

Part B – Health Facility Briefing & Design

150 Linen Handling Unit



*i*HFG

International Health Facility Guidelines

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150 Linen Handling Unit

1. Introduction

Description

The Linen Handling Unit manages the delivery and distribution of clean linen as well as storage and dispatch of dirty linen.

Linen handling involves:

- The collection of dirty linen on a regular basis and temporary storage until an external Laundry contractor can pick up for processing
- Storage of clean linen provided by the Laundry contractor and supply to inpatient and ambulatory care units on a regular basis

The term 'hospital linen' includes all textiles used in the hospital including mattress cover, pillow covers, blankets, bed sheets, towels, screens, curtains, doctor's coats, theatre cloth and tablecloths.

Linen processing may be done within the hospital facility or off-site in a commercial or shared laundry, depending on the Operational Policy. As a minimum, each facility shall have provisions for storage and exchange of clean and soiled linen for appropriate patient care.

This FPU focusses on Linen Services within a facility where Laundry is outsourced.

2. Functional & Planning Considerations

Operational Models

Linen processing may be performed on-site or outsourced to a separate commercial facility or centralised in one location to serve multiple hospitals. Most commonly linen processing is outsourced in a commercial arrangement with an external provider and delivered to the facility.

The minimum service provided by the hospital will generally be a daily collection of dirty linen and daily delivery of clean linen to various units.

If outsourced linen cannot be supplied on the weekends or public holidays, then sufficient storage should be provided to cover several days of use.

In facilities which utilise external contractors for linen processing, typically one of the following two options are utilised:

Conventional central linen storage – In this model linen is temporarily stored after delivery. The linen is then transported to the various units by cart and transferred to linen storage racks in linen rooms or bays under different item categories. This method involves double or triple handling of the linen.

Roll-on-Roll-off model – In this model linen is delivered by the contractor in trolleys which have designated areas for different items and have their own shelves and doors, ready to use. Immediately upon delivery these linen trolleys are transported to destination and positioned within store rooms or bays without any double or triple handling.

Distributed linen may be in Linen rooms or Open Linen Bays shown in FPU SOA.

Hours of Operation

The Linen Handling Unit will typically operate up to 12 hours per day 7 days per week. However, delivery of clean linen by external contractor may be restricted to the working days.

3. Unit Planning Models

Location

The Linen Handling Unit will be located in the service area of the facility with close access to clean and dirty loading dock areas. An on-site laundry facility may be located in the hospital or remotely in a separate building with good connectivity to the hospital.

Functional Zones

As a minimum, the following elements shall be provided:

- Service Areas:
 - Clean Linen Holding room with an area for receipt of pre-loaded linen trolleys from an external supplier
 - Dirty Linen Holding with an area for holding of dirty linen collection trolleys
- Support Areas
 - Service entrance protected from weather for loading and unloading clean and dirty linen
 - Loading Dock with clean and dirty zones that may be shared with other service units
 - Trolley Washing area that may be shared with other service units
 - Equipment Parking Bay for holding of clean linen supply and collection trolleys
- Staff Areas including:
 - Manager or Supervisor's Office
 - Access to a meeting room for Training and staff meetings
 - Sign-on bay for staff optional depending on the Unit Operational Policy and the method used for staff attendance
 - Access to Staff Room, Toilets, Shower and Lockers; these may be shared with general hospital staff

Optional functional areas include:

- A clean linen inspection room or area, located on or off the site, as part of the main linen service, as determined by the system identified in the hospital's Operational Policy.
- Sewing/ Mending room, for linen repairs and alterations.
- Uniform holding and issuing room with changing facilities.
- Small laundry room with washing and drying facility for processing small items that are not handled by an external laundry.
- Full scale Laundry on-site for bulk processing, if provided will include:
 - Laundry processing rooms with commercial type equipment that can process at least a seven day supply within the regular scheduled work week
 - Storage for laundry supplies and chemicals
 - Employee hand-washing facilities in each separate room where clean or soiled linen is processed and handled
 - Arrangement of equipment that permits an orderly work flow and separation of dirty and clean processes with no cross traffic
 - Convenient access to Staff Amenities which may be shared
 - Compliance with all of the relevant statutory requirements and regulations for cleaning and handling linen will be required

This FPU does not address the specific arrangement and requirements of an on-site full-scale Laundry processing unit. Seek the advice of a Specialist Laundry Consultant if a full scale in-house laundry is intended for clarity- as in- house laundry is not mandatory.

Clean Linen Holding

The Clean Linen Holding room receives the clean linen supply on trolleys from an external supplier. The Clean Linen Holding room should have capacity for several days supply of linen, sufficient for efficient operation of the hospital in emergencies. Clean linen is supplied to inpatient units on trolleys held in the clean linen holding room until delivery.

The Clean Linen Holding Room should be located with ready access to the clean loading dock area for deliveries. The room may include a workstation for linen receipt and counting and shelving for stored items of linen such as curtains, blankets, bedspreads, as well as additional supplies of general linen articles.

Refer to Standard Components - Linen Holding-Clean for additional information and specific room requirements.

Dirty Linen Holding

The Dirty Linen Holding room will hold bagged dirty linen on trolleys awaiting collection and removal to the laundry facilities. The room should be sized sufficient for holding several days of dirty linen awaiting collection allowing for delays in the collection service in emergencies.

Dirty Linen Holding should be located with ready access to the dirty loading dock area for waste removal.

Refer to Standard Components - Linen Holding-Soiled for additional information and specific room requirements.

Support Areas

Service Entry

The service entry is an external area with access to the clean and dirty loading dock areas for delivery of clean supplies and removal of waste. Traffic and work flows for clean and dirty functions should not cross. The service entry may require secured access for vehicles. The loading dock area should be covered.

Refer to Standard Components - Loading Dock for additional information and specific requirements.

Trolley Washing

Trolley washing may be provided in the service area and shared by other service units. Where the linen supply is provided by an external enterprise trolley washing may be undertaken off-site with trolleys delivered clean.

Optional Areas:

Linen Inspection and Mending

The Linen Inspection and Mending room is an area where linen such as sheets, wraps and uniforms are examined for tears, holes and signs of wear. Linen suitable for repair may be mended in the sewing area, containing sewing machines and patching materials.

An external linen provider may undertake this task off-site.

Uniform Holding

Uniform holding will require a locked room containing uniform supplies for various hospital staff, sized to accommodate a multitude of uniform components in a range of sizes. Internally the room should include changing cubicles for staff to check uniform sizing. The room may be located adjacent to the clean linen handling area or may be located remotely where there is convenient access for staff.

Hospital Laundry for Small Items

The hospital may include a small scale laundry fitted with commercial washing and drying equipment for on-site washing of items not processed by an external laundry service. This may include mop heads, patient lifter slings and delicate linen items used for catered functions.

The laundry will be located in the service area with convenient access for linen handling personnel.

Refer to Standard Components - Laundry-Hospital for additional information and specific room requirements

4 .Functional Relationships

External

The Linen Handling Unit will require ready access to:

- The service entry and clean Loading Dock for daily deliveries of clean linen on trolleys to the Clean Linen Holding
- Waste Management area and Dirty Loading dock for daily collection of dirty linen on trolleys from the Dirty Linen Holding room
- All hospital Units supplied with linen; good connectivity is required to service corridors and service lifts for linen deliveries and collection services

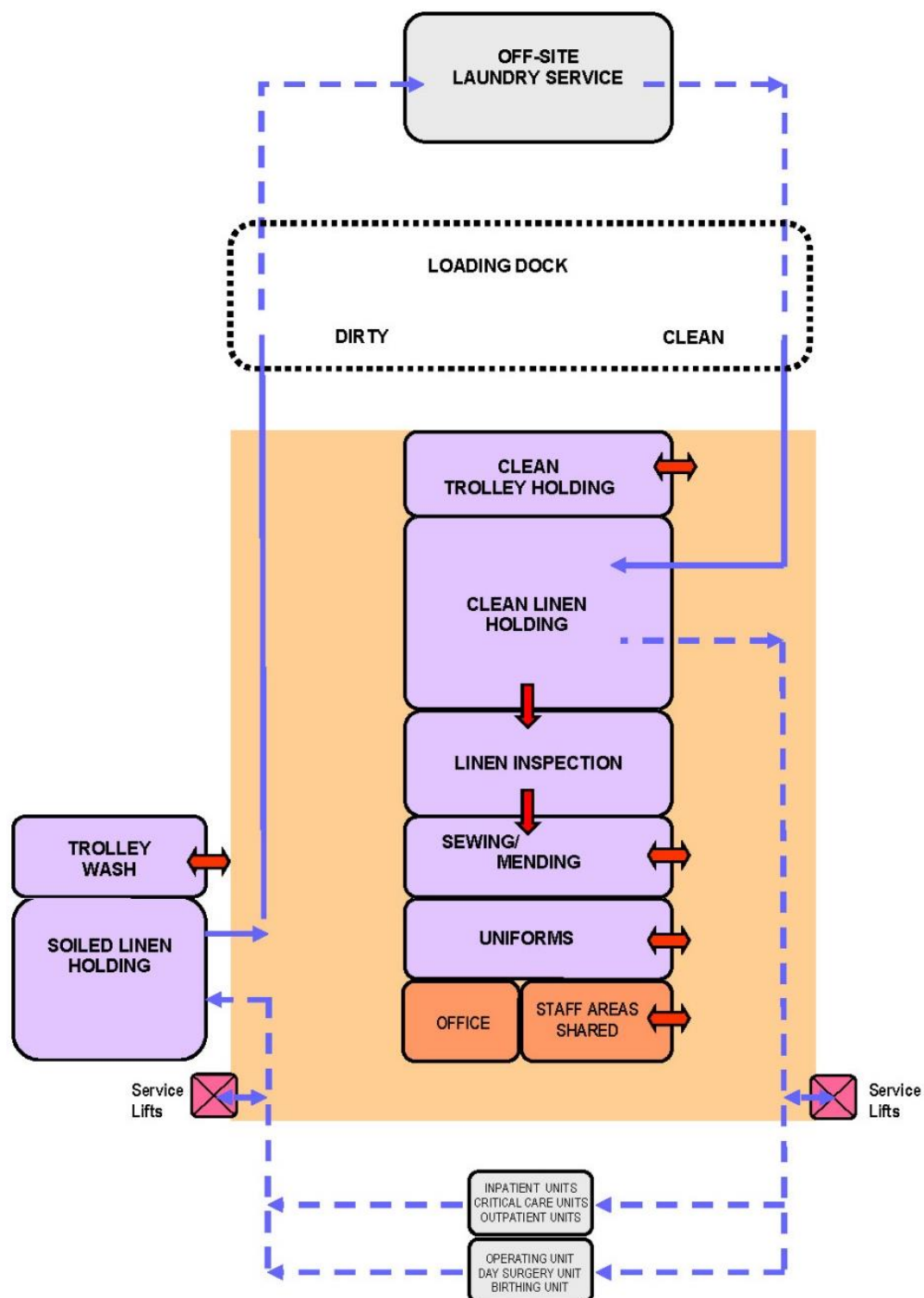
The optimum external functional relationships are demonstrated in the diagram below.

Internal

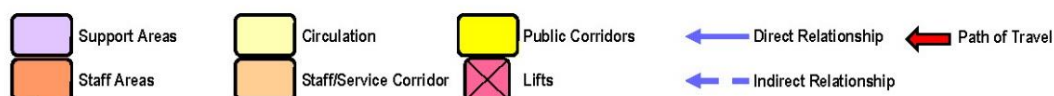
- Within the Linen Handling Unit, clean and dirty linen holding areas will generally be separated to prevent cross flow of clean and dirty traffic to the Loading Dock area
- Trolley storage and cleaning areas should be located with convenience for efficient linen handling
- Staff and support areas will generally be shared with other service areas in the hospital

Key Internal Functional Relationships are demonstrated in the diagram below.

Functional Relationship Diagram



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5.Design Considerations

General

Design of Linen Handling areas should ensure that clean and dirty work flows do not cross as far as possible and that holding rooms are free from insects and vermin.

Environmental Considerations

Acoustics

Consideration should be given to acoustic privacy in Offices particularly if located in noisy service areas of the hospital.

Natural Light/ Lighting

Natural light is not required in linen holding rooms. However, artificial lighting is required and should be sufficient to avoid shaded spots where accidents can occur.

Space Standards and Components

Doors

Doors to service corridors and Linen Holding areas must be adequately sized to accommodate the trolleys in use.

Also refer to Part C – Access, Mobility, OH&S of these Guidelines.

Ergonomics/ OH&S

Consideration should be given to the manual handling of linen supply and collection trolleys. Where linen sorting, counting or examining activities are undertaken, benches and shelving should be provided at suitable working heights.

Refer to Part C – Access, Mobility, OH&S of these Guidelines for more information.

Size of the Unit

The size of the Linen Handling areas will be dependent on the size of the facility and the amount of storage required for standard conditions. The Unit size should include an allowance for reserve clean linen and dirty holding in emergencies and take into consideration the frequency and reliability of linen supply and collection services.

Schedules of Accommodation have been provided for typical Linen Handling Units with an out-sourced linen supply in a range of hospital role delineation levels.

Safety & Security

Safety and Security provisions in the Linen Handling Unit will include:

- Locked linen holding rooms with access restricted to authorised staff
- Security for staff in isolated service zones of the facility particularly if working after-hours
- Non-slip floor finishes to laundry rooms and trolley washing areas

Finishes

Internal finishes including floor, walls, joinery and ceilings should be suitable for the function of the unit.

Finishes should be selected with consideration to the following:

- Aesthetic appearance
- Acoustic properties
- Fire safety
- Durability
- Infection control and ease of cleaning

- Suitable floor finishes with respect to slip resistance, frequent movement of bulky linen supply and collection trolleys and impermeable to fluids in wet areas

Door and wall protection should be provided where linen trolley movement occurs such as service corridors, service lifts, trolley parking areas, linen holding rooms and linen storage bays.

Refer to Part C – Access, Mobility, OH&S of these Guidelines and Standard Components for more information on wall protection, floor finishes and ceiling finishes.

Fixtures, Fittings & Equipment

Shelving installed in clean linen areas should be constructed of non-porous materials, dust resistant, easily cleaned and avoid inaccessible corners.

Washing and drying machines installed in the laundry room should be commercial quality and installed to manufacturer's specifications.

Building Service Requirements

Information & Communications Technology

The following IT/ Communications systems may be provided within the Linen Handling Unit:

- Telephones in Linen Holding areas, Uniform rooms, Linen Inspection and Mending rooms, Offices and workstations
- Data outlets for computers/ internet access to Offices, Workstations and Holding rooms
- Scanning systems for registering received supplies or despatches
- Wireless networks for computer access in receiving areas which may include service corridors and Loading Docks

Heating, Ventilation and Air conditioning

Linen Handling areas such as inspection and folding areas will require air-conditioning with efficient lint filtration systems.

Offices and Staff Rooms should be provided with air-conditioning with temperature and humidity control for staff comfort.

Refer to Part E - Engineering Services in these guidelines and to the Standard Components, RDS and RLS for further information.

Infection Control

Hand Basins

Linen Handling staff will require ready access to staff handwashing basins. Hand basins will be located within the Clean Linen Holding Rooms and in Soiled Linen collection rooms its linen inspection mending and folding areas.

Hand basins should comply with Standard Components for Bay - Handwashing. Refer to the Standard Components, RDS and RLS of these guidelines for additional information.

Antiseptic Hand Rubs

It is recommended that in addition to hand basins, medicated hand gel dispensers be located strategically in staff circulation corridors.

The placement of antiseptic hand rubs should be consistent and reliable throughout facilities. Antiseptic hand rubs are to comply with Part D - Infection Control, in these guidelines.

Antiseptic Hand Rubs although very useful and welcome they cannot fully replace Hand Wash Bays both are required.

For further information related to Infection Control refer to Part D – Infection Control in these Guidelines.

6. 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:

- 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 Linen Handling Unit contains Standard Components to comply with details in the Standard Components described in these Guidelines. Refer to Standard Components Room Data Sheets and Room Layout Sheets.

Non-Standard Components

Non-Standard rooms are identified in the Schedule of Accommodation as NS and are described below.

Linen Inspection Room

The Linen Inspection Room if provided on-site should be located adjacent to the Clean Linen Handling area. Clean linen is examined on benches or tables large enough to lay linen flat. Benches may include lighting to the bench surface and a high level of overhead lighting to aid identification of tears and holes in linen.

Room requirements may include:

- Storage for linen awaiting examination
- Tables for folding
- Sorting area for linen awaiting repair or to be discarded
- Racks for hanging linen items
- Access to hand washing facilities/ hand gel with personal protective equipment such as gloves.

Sewing/ Mending Room

The Sewing/ Mending Room may undertake repairs or sewing to a variety of linen that may include drapes, sheets, uniforms, curtains, table and banquet linen. The Sewing/ Mending Room, if provided on-site may be located within the Linen Inspection Room or adjacent. The room size will be dependent on the number of sewing stations required; each sewing station should be a minimum of 6m² with additional space for storage and circulation.

The room will require:

- Sewing station/s with industrial sewing machine/s and ergonomic chair
- Tables or trolleys to hold linen for repair and linen repaired ready for despatch to its destination
- Storage for supplies such as threads, needles, repair fabrics and other haberdashery requirements depending on the scope of repairs to be undertaken
- Ironing facilities
- High level of task lighting.

Uniform Holding

Uniform Holding will require a locked room for holding of new and spare uniforms for a range of hospital personnel. The room may include changing cubicles with mirrors for staff to try on uniforms to check sizing. The Uniform Holding room may be located in the service area in close proximity to Clean Linen Holding, or remote from the Linen Handling Unit in an area conveniently accessed by staff. The size of the room will be dependent on the amount of uniforms to be held.

Other room requirements may include:

- Shelving for storage of folded items
- Hanging racks for uniform hanging
- Small workstation with computer and telephone for administrative functions associated with uniform distribution

Trolley Washing

Trolley Washing is an area for manual washing of trolleys including linen handling and may be shared with a number of service units. The Trolley Wash area should be located in the service area.

The trolley washing area will require:

- Smooth, waterproof and easily cleanable surfaces to walls and ceiling

- Non-slip, waterproof finishes to the floor
- Hot and cold water outlets with hoses
- Drainage to the floor
- An area for air drying of trolleys and space for holding completed trolleys awaiting transport to clean holding areas

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 assumed unit sizes. 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 alternative SOA's for role delineations from RDL 2 to 6 of varying sizes.

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.

Linen Handling Unit

ROOM/ SPACE	Standard Component Room Codes	RDL 2 Qty x m2			RDL 3 Qty x m2			RDL 4 Qty x m2			RDL 5 Qty x m2			RDL 6 Qty x m2			Remarks
Service Areas																	
Linen Holding - Clean	lho-cl-i similar	1	x	15	1	x	30	1	x	45	1	x	65	1	x	85	Adjust size to meet service plan
Linen Holding - Soiled	lho-so-i similar	1	x	15	1	x	20	1	x	30	1	x	40	1	x	50	Adjust size to meet service plan
Linen Inspection Room	NS							1	x	10	1	x	15	1	x	20	Optional
Sewing/ Mending Room	NS							1	x	10	1	x	15	1	x	15	Optional
Uniform Holding	NS							1	x	20	1	x	20	1	x	20	Optional
Laundry - Hospital (Small Items)	laun-ho-i similar	1	x	6	1	x	6	1	x	10	1	x	20	1	x	20	Optional
Support Areas																	
Loading Dock	lodk-i similar	1	x	*	1	x	*	1	x	*	1	x	*	1	x	*	*External Area, Shared between service units
Trolley Washing Area	NS	1	x	6	1	x	6	1	x	6	1	x	10	1	x	10	Optional, may be shared
Trolley Parking Bay	beqp-12-i similar				1	x	12	1	x	12	1	x	20	1	x	20	Holding clean spare trolleys
Staff Areas																	
Office - Single Person	off-s9-i							1		9	1	x	9	1	x	9	Manager
Office - Shared	off-2p-i										1	x	12	1	x	12	Supervisors
Staff Registration Bay	NS	1	x	4	1	x	4	1	x	4	1	x	4	1	x	4	Optional
Meeting Room	meet-l-15-i	Shared			Shared			Shared			Shared			Shared			Optional, Shared with general staff facilities
Staff Lounge	srm-15-i	Shared			Shared			Shared			Shared			Shared			Optional, may be shared
Change - Staff (M/F)	chst-12-i similar	Shared			Shared			Shared			Shared			Shared			Shared, Toilets, Showers, Lockers
Toilet - Staff (M/F)	wcst-i	Shared			Shared			Shared			Shared			Shared			Shared with general staff facilities
Sub Total		30			62			96			146			176			
Circulation %		10			10			10			10			10			
Area Total		33			68			106			161			194			

Also note the following:

- Areas noted in Schedules of Accommodation take precedence over all other areas noted in the Standard Components.
- Rooms indicated in the schedule reflect the typical arrangement according to the Role Delineation.
- All the areas shown in the SOA follow the No-Gap system described elsewhere in these Guidelines.
- Exact requirements for room quantities and sizes will reflect Key Planning Units (KPU) identified in the Clinical Service Plan and the Operational Policies of the Unit.

- Room sizes indicated should be viewed as a minimum requirement; variations are acceptable to reflect the needs of individual Unit.
- Office areas are to be provided according to the Unit role delineation and number of endorsed full time positions in the unit.
- Staff and support rooms may be shared between Functional Planning Units dependent on location and provide scope to reduce duplication of facilities.

Future Trends

Future trends that may affect the operation of Linen Handling Units include:

- Evolving service delivery models that provide more efficient off-site processing with collection and delivery services
- Increased usage of automated delivery systems in hospitals such as automated guided vehicles
- Improvements to technology and software that allow request of linen direct from the hospital units that require this service, track usage, manage costs and reduce linen wastage

Further Reading

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

- Guidelines for Design and Construction of Hospitals and Outpatient Facilities; The Facility Guidelines Institute (US), 2014 Edition; refer to website www.fgiguidelines.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