

Part B – Health Facility Briefing & Design
215 Mortuary Unit



iHFG

International Health Facility Guidelines

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215 Mortuary - General

1 Introduction

The Mortuary Unit or “Morgue” is a facility for the temporary holding and storage of bodies. It may also be used for viewing and/ or identification of the diseased persons.

The needs of hospital staff, relatives of the deceased and attendant authorised persons should be considered in the design, layout and functionality of the unit to provide a safe and private environment.

The design must address the following:

- Number of bodies to be stored
- Method of storage i.e., refrigerated cabinets, cool room, freezing capacity
- Separation of entries for families to view/ identify bodies
- Delivery of bodies from inside the hospital and external delivery (if applicable)
- Transfer of bodies outside the facility

It should be noted that the standard hospital Morgue facility should not be used for the storage of bodies associated with criminal investigations. In such cases the body is regarded as evidence, and enhanced security should be provided. Such facilities are generally centralised and Government controlled.

Autopsy facilities are optional. According to the local laws Autopsy may be centralised and provided only in certain Government facilities. This FPU does not cover centralised Government Morgues.

2 Functional & Planning Considerations

Operational Model

Body Holding Capacity

The size of the Mortuary Unit is primarily determined by the body holding capacity. The body holding capacity should be proportional to the number of beds in the hospital and its operational policies.

There are two options available for body-holding provisions:

- Walk-in cool room for multiple trolleys
- Bank of individual refrigerated cabinets each accommodating 2, 3 or 4 bodies

In addition to the body holding capacity, consideration should be given to:

- Security of bodies
- Isolation and bariatric needs
- Expected length of time for retention of bodies

Morgue cold chambers could be provided in two ways as follows:

- Positive temperature +2/+4°C (the most common type)
- Negative temperature -15°C/-25°C (used by forensic institutes for the storage of bodies that have not yet been identified)

Hours of Operation

Working hours will be on a routine eight hours per day, five days per week. Work times are assumed 8.00am-5.00pm. The Hospital Morgue Unit will also be accessible to authorised personnel 24 hours per day and 7 days per week.

3 Unit Planning Models

The Unit should be ideally located in the same building as the main health facility away from any public area to ensure that it is appropriately screened from visibility.

It should be ideally located at ground level to allow easy and discrete access to deliver and/ or remove bodies via an exit lobby. If ground level is congested or not available, the second-best alternative is the basement.

The size of the Unit will depend on the size of the facility, the calculated number of bodies to be stored and its Operational Policy. The size is also influenced by the cultural and religious factors. In some societies, bodies must be buried within a short time and therefore the Mortuary Unit tends to be very small.

Functional Zones

The Hospital Mortuary Unit consists of the following key Functional Zones:

- Entry Lobby/ Exit Lobby
- Body Holding Area
- Body Washing Area
- Waiting/ Viewing Area
- Storage and Support Area
- Staff Area

Entry Lobby/ Exit Lobby

The Entry Lobby to the Unit is commonly connected with an internal corridor of the facility where the body enters from. This also forms an air lock prior to entering the Body Holding Area. The Exit Lobby will provide access for body retrieval from the Body Holding Area directly to outside where a vehicle could be parked close by. The Exist lobby also forms an air lock.

Transport Trolley parking can be considered in the Lobbies if additional space is required to accommodate mobile equipment. Both Lobbies should have access to hand washing facilities.

Body Holding Area

The Body Holding Area provides refrigerated space for the temporary storage of bodies. One part of the Area will include refrigerated cabinets stacked or placed side by side to the quantity as defined in the Operational Policy. Separate cabinets should be provided for isolation purposes. Ample space to be provided in front of refrigerated cabinets for maneuvering and withdrawing trays using special lifting devices which are typically battery operated.

Alternatively, If cool rooms are preferred a minimum of 3m² per body holding (body on a loose tray or trolley) should be provided.

In both options (refrigerated cabinets and cool rooms) the bodies may be stacked 2, 3 or 4 high. It is recommended that some body cabinets (or bays) should be larger for bariatric or bloated bodies.

A hand wash basin is required and ideally positioned with easy access to the entry and exit lobbies. A workstation for body registration and removal records can be provided here or in a separate office within the Unit.

Based on a risk assessment in the hospital service plan, a small percentage of bodies may be bloated due to drowning. For such bodies, extra-large fridge bays will be required.

Within the body holding area or an adjacent corridor or bay, facilities for charging the electrical trolley lifters should be provided.

Body Washing Area

Body Washing Area to be located adjacent to the Body Holding Area. Stainless Steel table with integral plumbing facilities and extendable hose should be found in the center of the room.

Separate sink and hand wash basin are required. A stainless steel bench, waste bins and storage facilities should be provided in this area.

Mortuary Unit

Autopsy Area (Optional and Restricted)

The provision of Autopsy is governed by the Laws of the Country. Autopsy may not be permitted in all Hospitals, especially in Private Hospitals. The permission to provide Autopsy services should be checked with the responsible authorities.

The Autopsy Area should be located adjacent to the body cool store and have ready access to a clean-up or Dirty Utility area. Autopsy rooms should provide height adjustable post-mortem table/s which are easily cleanable and free from areas and details which may harbor potentially infectious material.

Downdraught ventilated tables are preferred. Each table should have a hot and cold water supply and a waste outlet.

Waiting/ Viewing Area

Provide discrete and dedicated entry to the Unit for family members. This can be directly from outside and separate from the Exit Lobby. If external access is not available, internal access may be considered but visitors must be accompanied by staff through the back-of-house or service corridors of the facility.

Separate Male and Female Waiting areas may be required according to custom. Waiting areas are separate from Viewing Area. Waiting areas should have direct visibility through internal windows into adjoining Viewing Area. Toilet facilities for both male and female should be provided in close proximity to the Waiting area.

Storage and Support areas

Provide sufficient storage area to the Unit for plastic body bags and sealing machine and other consumables. Lockable storage for personal effects from the deceased should be considered.

Provide Clean-up room including storage of waste and used linen within the Unit.

Provide Cleaner's room including cleaning equipment, materials and agents.

Staff Area

Staff Area to include the following:

- Changing facilities including lockers and toilets
- Storage of Clean Linen (can be inside the Change Rooms)
- Office(s) if required
- Meeting Room/s for education and tutorial sessions as well as meetings (optional or shared)

4 Functional Relationships

A functional Relationship can be defined as the correlation between various areas of activity which work together closely to promote the delivery of services that are efficient in terms of management, cost and human resources.

External Relationships

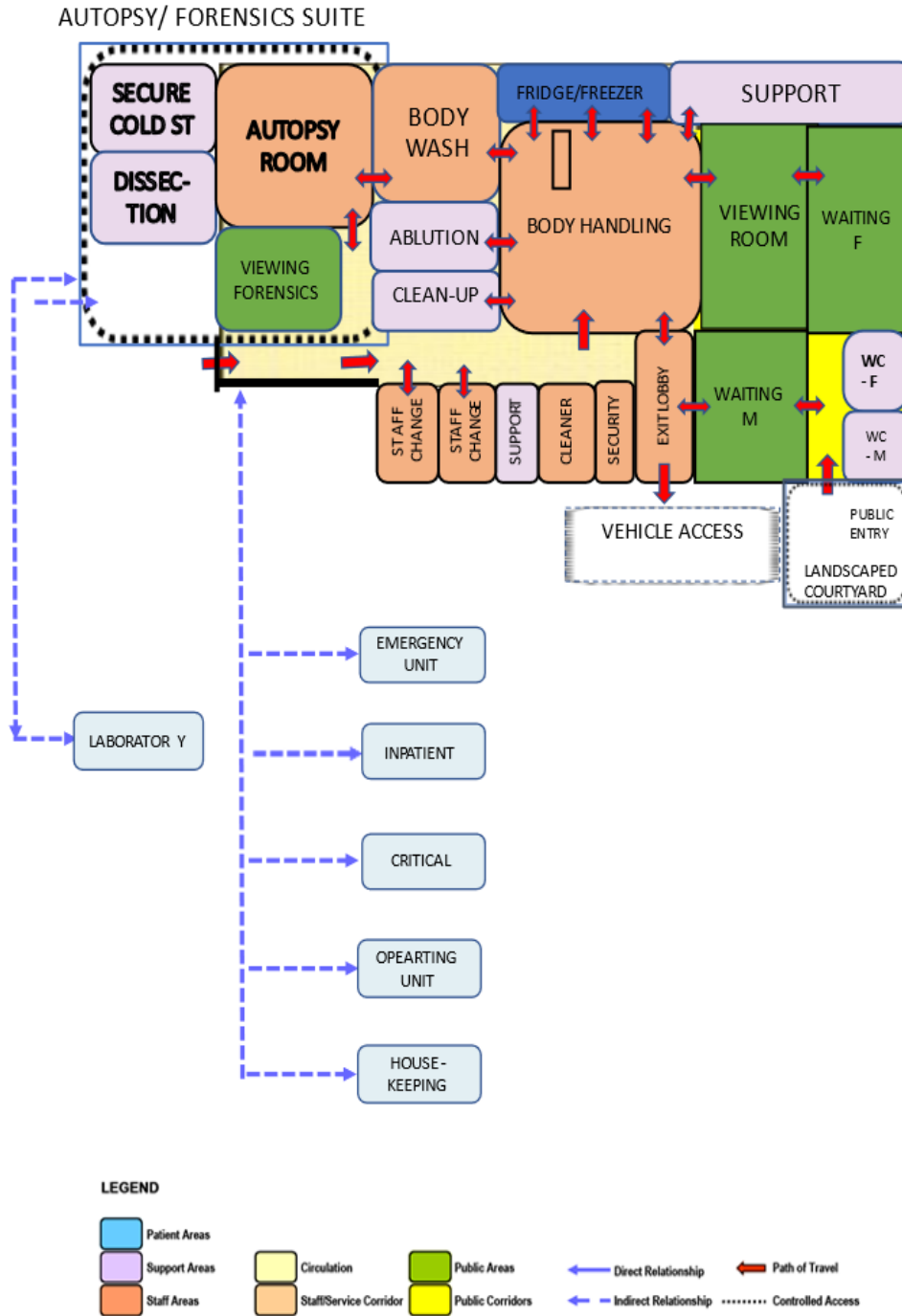
Mortuary facilities shall be accessible through an interior and exterior entrance and shall be located to avoid the need for transporting bodies through public areas. It should also be located in close proximity to Anatomical Pathology laboratories (if provided) and relevant clinical areas for transportation of laboratory specimens, if Autopsy is performed.

Internal Relationships

The Waiting Area and Viewing Area should be collocated however there should be no access to other sections of the Morgue for viewers.

Entry Lobby, Exit Lobby and Administrative Area form part of a single area.

Functional Relationships Diagram



5 Design Considerations

General

The design of the Unit shall provide staff with sufficient space, working surfaces and appropriate equipment to safely carry out their duties. Infection control, cooling and ventilation must be considered.

The Viewing Room and Waiting Areas shall be pleasant spaces with consideration given to adjustable lighting and possibly provision of a music system.

The Unit shall be ergonomically designed to avoid any potential injury to staff, family members and maintenance personnel.

Body storage up to triple stacked fits within the general ceiling height of 2700mm used in hospitals. However, quadruple stacked storage will likely require additional height.

Designers should check the exact height of the refrigerators or body racks to inform the correct ceiling height.

Easy access should be provided for the maintenance staff, especially in relation to the refrigeration facilities.

Environmental Considerations

Acoustics

Acoustic design shall ensure that conversations in adjoining rooms cannot be overheard by relatives in the viewing/ waiting areas.

Accessibility

External

Mortuary Unit is to have separate access as follows:

- Direct access from the Hospital for delivery of the body
- Direct but separate and discreet access for relatives of the deceased from all relevant areas of the hospital to Mortuary Unit's waiting/ viewing area
- Adequate access for vehicle parking and screening provision surrounding the collection of bodies
- Adequate access for ambulances delivering bodies
- Adequate access for police vehicles

Internal

The Body Holding Room is to have direct access to/from:

- The hospital corridor for use by staff
- Viewing Room
- Discreet access from body hold/ cool room to hearse and ambulance or private vehicle parking bays

Safety and Security

Selection of interior finishes to the Mortuary Unit shall consider the impact on safety aspects including adequate drainage, protection from protrusions or sharp edges, stability and height of equipment or fittings, adequate protection against infection and other hazards.

The security aspects of the Unit will include storage of the bodies, valuables left by the deceased, staff personal belongings and security, access and egress in particular after hours.

If an autopsy facility is available, the storage and disposal of specimens during the removal shall be handled with care via a secure refrigerated store room.

Mortuary Unit

Finishes

Floor finishes shall be non-slip for all wet areas or areas subject to water. It should be impervious, easy to clean, sealed with covering at the edges and have adequate drainage. Drains should be fitted with appropriately filtered traps for ease of hosing down.

Wall surfaces in the body holding area should be washable and/or scrubbable.

Ceiling linings within the Unit are to be washable, impermeable, and non-porous.

Refer to Part C - Access, Mobility and OH&S .

Fittings, Fixtures and Equipment

The Equipment layout of the Mortuary Unit shall ensure:

- Adequate provision for operation and maintenance
- Provision of services as required
- Door sized to allow for delivery and removal of the equipment
- Design for the required heat loads
- Adequate provision for weight loads

Building Service Requirements

This section identifies unit specific services briefing requirements only and must be read in conjunction with Part E - Engineering Services for the detailed parameters and standards applicable.

Information and Communication Technology

It is recommended that an intercom be provided from the main/ exit (external) door/s to the to the body holding area to alert attendants.

Heating Ventilation and Air-conditioning (HVAC)

The temperature of the body holding area should be maintained within a comfortable range not exceeding 20-21°C. The ventilation system should be isolated from other ventilation systems by being designed to minimise the spread of odors and airborne pathogens.

The working area of the body holding is regarded as a non-refrigerated area. The autopsy area is also regarded as a non-refrigerated area with the temperature ranging from 20 to 21°C. These non-refrigerated area, which handle bodies should be kept under negative pressure. Refrigerated cabinets or rooms do not require negative pressure.

The operating temperatures of all cooled and freezing facilities should be continuously monitored and fitted with alarms which are activated when the temperature exceeds a predetermined level. The alarms should be transmitted to a permanently manned station.

The risk of single source of failure for the refrigeration systems should be considered and if necessary backups should be provided.

All HVAC units and systems are to comply with services identified in Standard Components and Part E – Engineering Services.

Power Supply

Provide protective covers to power supply outlets to protect outlets from wetting. Provide an emergency back-up system for the power supply to the refrigeration with high priority equipment and illumination.

Refer to Part E - Engineering Services for details.

Infection Control

Bodies stored in the Mortuary Unit which may contain infectious diseases must be contained.

Cleaned instruments and materials shall be re-circulated under normal procedures through the Sterile Supply Unit or autoclaved within the Mortuary Unit. The unit shall be designed to control infections utilising the following:

Mortuary Unit

- Layout designed to minimise cross contamination in work areas
- Provision of a small wash-down/ disposal/ booting area
- Provision of an adequate number of hand wash facilities
- Provision of appropriate cleaning, waste storage and waste disposal
- Use of suitable materials and finishes
- Specimen storage facilities
- First aid facilities
- Adequate isolation of space and ventilation systems which present potential hazard

Safety Showers and Eye Wash

Provision of safety shower and eye wash or eye/ face wash equipment within the Unit.

Hand Basins

Handbasins for staff hand washing are required in areas where handling of the bodies occurs.

Antiseptic Hand Rubs

Antiseptic Hand Rub dispensers can be provided within the Unit and to comply with Part D - Infection Control. Antiseptic Hand Rubs, although very useful and welcome, however it cannot fully replace Handwash Bays. A combination of both is required.

Refer to Part D – Infection Control for additional details.

6 Standard Components of the Unit

Standard Components

Standard Components are typical rooms within a health facility, each represented by a Room Data Sheet (RDS) and a Room Layout Sheet (RLS).

The Room Data Sheets are written descriptions representing the minimum briefing requirements of each room type, described under various categories:

- Room Primary Information; includes Briefed Area, Occupancy, Room Description and relationships, and special room requirements).
- Building Fabric and Finishes; identifies the fabric and finish required for the room ceiling, floor, walls, doors, and glazing requirements.
- Furniture and Fittings; lists all the fittings and furniture typically located in the room; Furniture and Fittings are identified with a group number indicating who is responsible for providing the item according to a widely accepted description as follows:

Group	Description
1	Provided and installed by the Builder/ Contractor
2	Provided by the Client and installed by the Builder/Contractor
3	Provided and installed by the Client

- Fixtures and Equipment; includes all the serviced equipment typically located in the room along with the services required such as power, data and hydraulics; Fixtures and Equipment are also identified with a group number as above indicating who is responsible for provision.
- Building Services; indicates the requirement for communications, power, Heating, Ventilation and Air conditioning (HVAC), medical gases, nurse/ emergency call and lighting along with quantities and types where appropriate. Provision of all services items listed is mandatory.

The Room Layout Sheets (RLS's) are indicative plan layouts and elevations illustrating an example of good design. The RLS indicated are deemed to satisfy these Guidelines. Alternative layouts and innovative planning shall be deemed to comply with these Guidelines provided that the following criteria are met:

Mortuary Unit

- Compliance with the text of these Guidelines
- Minimum floor areas as shown in the schedule of accommodation
- Clearances and accessibility around various objects shown or implied
- Inclusion of all mandatory items identified in the RDS

The Mortuary Unit will consist of Standard Components to comply with details described in these Guidelines. Refer also to Standard Components Room Data Sheets and Room Layout Sheets.

Non-Standard Rooms

Non-standard rooms are those which have not yet been standardised within these guidelines. As such there are very few Non-standard rooms. These are identified in the Schedules of Accommodation as NS and are separately covered below.

Mortuary - Body Washing / Embalming Room

Body Washing Area to be located adjacent to the Body Holding Area. Stainless Steel table with integral plumbing facilities and extendable hose should be found in the center of the room. Separate sink and hand wash basin are required. Stainless steel bench, waste bins and storage facility can be found in this area.

Autopsy Area

The Autopsy Area should be located adjacent to the body cool store and have ready access to a clean-up area. Autopsy rooms should provide height adjustable post-mortem table/s which are easily cleanable and free from areas which may harbour potentially infectious material.

Downdraught ventilated tables are preferred. Each table should have a hot and cold water supply and a waste outlet.

7 Schedule Of Accommodation

The Schedule of Accommodation (SOA) provided below represents generic requirements for this Unit. It identifies the rooms required along with the room quantities and the recommended room areas. The simple sum of the room areas is shown as the Sub Total. The Total Area is the Sub Total plus the circulation percentage. The circulation percentage represents the minimum recommended target area for internal corridors in an efficient and appropriate design.

Within the SOA, room sizes are indicated for typical units and are organised into the Functional Zones. Not all rooms identified are mandatory therefore, optional rooms are indicated in the Remarks. These guidelines do not dictate the size of the facilities, therefore, the SOA provided represents a limited sample based on an assumed unit size.

The actual size of the facilities is determined by Service Planning or Feasibility Studies. Quantities of rooms need to be proportionally adjusted to suit the desired unit size and service needs.

The table below shows a typical Unit within a Hospital from RDL 4 to 6.

Any proposed deviations from the mandatory requirements, justified by innovative and alternative operational models may be proposed within the departure forms included in Part A of these guidelines for consideration by the health authority for approval.

Mortuary Unit

Mortuary Unit

ROOM/ SPACE	Standard Component Room Codes	RDL 4 - 6 Qty x m2			Remarks
Mortuary Unit					
Waiting – (Male/Female)	wait-15-o	2	x	15	Gender separation according to local custom
Viewing Room	mor-vr-o	1	x	8	Provide viewing windows to the waiting areas
Toilet – Accessible (Male/ Female)	wcac-o	2	x	6	Separate for Male and Female or shared with other WCs if nearby.
Airlock - Entry	airl-6-o	1	x	6	
Office - Workstation	off-ws-o	1	x	5	
Bay - Mobile Equipment	bmeq-4-o	1	x	4	For transport equipment/ trolley
Bay - Handwashing, Type B	bhws-b-o	1	x	1	
Mortuary - Exit Lobby	mor-ex-o	1	x	7	
Mortuary - Cool Store/ Body Holding Room	mor-cs-o	1	x	35	Sized for 12 body holding capacity; body holding area with refrigerated cabinets, triple stacked or 16 bodies quadruple stacked (not including the fridges)
Mortuary - Body Washing / Embalming Room	NS	1	x	16	Typically used before the transfer of bodies
Ablution Room	ablu-13-o similar	1	x	5	Adjacent to body washing room
Cleaners Room	clrm-6-o	1	x	6	
Mortuary - Clean-up Room	mor-cu-o	1	x	6	
Disposal Room	disp-8-o similar	1	x	5	
Change – Staff (Male/ Female)	chst-12-o similar	2	x	6	Lockers, WC and optional shower (allow additional 2m2 per shower cubicle); separate Male and Female
Store - General	stgn-8-o	1	x	8	
Office - Single	off-s9-o	1	x	9	Optional
Sub Total		166.5			
Circulation %		20			

Mortuary Unit

ROOM/ SPACE	Standard Component	RDL 4 - 6			Remarks
	Room Codes	Qty x m2			
Area Total		200			

Autopsy (Optional cased on the hospital service plan and Govt permission)

ROOM/ SPACE	Standard Component Room Codes	RDL 4 - 6 Qty x m2			Remarks
Mortuary Unit					
Autopsy Room	NS	1	x	15	Number of bays as per the service plan The area is per station
Viewing Room	obs-o similar	1	x	8	Police and forensic personnel only, Bench and chairs Optional
Secure Sample Store	stgn-8-o similar	1	x	5	Lockable, Optional Refrigerators
Dissection Bay /Room	mor-bw-o	1	X	18	May be integrated with the Autopsy Room
Police / Legal Office	off-s9-o	1	X	9	
Dirty Utility Room - with access to Autopsy	dtur-14-o	1	X	14	
Sub Total		56			
Circulation %		20			
Area Total		67			

Please note the following:

- Areas noted in Schedules of Accommodation take precedence over all other areas noted in the Standard Components.
- All the areas shown in the SOA follow the No-Gap system described elsewhere in these Guidelines.
- Exact requirements for room quantities and sizes shall reflect Key Planning Units (KPU) identified in the Clinical Service Plan and the Operational Policies of the Unit.
- The room sizes indicated should be viewed as a minimum requirement; variations are acceptable to reflect the needs of individual Unit.
- Offices are to be provided according to the number of approved full-time positions within the Unit.

8 Further Reading

In addition to Sections referenced in this FPU, i.e. Part C- Access, Mobility, OH&S and Part D - Infection Control and Part E - Engineering Services, readers may find the following helpful:

- International Health Facility Guidelines (iHFG) www.healthdesign.com.au/ihfg
- The Facility Guidelines Institute (US), Guidelines for Design and Construction of Hospitals, 2018. Refer to website www.fgiguideines.org
- The Facility Guidelines Institute (US), Guidelines for Design and Construction of Outpatient Facilities, 2018. Refer to website www.fgiguideines.org
- Health Building Note 00-04 Circulation and communication spaces, Department of Health (UK), 2013 refer to:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/187026/Health_Building_Note_00-04_-_Circulation_and_communication_spaces_-_updated_April_2013.pdf
- Health Building Note - HBN 20, Facilities for mortuary and post-mortem room services, NHS Estates (UK), 2001, refer to website: <https://www.gov.uk/government/collections/health-building-notes-core-elements>.