleys & X-ray machine | 1 | 9.0 | 9.0 | Para 5.23 | – |
| Plantroom: refrigeration & switchgear | 1 | 10.0 | 10.0 | Para 6.71 | – |
| <i>Post-mortem facilities</i> | | | | | |
| Post-mortem room: 2 tables | 1 | 75.0 | 75.0 | Para 5.26 | Includes allowance for 7 double ended body store bay access |
| Store: specimen | 1 | 5.5 | 5.5 | Para 5.63 | – |
| Dirty utility & instrument store | 1 | 12.0 | 12.0 | Para 5.49 | – |
| Post-mortem room transit area with staff changing | 1 | 10.0 | 10.0 | Para 5.53 | – |
| Medical observation area: 6–8 persons | 1 | 8.0 | 8.0 | Para 5.59 | – |
| Parking bay: cleaning machine | 1 | 1.5 | 1.5 | Para 5.68 | – |
| <i>Staff support facilities</i> | | | | | |
| Office: 2 pathologists | 1 | 12.0 | 12.0 | Para 5.64 | – |
| Office change & rest room with beverage & snack preparation bay: 2 technicians | 1 | 13.0 | 13.0 | Para 5.65, 5.66 | – |
| Staff changing room: 3 places | 2 | 7.5 | 15.0 | Para 5.58 | See HBN for optional provision |
| WC & wash: ambulant | 2 | 2.0 | 4.0 | Para 5.58 | – |
| Shower: ambulant (non-patient) | 2 | 2.5 | 5.0 | Para 5.58 | – |
| <i>Support facilities</i> | | | | | |
| Store: general & linen | 1 | 6.0 | 6.0 | Para 5.69 | Includes clean protective garments |
| Hold: disposal, dual access | 1 | 10.0 | 10.0 | Para 5.67 | – |
| Cleaners' (Housekeepers') room | 1 | 5.5 | 5.5 | Para 5.68 | – |
| Switchgear cupboard | 1 | 2.0 | 2.0 | Para 6.88 | – |
| Net Allowance | | | 298.0 | | |
| 5% Planning Allowance | | | 15.0 | | |
| Total | | | 313.0 | | |
| 3% Engineering Allowance | | | 9.5 | | |
| 20% Circulation Allowance | | | 62.5 | | |
| Total Allowance | | | 385.0 | | |

Example 4: Mortuary & post-mortem: Body viewing, body storage for 75 bodies & 3 PM tables

| Activity Space | Qty | Area | Total Area | Para Ref | Notes |
|---|-----|-------|--------------|-----------------|---|
| <i>Entrance facilities</i> | | | | | |
| Entrance: visitors | 1 | – | – | Para 5.3, 5.5 | Circulation provision |
| Entrance: staff | 1 | – | – | Para 5.3 | Circulation provision |
| Entrance: bodies | 1 | – | – | Para 5.3, 5.4 | Circulation provision Includes access/parking for hearses |
| <i>Mortuary facilities: Body viewing</i> | | | | | |
| Public telephone: single booth | 1 | 1.5 | 1.5 | Para 2.9 | – |
| Public telephone: single booth, accessible | 1 | 2.0 | 2.0 | Para 2.9 | – |
| Waiting room: 5 persons | 1 | 11.0 | 11.0 | Para 5.8 | Relatives & visitors |
| Interview & counselling: 5 persons | 1 | 9.0 | 9.0 | Para 5.9 | – |
| Body viewing room | 1 | 8.0 | 8.0 | Para 5.10 | – |
| Bier room | 1 | 10.0 | 10.0 | Para 5.11 | – |
| WC & handwash: accessible, wheelchair-assisted | 1 | 4.5 | 4.5 | Para 5.8 | – |
| <i>Mortuary facilities: Body storage & handling</i> | | | | | |
| Body store & handling area: 15 bays double ended, 75 bodies | 1 | 100.0 | 100.0 | Para 5.13, 5.15 | 65 refrigerated bodies 5 obese refrigerated bodies 5 deep freeze bodies |
| Parking bay: mortuary trolleys & X-ray machine | 1 | 9.0 | 9.0 | Para 5.23 | – |
| Plantroom: refrigeration & switchgear | 1 | 10.0 | 10.0 | Para 6.71 | – |
| <i>Post-mortem facilities</i> | | | | | |
| Post-mortem room: 3 tables | 1 | 102.0 | 102.0 | Para 5.26 | Includes allowance for 15 double ended body store bay access |
| Store: specimen | 1 | 5.5 | 5.5 | Para 5.63 | – |
| Dirty utility & instrument store | 1 | 12.0 | 12.0 | Para 5.49 | – |
| Post-mortem room transit area with staff changing | 1 | 10.0 | 10.0 | Para 5.53 | – |
| Medical observation area: 6 – 8 persons | 1 | 8.0 | 8.0 | Para 5.59 | – |
| Parking bay: cleaning machine | 1 | 1.5 | 1.5 | Para 5.68 | – |
| <i>Staff support facilities</i> | | | | | |
| Office: 2 pathologists | 1 | 12.0 | 12.0 | Para 5.64 | – |
| Office change & rest room with beverage & snack preparation bay: 2 technicians | 1 | 13.0 | 13.0 | Para 5.65, 5.66 | – |
| Staff changing room: 3 places | 1 | 7.5 | 7.5 | Para 5.58 | See HBN for optional provision |
| Staff changing room: 10 places | 1 | 10.0 | 10.0 | Para 5.58 | See HBN for optional provision |
| WC & wash: ambulant | 2 | 2.0 | 4.0 | Para 5.58 | – |
| Shower: ambulant (non patient) | 2 | 2.5 | 5.0 | Para 5.58 | – |
| <i>Support facilities</i> | | | | | |
| Store: general & linen | 1 | 6.0 | 6.0 | Para 5.69 | Includes clean protective garments |
| Hold: disposal, dual access | 1 | 10.0 | 10.0 | Para 5.67 | – |
| Cleaners (Housekeepers) room | 1 | 5.5 | 5.5 | Para 5.68 | – |
| Switchgear cupboard | 1 | 2.0 | 2.0 | Para 6.88 | – |
| Net Allowance | | | 379.0 | | |
| 5% Planning Allowance | | | 19.0 | | |
| Total | | | 398.0 | | |
| 3% Engineering Allowance | | | 12.0 | | |
| 15% Circulation Allowance | | | 59.5 | | |
| Total Allowance | | | 469.5 | | |
| <i>Optional accommodation</i> | | | | | |
| Activity Space | Qty | Area | Gross Area | Para Ref | Notes |
| Post-mortem room: 1 table, special procedures | 1 | 27.0 | 36.5 | Para 5.26, 5.48 | – |

Example 5: Mortuary & post-mortem: Body viewing, body storage for 100 bodies & 4 PM tables

| Activity Space | Qty | Area | Total Area | Para Ref | Notes |
|--|-----|-------|--------------|-----------------|--|
| <i>Entrance facilities</i> | | | | | |
| Entrance: visitors | 1 | – | – | Para 5.3, 5.5 | Circulation provision |
| Entrance: staff | 1 | – | – | Para 5.3 | Circulation provision |
| Entrance: bodies | 1 | – | – | Para 5.3, 5.4 | Circulation provision Includes access/parking for hearses |
| <i>Mortuary facilities: Body viewing</i> | | | | | |
| Public telephone: single booth | 1 | 1.5 | 1.5 | Para 2.9 | – |
| Public telephone: single booth, accessible | 1 | 2.0 | 2.0 | Para 2.9 | – |
| Waiting room: 5 persons | 2 | 11.0 | 22.0 | Para 5.8 | Relatives & visitors |
| Interview & counselling: 5 persons | 2 | 9.0 | 18.0 | Para 5.9 | – |
| Body viewing room | 2 | 8.0 | 16.0 | Para 5.10 | – |
| Bier room | 2 | 10.0 | 20.0 | Para 5.11 | – |
| WC & handwash: accessible, wheelchair-assisted | 1 | 4.5 | 4.5 | Para 5.8 | – |
| <i>Mortuary facilities: Body storage & handling</i> | | | | | |
| Body store & handling area: 20 bays double ended, 100 bodies | 1 | 125.0 | 125.0 | Para 5.13, 5.15 | 85 refrigerated bodies 5 obese refrigerated bodies 10 deep freeze bodies |
| Parking bay: mortuary trolleys & X-ray machine | 1 | 9.0 | 9.0 | Para 5.23 | – |
| Plantroom: refrigeration & switchgear | 1 | 10.0 | 10.0 | Para 6.71 | – |
| <i>Post-mortem facilities</i> | | | | | |
| Post-mortem room: 4 tables | 1 | 135.0 | 135.0 | Para 5.26 | Includes allowance for 20 double ended body store bay access |
| Store: specimen | 1 | 5.5 | 5.5 | Para 5.63 | – |
| Dirty utility & instrument store | 1 | 12.0 | 12.0 | Para 5.49 | – |
| Post-mortem room transit area with staff changing | 1 | 10.0 | 10.0 | Para 5.53 | – |
| Medical observation area: 6 – 8 persons | 1 | 8.0 | 8.0 | Para 5.59 | – |
| Parking bay: cleaning machine | 1 | 1.5 | 1.5 | Para 5.68 | – |
| <i>Staff support facilities</i> | | | | | |
| Office: 2 pathologists | 1 | 12.0 | 12.0 | Para 5.64 | – |
| Office change & rest room: 2 technicians | 1 | 11.0 | 11.0 | Para 5.65 | – |
| Rest room with beverage & snack preparation bay: 5 staff | 1 | 11.0 | 11.0 | Para 5.66 | – |
| Staff changing room: 5 places | 1 | 9.0 | 9.0 | Para 5.58 | See HBN for optional provision |
| Staff changing room: 10 places | 1 | 10.0 | 10.0 | Para 5.58 | See HBN for optional provision |
| WC & wash: ambulant | 2 | 2.0 | 4.0 | Para 5.58 | – |
| Shower: ambulant (non-patient) | 2 | 2.5 | 5.0 | Para 5.58 | – |
| <i>Support facilities</i> | | | | | |
| Store: general & linen | 1 | 6.0 | 6.0 | Para 5.69 | Includes clean protective garments |
| Hold: disposal, dual access | 1 | 10.0 | 10.0 | Para 5.67 | – |
| Cleaners' (Housekeepers') room | 1 | 5.5 | 5.5 | Para 5.68 | – |
| Switchgear cupboard | 1 | 2.0 | 2.0 | Para 6.88 | – |
| Net Allowance | | | 485.5 | | |
| 5% Planning Allowance | | | 24.5 | | |
| Total | | | 510.0 | | |
| 3% Engineering Allowance | | | 15.5 | | |
| 15% Circulation Allowance | | | 76.5 | | |
| Total Allowance | | | 602.0 | | |
| <i>Optional accommodation</i> | | | | | |
| Activity Space | Qty | Area | Gross Area | Para Ref | Notes |
| Post-mortem room: 1 table, special procedures | 1 | 27.0 | 36.5 | Para 5.26, 5.48 | – |

Example 6: Bereavement centre

| Activity Space | Qty | Area | Total Area | Para Ref | Notes |
|---|-----|------|-------------|----------|-------|
| Waiting area: 5 persons including 1 wheelchair user | 1 | 9.0 | 9.0 | – | – |
| Interview & counselling: 5 persons | 1 | 9.0 | 9.0 | Para 5.9 | – |
| Counselling room with beverage bay: 8 persons | 1 | 16.0 | 16.0 | Para 5.9 | – |
| Office: 1 staff | 1 | 10.5 | 10.5 | – | – |
| Office: 2 staff | 1 | 13.0 | 13.0 | – | – |
| WC & handwash: accessible, wheelchair-assisted | 1 | 4.5 | 4.5 | Para 5.8 | – |
| Store: general & deceaseds' belongings | 1 | 4.0 | 4.0 | Para 5.9 | – |
| Net Allowance | | | 66.0 | | |
| 5% Planning Allowance | | | 3.5 | | |
| Total | | | 69.5 | | |
| 3% Engineering Allowance | | | 2.0 | | |
| 25% Circulation Allowance | | | 17.5 | | |
| Total Allowance | | | 89.0 | | |

Optional accommodation

| Activity Space | Qty | Area | Gross Area | Para Ref | Notes |
|--|-----|------|------------|----------|------------------|
| Waiting area: 10 persons including 1 wheelchair user | 1 | 16.5 | 22.5 | – | In lieu of above |
| Interview & counselling: 5 persons | 1 | 9.0 | 12.0 | Para 5.9 | Additional |
| Counselling room with beverage bay: 8 persons | 1 | 16.0 | 21.5 | Para 5.9 | Additional |

Example 7: Temporary body storage suite for 25 bodies

| Activity Space | Qty | Area | Total Area | Para Ref | Notes |
|---|-----|------|-------------|-----------|--|
| Temporary body store building (portable): 5 bays, | 1 | 29.0 | 29.0 | Para 1.15 | Standard portable building 25 bodies requiring external standing space & service connections |
| Net Allowance | | | 29.0 | | |
| 0% Planning Allowance | | | 0.0 | | |
| Total | | | 29.0 | | |
| 0% Engineering Allowance | | | 0.0 | | |
| 0% Circulation Allowance | | | 0.0 | | |
| Total Allowance | | | 29.0 | | |

Appendix 1 – Categorisation of biological agents

The Advisory Committee on Dangerous Pathogens' guidance document 'Categorisation of biological agents according to hazard and categories of containment', 4th Edition, 1995 details the containment levels. Its 2000 Second Supplement contains the Approved List (Categorisation 2000), which assigns biological agents into their hazard groupings as approved by the Health and Safety Commission and the Exemption Certificate for those Hazard Group 3 agents that are subject to derogation from Containment Level 3. The ACDP Supplement should be read in conjunction with the Control of Substances Hazardous to Health (COSHH) Regulations and in particular Schedule 3 of COSHH. All employers whose work involves exposure of their employees to biological agents will need to refer to the ACDP Guidance and its Supplement to be able to comply with COSHH.

This is supplemented by more specific guidance for work with blood-borne viruses, transmissible spongiform encephalopathies and viral haemorrhagic fevers. Anyone working with these organisms should follow the relevant specific guidance.

DEFINITIONS OF HAZARD GROUPS

Hazard Group 1

A biological agent unlikely to cause human disease.

Hazard Group 2

A biological agent that can cause human disease and may be a hazard to employees; it is unlikely to spread to the community and there is usually effective prophylaxis or effective treatment available.

Hazard Group 3

A biological agent that can cause severe human disease and presents a serious hazard to employees; it may present a risk of spreading to the community, but there is usually effective prophylaxis or treatment available.

Hazard Group 4

A biological agent that causes severe human disease and is a serious hazard to employees; it is likely to spread to the community and there is usually no effective prophylaxis or treatment.

HAZARD GROUP 4 PATHOGENS

Cases of Hazard Group 4 infection are rare in this country. However, when cases occur, patients and clinical samples must be handled in appropriate facilities. Employers who intend to work with the agents responsible for Lassa and Ebola Fevers and a number of other agents listed in Schedule 3 of COSHH must give the Health and Safety Executive advance notification. This requirement applies to those intending to offer a diagnostic service, even if virus cultivation is not involved.

Appendix 2 – Requirements for handling bodies that have undergone cancer treatments involving radioactive substances

BODY STORAGE

The compartment bays should be constructed so that there is no leakage of fluid from one compartment to another. Shielding of compartment bays to handle these cases will not normally be necessary due to their inherent design, although consultation with the RPA is advised. Appropriate signage should be appended to the front of the compartment bay to indicate the presence of a radiation hazard.

PERSONNEL CONTAMINATION HAZARDS

Iodine-131 is used to treat thyroid cancer. Iodine is excreted through the sweat pores, urine, saliva and faecal routes. Therefore, the surface of a body that has been treated with Iodine-131 will probably be radioactively contaminated before it is transferred to the mortuary.

Staff handling radioactive bodies – both during transfer and throughout the PM procedure – should wear protective clothing, consisting of plastic gloves, waterproof overalls, face shields and plastic overshoes. Separate shielded facilities should be provided for the storage of these items before they are disposed of. These articles should be treated as solid radioactive waste. Facilities managers should be aware that adjustments to the radioactive waste disposal certificate may be required to account for these contaminated articles.

Staff undertaking PM examinations on radioactive bodies should check hands, arms, feet etc for radioactive contamination following the procedure. This should take place in the staff changing area. Storage of radioactive monitoring equipment and decontamination spill kits should be located in this area.

FACILITY CONSIDERATIONS FOR THE POST-MORTEM ROOM

The use of stainless steel PM tables and dissection benches is not advised when performing PM examinations on patients who have recently been administered radioactive iodine. The iodine compounds have an affinity with stainless steel, which makes

stainless steel surfaces contaminated with radioactive iodine difficult to decontaminate.

Care should be taken to minimise fissures in surfaces within the PM facility, as radioactive substances can accumulate in cracks etc and give rise to contamination hazards. Walls and finishes should be designed to meet the requirements described in [paragraphs 5.38–5.40](#), with the additional consideration that they should be impervious to and easily cleaned of radioactive iodine compounds. Facilities managers should be aware that the use of bleach or similar chemicals on iodine is not advised as this can cause hazards from oxidation and the release of a potentially hazardous gas.

An additional sink may be needed for the disposal of aqueous radioactive substances, which may be collected during the PM examination. The sink will need to be designated for this purpose and labelled appropriately. Special considerations apply to the drainage of materials from these sinks (for further details see the engineering requirements appendix of HBN 6 Volume 1 'Facilities for diagnostic imaging and interventional radiology', under 'Radionuclide imaging'). These considerations also apply to drainage from the floor.

The same sink may be used to wash and disinfect instruments which will have become contaminated with radioactive substances during the PM procedure. Stainless steel devices which have, or are likely to, come into contact with iodine-131 should be treated as single-use instruments and arrangements made for their disposal and possible interim storage.

The use of fixed tiles in and around the sink may make it easy to clean up spills and splashes, although the need to minimise fissures must be observed.

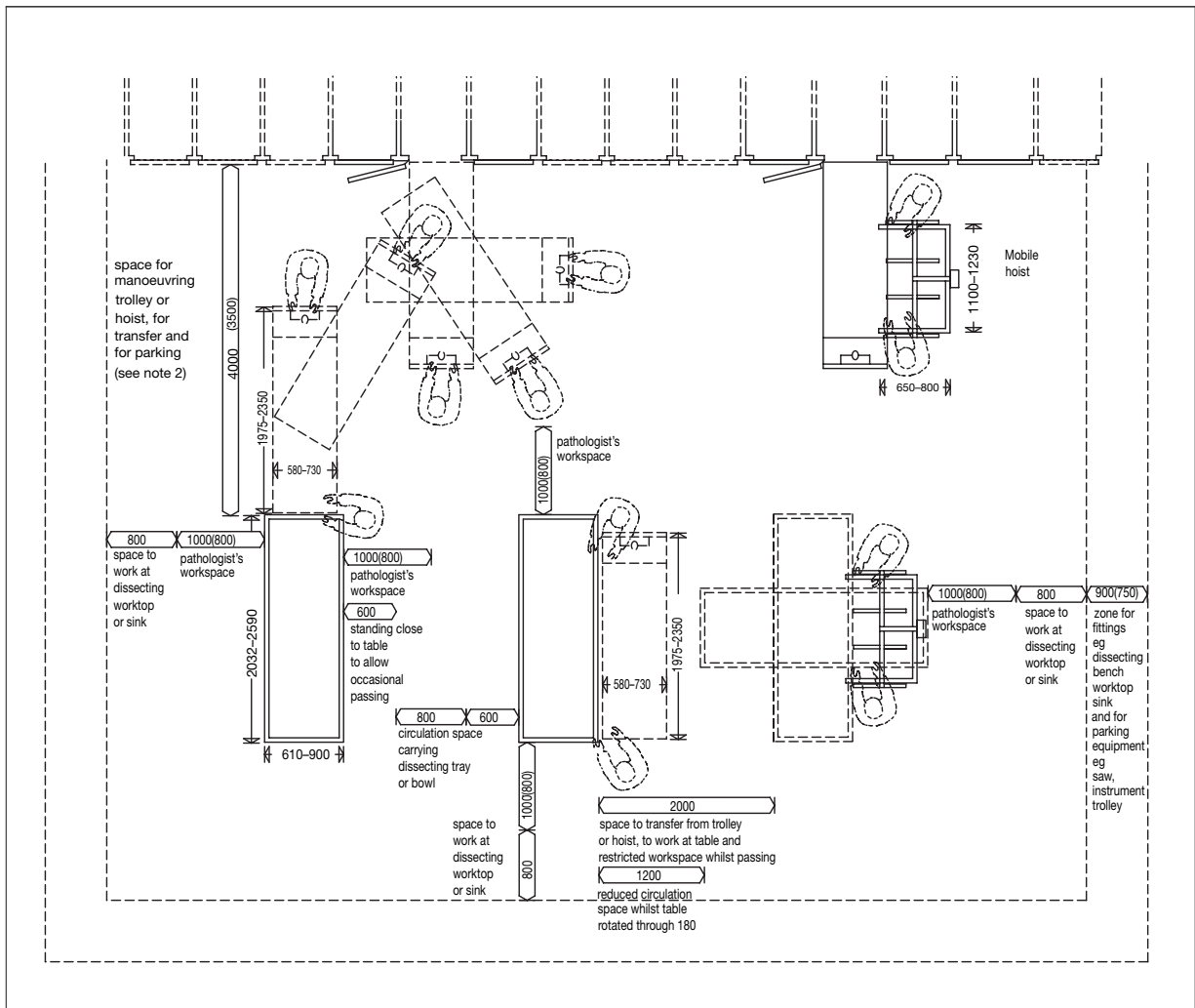
Cleaning the facility

Following a PM on a body containing radioactive material, standard cleaning and sterilization procedures should be sufficient, although these may need to be repeated many times in order to decontaminate the facility. Staff must check the room for radioactive contamination before and after cleaning. The actual

procedures should be devised in conjunction with the RPA. All waste generated from the cleaning process should be treated as low-level radioactive waste and disposed of accordingly. Waste disposal units may have to be located in the PM room to act as low-level radioactive temporary storage receptacles and must be labelled appropriately.

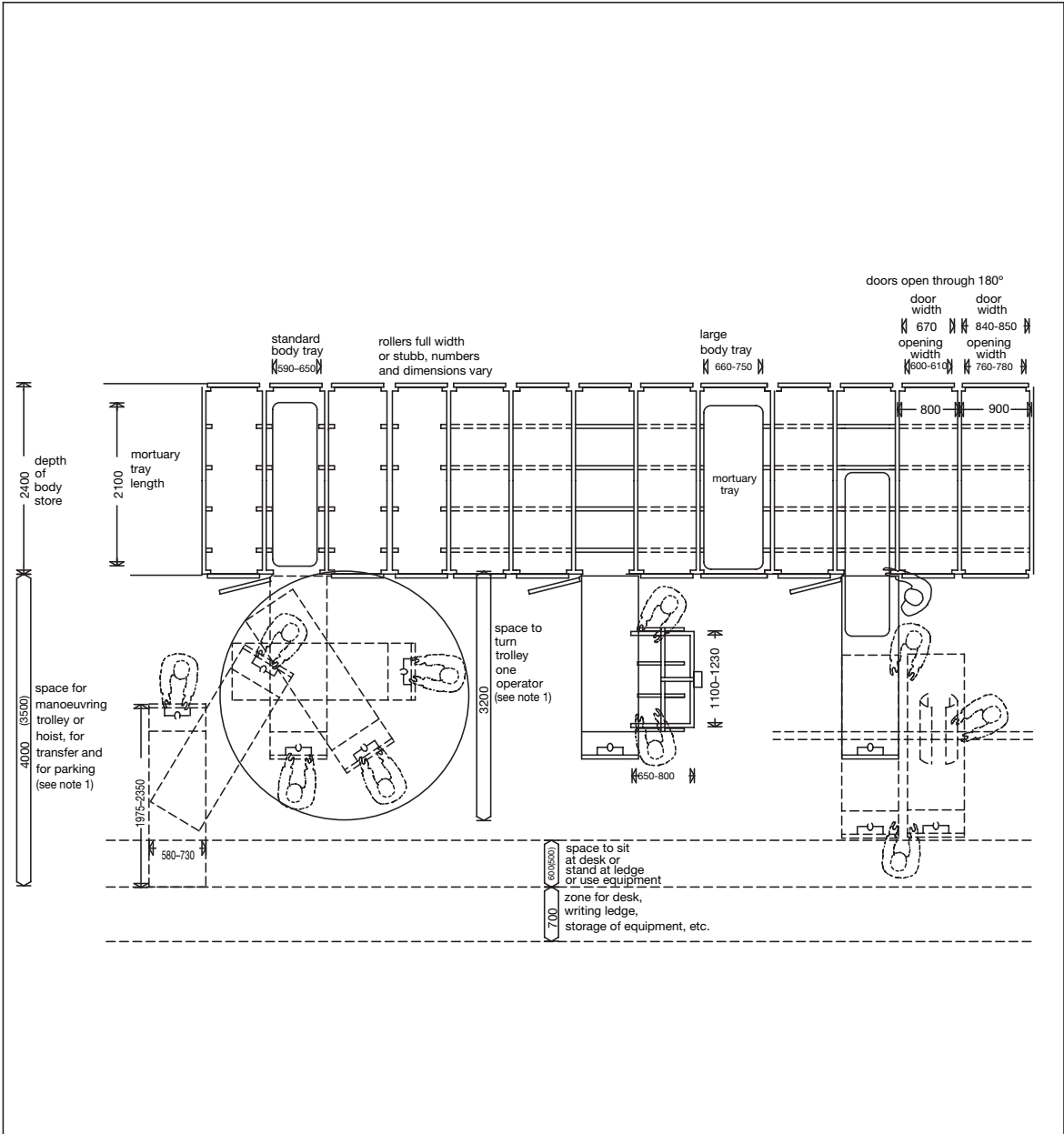
Appendix 3 – Room layouts

| | |
|--|---|
| <p>Activities Concurrent activities/examinations on adjacent mortuary tables</p> | <h2>Post-mortem room</h2> |
| <p>NHS Estates Ergonomic data sheet not to scale</p> | <p>Users: Mortuary technicians and pathologists</p> |



| | | |
|---|---|---|
| <p>1350 (1300) preferred minimum restricted minimum (not recommended for general use)</p> | <p>2. This dimension is based on the longest mortuary trolley and end to end transfer. If a shorter trolley is used and/or trolley or hoist is parked alongside post-mortem table for transfer, this dimension can be decreased. Space MUST be allowed for the trolley or hoist to be turned and manoeuvred. The longest and widest tables have been shown; some of these incorporate sinks</p> | <p>therefore they will not need to be provided. If shorter or narrower tables are installed, room dimensions can be reduced, but there must be adequate space to transfer, to work at the table and to pass. 3. Tables may be installed offset or rotated in relation to each other, but 2000 must still be allowed between long sides of two tables.</p> |
| <p>Notes. 1. An absolute minimum of 2 tables is recommended for all departments.</p> | | |

| | | |
|--|--|---|
| <p>Activities</p> <p>Transfer of bodies from/to trolleys, to/from body store and to/from undertaker's vehicle, by two or more people. Possible use of hoist.</p> <p>NHS Estates Ergonomic data sheet, not to scale</p> | <p>Facilities for storage of bodies under refrigerated conditions.</p> | <h2>Body transfer area and body store</h2> <p>Users: Mortuary technicians, porters, undertakers</p> |
|--|--|---|



| | | |
|--|--|--|
| <p>1350 (1300)</p> <p>preferred minimum restricted minimum (not recommended for general use (see explanatory notes))</p> <p>Notes.</p> <p>1. These dimensions are based on the longest mortuary trolley. A minimum space of double the length of the chosen trolley must be allowed for manoeuvring the trolley.</p> <p>2. Different methods of transferring the body may be practised:</p> | <p>(a) the mortuary tray may be transferred to the mortuary trolley by one person</p> <p>(b) the body may be transferred from one trolley to another, side by side, a min. of two up to eight people</p> <p>(c) a mobile hoist may be used which has slings, straps or "scoops", requiring one or two people</p> <p>(d) a ceiling mounted hoist may be used requiring one or two people.</p> | <p>Body stores may have three to six tiers of trays on adjustable/removable rollers.</p> <p>The minimum height of a roller for safely crouching and pulling out/pushing in a loaded tray is 350.</p> <p>The maximum height for safely reaching in to the store, past the raised mortuary trolley and pulling out/pushing in a loaded tray is 1750.</p> |
|--|--|--|

Appendix 4 – Health and safety checklist for temporary body stores

ISSUES TO BE CONSIDERED WHEN ASSESSING RISKS TO HEALTH AND SAFETY THAT ARISE FROM THE USE OF TEMPORARY BODY STORES

| Outside the body store: | |
|---|--|
| ISSUE | RISKS |
| Lighting – level of illumination | Slips, trips & falls Violence |
| Access – condition of route | Slips, trips & falls |
| Electrical supply – integrity & condition | Electrocution |
| Door – design of condition of opening mechanism – height of opening mechanism – design & condition of door seals and hinges | Security Lacerations Manual handling |
| Inside the body store: | |
| ISSUE | RISKS |
| Ventilation – air changes per hour | Infection Asphyxiation |
| Temperature – level – integrity of cooling system | Infection Hypothermia Exposure to refrigerant gases |
| Lighting – Level of illumination | Slips, trips & falls Ability to assess control of infection risks |
| Floor & other surfaces – design & condition – ease of cleaning | Slips, trips & falls Infection |
| Access ramp – safe working load – width – gradient of slope – nature of surface – features designed to prevent loss of hoist – weight of ramp | Slips, trips & falls Manual handling |
| Aisle – width (should be wide enough to accommodate hoist and person) | Manual handling Slips, trips & falls |
| Compartments – method of loading bodies (side v. end) – height of compartments & racking – compartment dimensions (width x height x depth) – containment of body fluid spillages – devices (eg rollers) to facilitate lateral movements of body tray/body – ease of cleaning | Manual handling Infection |
| Hoist – Suitability | Manual handling Access |

| Emergency procedures: | |
|--|------------------------------|
| ISSUE | RISKS |
| Emergency release - design & condition of door release mechanism - alarm system - procedures | Lone working Hypothermia |
| Body fluid spillage – procedures | Infection |
| Capacity of temporary body store exceeded | Manual handling Infection |
| Temporary body store out of service | Manual handling Infection |

Relevant underpinning legislation

Health and Safety at Work etc Act 1974

Management of Health and Safety at Work Regulations 1999

Management of Health and Safety at Work and Fire Precautions (Workplace) (Amendment) Regulations 2003

Workplace (Health, Safety & Welfare) Regulations 1992

Manual Handling Operations Regulations 1992

Control of Substances Hazardous to Health Regulations 1999

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