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DUBAI HEALTH AUTHORITY

DHA Health Facility Guidelines 2019

Part B – Health Facility Briefing & Design

350 – Operating Unit

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Executive Summary

The Functional Planning Unit (FPU) covers the requirements of a Operating Unit. An Operating Unit is where surgeries are performed; and admission, preparation and procedure occur before patients are moved to an inaptient unit for longer than a 24 hour period. The Unit will have access to or include one or more Operating Rooms (or Procedure Rooms), with provision to deliver anaesthesia and accommodation for the immediate post-operative recovery of patients.

The Operating Unit FPU describes operational, functional and design requirements for a range of ambulatory surgical services to be accommodated in hospitals or stand-alone facilities.

The Functional Zones and Functional Relationship Diagrams indicate the ideal external relationships with other key departments and hospital services. For an Operating Unit located within a hospital campus, a relationship with Emergency Unit, Inpatient Units, Intensive Care Units and Sterile Supply Unit (SSU) should be considered.

Design Considerations address a range of important issues including Accessibility, Acoustics, Safety and Security, Building Services Requirements and Infection Control. This FPU describes the minimum requirements for support spaces of a typical Operating Unit at Role Delineation Levels 3 to 6. The typical Schedule of Accommodation is provided using Standard Components (typical room templates) and quantities for quantities for these numbers.

Further reading material is suggested at the end of this FPU but none are mandatory.

Users who wish to propose minor deviations from these guidelines should use the **Non-Compliance Report** (**Appendix 4 in Part A**) to briefly describe and record their reasoning based on models of care and unique circumstances.

The details of this FPU follow overleaf.

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350. Operating Unit

1 Introduction

The Operating Unit provides a safe and controlled environment for the operative care of patients undergoing diagnostic/ surgical procedures under anaesthesia and peri-operative care including post procedure recovery.

1.1 Description

The Operating Unit may provide facilities for two modes of surgery, Inpatient Surgery or Day Surgery or both according to the chosen model of care. These different modes are sometimes referred to as Overnight Surgery vs Outpatient Surgery or Major Surgery vs Minor Surgery (which is not entirely an accurate description). Day Surgery is also referred to as Same-day Surgery.

The difference between Overnight Surgery and Day Surgery is in the pre-operative and post-operative patient flows as well as the facilities required. However, the operating rooms and most of the supporting rooms can be common. This guideline defines the key zones and rooms such as Pre-op holding, Operating Theatres, Post-op recovery, Sterile Stock Staff Change and Supporting rooms.

Operating rooms used mostly for minor surgery are also referred to as “Procedure Rooms”. However, this is an imprecise description and has been avoided in these guidelines.

The most common models of operation which are possible within the same physical facility have been described.

The Functional Relationship Diagrams for 2 common models of planning, Single Corridor and Double Corridor have been provided, along with all internal and external flows.

Separate diagrams are provided to show many permutations of the arrangement of key rooms such as Operating Room, Scrub Room, Sterile Stock room and Optional Anaesthetic Induction Room. These permutations also indicate a fundamental aspect of Infection Control in Operating Units being the air pressurisation regimes.

Generic Schedules of Accommodation (SOA) have been provided for all Role Delineation Levels from 3 to 6, separated by the functional zones.

It should be noted that an integrated Operating Unit may also incorporate other components such as Endoscopy and Catheter Laboratory. A strict physical separation is not necessary as long as the air pressurisation regimes and all the supporting rooms are achieved in the design. May facilities such as Change rooms, Holding bays and Recovery bays may be regarded as generic patient management facility and shared for all types of patients undergoing any type of invasive or minimally invasive procedure.

It should be noted that these guidelines include the contemporary, acceptable and efficient planning model. Older models of planning for Surgery which are still in use today but are regarded as in-efficient or un-necessary have been omitted to avoid confusion.

2 Functional & Planning Considerations

2.1 Hours of Operation

The Operating Unit will typically operate on a long day basis, with emergency surgery available 24 hours per day. Even Day Surgery may be performed late into the night as long as overnight recovery facilities and nursing service are available as part of the hospital. For the specific requirements of 23 hour surgery model, pleaes refer to the Models of Care below. Also refer to the Day Surgery/ Procedure Unit FPU.

2.2 Operational Models

There are 4 basic models of surgery:

- Inpatient Surgery
- Day Surgery (Outpatient or Ambulatory Care Surgery) which may include
  - Catheter Lab procedures
  - Endoscopy procedures
- Same-day Surgery
- 24 Hour surgery

All of these models should ideally be operated from the same Integrated Operating Unit in the interest of efficiency, safety and economy. These models require the following basic facilities and services: Reception, Pre-operative facilities, Operating Room (or Procedure Room), Recovery Stage 1, Recovery Stage 2, Inpatient Unit (IPU) and Intensive Care Unit (ICU).

The difference between the models is the flow of patients from one unit to the next. The models may utilize some facilities and by-pass other facilities.

2.2.1 Inpatient Surgery (Overnight Surgery)

Patients undergoing Elective or Emergency surgery are first admitted to an IPU, ICU or are transferred from the Emergency Unit. After surgery, patients return to the IPU or ICU, but not Emergency Unit.

Inpatient Surgery may start early (e.g. 7 am) and continue into the late hours of the evening. Longer hours of operation are highly efficient as they increase the throughput for the same physical facility investment. A 30% increase in the hours of operation is almost exactly the same as having 30% more operating rooms with every other support facility.

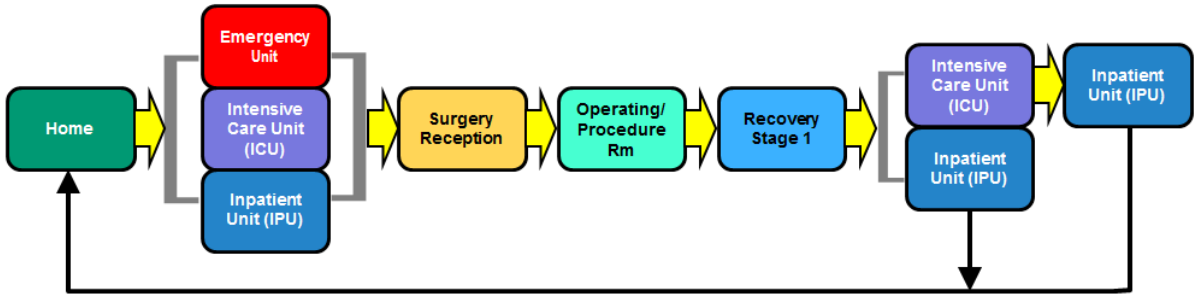


Figure 1 Inpatient Surgery Model patient flow chart

2.2.2 Day Surgery (Outpatient Surgery)

Up to 70% of all surgery may be performed as Day Surgery. Every surgical case performed as Day Surgery will save between 1 and 3 bed-days as no IPU bed will be occupied by the patient. This will save costs whilst preserving valuable IPU beds for major inpatient surgery.

Day Surgery patients should be organised to arrive very early (e.g. 6 am) with the aim of starting surgery as soon as possible (e.g. at 7 am). Day Surgery patients will recover in the unit and go home before the evening. This means sufficient time should be set aside for the last patient's recovery. The last surgery may be around 4 pm or earlier. For some very minor procedures, the patient may not undergo general anaesthesia or may wake up immediately after surgery. These patients do not need to go through Stage 1 Recovery and they can go directly to Stage 2 Recovery.

Catheter Lab

The patient flow will be similar to Day Surgery. There is no need to separate Catheter Labs as a unit, however, the Catheter Lab should be located close to Stage 1 Recovery bays in order to share facilities.

Endoscopy

Endoscopy procedures may follow the same patient flows as Day Surgery. It is anticipated that over time many types of surgery will require a form of endoscopy. Therefore, surgical facilities need to

regard every operating room as an endoscopy theatre. With careful design it is not necessary to perform endoscopy in a separate unit. As long as the endoscopy rooms are discretely located at one end of the surgical unit, there should be no need to duplicate other facilities.

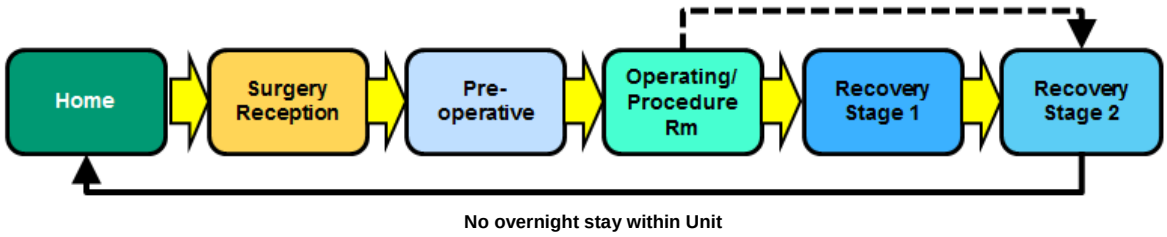


Figure 2: Day Surgery patient flow chart

2.2.3 Same-day Surgery (or Day of Surgery Admissions- DOSA)

This is also known as a Peri-operative model and is similar to Day Surgery. However, there is no expectation for the patient to recover and go home the same day. This model allows the patient to be admitted to the hospital on the 'day of surgery', not earlier. The patient goes through the same process as Day Surgery patients. However, the patient may undergo more complex surgery, then recover in an Inpatient Unit between 1 and 4 days. Therefore, unlike Day Surgery, Same-day Surgery can continue into the late hours of the night (e.g. 10 pm). After Stage 1 Recovery, Same-day Surgery (DOSA) patients are formally admitted to an IPU bed, not before. This will save one bed-day for each DOSA patient, which will save costs for the health system. It also preserves one bed-day for inpatient surgery or medical use.

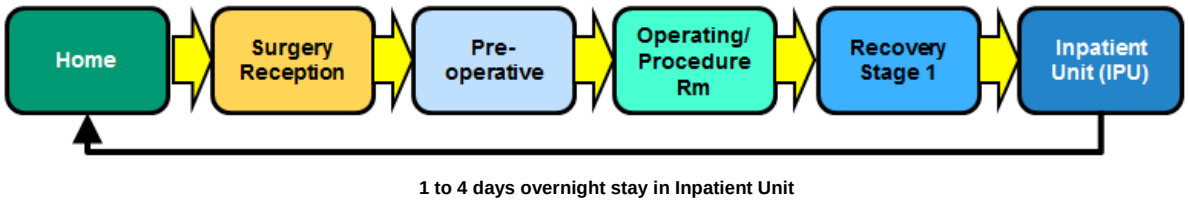


Figure 3: Same-day Surgery/ DOSA patient flow chart

2.2.4 23 Hour Surgery

Under all of the above models, the Stage 2 Recovery facilities will be unused overnight. This is seen as a waste of resources and valuable investment, resulting in the introduction of 23 Hour Surgery. This model is similar to Day Surgery, but there is no limit on how late the surgery can take place. A patient may be admitted in late afternoon and undergo surgery as late as 10 pm. Then the patient will recover overnight in the Recovery Stage 1 facilities and be discharged the next morning before the new patients require this facility. Discharge can occur by around 7 am the following morning. Therefore, the only different between 23 Hour Surgery and Day Surgery is the addition of overnight nursing and suitable facilities for the patients' overnight stay (eg toilets, showers and reasonable privacy). Under this model, the patient admission and discharge should occur in a period of no more than 24 hours regardless of the starting and finishing time. Under the 23 hour surgery model, patients may not be kept for more than 24 hours unless the facility is attached to a Hospital. Even so, the patient must be transferred to a bedroom within an Inpatient Unit.

In any Day Surgery facility operating overnight, the staffing and services attending to the patients must be equal to the day time with no compromises.

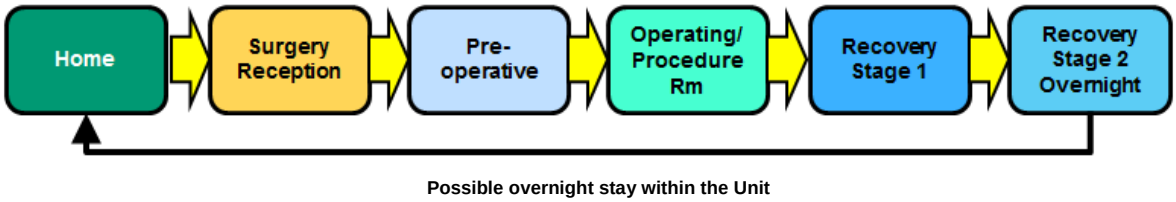


Figure 4: 23 Hour Surgery patient flow chart

3 Unit Planning Models

The Operating Unit shall be located and arranged to prevent non-related traffic through the suite.

The number of Operating Rooms and Recovery beds and the sizes of the service areas shall be based on the service plan and expected surgical workload. The size, location, and configuration of

the surgical suite and support service departments shall reflect the projected case load and service plan of the Unit.

A number of planning models may be adopted including:

3.1 Single Corridor

The single corridor model involves travel of all supplies (clean and used) as well as patients (pre and post-operative) in one main corridor. There is ongoing debate as to the suitability of this approach. However, this option is considered suitable provided:

- The main corridor is sufficiently wide in order to permit separation of passage of goods and services
- Handling of clean supplies and waste is carefully managed to avoid cross contamination

A major disadvantage of this planning model is that a patient awaiting surgery may be exposed to post-operative patients.

3.2 Dual Corridor or Race Track

The Dual Corridor or 'Race Track' model allows for all the Operating rooms to be accessed from an external corridor for patients and directly from a central Set Up/Sterile Stock Room for sterile goods. This model aims to separate 'dirty' from 'clean' traffic by controlling the uses of each corridor. In this design, there must not be cross traffic of staff and supplies from the decontaminated/ soiled areas to the sterile/ clean areas.

In this model, stock and staff can be concentrated in one location, preventing duplication of equipment stock and staff.

3.3 Clusters of Operating Rooms

In this model Operating Rooms may be clustered according to specialty, with a shared Sterile Stock and Set-up Room for each group or cluster.

Disadvantages of this model include:

- Additional corridor and circulation space required for corridors around clusters of rooms, which reduces the available space for stock
- Potential duplication of stock and additional staff requirements may result in increased operating costs

3.4 Dedicated Theatres with Fixed or Mobile Equipment

In this model Operating rooms are dedicated to specific types of surgery such as hybrid operating/ imaging rooms, urology, vascular, neurology or other specialties requiring specific equipment. This may be beneficial in larger suites where the case volume justifies specialisation; however, smaller suites may favour flexibility of Operating Room use. Fixed equipment can preclude the multifunctional use of the room.

3.5 Sterile Supply Unit (SSU)

The Operating Unit is a major user of sterile stock and the location of the instrument processing area and sterile stock is of high importance.

There are two main options available for supply of sterile stock to the Operating Unit:

- A dedicated SSU (Theatre Sterile Supply Unit or TSSU) serving only the Operating Unit
- A SSU (Sterile Supply Unit) that also serves other areas of the hospital.

The SSU may be located within the Operating Suite or externally. It is preferable to locate the SSU adjacent with direct access to the Operating Suite. The SSU may also be located on another floor of the building connected by dedicated clean and used goods lifts.

The SSU may be located in a service zone of the hospital. There is a strong functional link between the SSU and the Operating Unit; efficient transport of stock to and from each unit will require careful planning.

3.6 Functional Zones

The Operating Unit consists of the following functional zones:

- Admissions/ Reception and Holding area for receiving and admission of patients to the Unit, with general overseeing of day to day operations, control of entry and exit from the Unit and completion of general administrative tasks including:
  - Reception and Waiting areas
  - Interview room
  - Staff Station and write up bay
  - Bays for handwashing, linen
  - Clean and dirty utilities
  - Holding bays for holding and management of patients prior to their operation or procedure
  - Sealed carts are mandatory
- Operating Rooms area where procedures are carried out including:
  - Operating Rooms, general, digital, specialty, hybrid imaging, catheter lab and endoscopy
  - Anaesthetic Induction Rooms (optional)
  - Scrub Bays
  - Exit Bays
- Support Areas including:
  - Bays for linen, pathology equipment, mobile equipment
  - Blood store
  - Cleaners room/s
  - Clean-up rooms
  - Flash steriliser
  - Storerooms and storage areas for:
    - Anaesthetic supplies
    - Drugs
    - Equipment, including mobile items, table accessories, loan equipment
    - Perfusion equipment and supplies (if cardiac surgery is undertaken)
    - Sterile stock, non-sterile stock and consumables
- Recovery Areas where patients are assisted through the process of recovering from the

effects of anaesthetic including:

- Separate recovery areas for male and female patients
- Patient bed bays, open and enclosed for Isolation
- Bays for blanket warmer, linen, handwashing
- Clean and Dirty Utilities
- Store for consumable items and equipment

- Administrative and Staff Areas including:

  - Change Rooms with showers, toilets and lockers and additional separate toilets for large units; separate for male and female staff
  - Staff Room
  - Meeting rooms
  - Offices and administrative space for clinical staff

3.7 Key Unit Areas and Functions

Some of the above zones and components are described and critical guidance is provided below:

3.7.1 Reception

The Reception is the receiving hub of the unit for patients and visitors entering the Operating Unit. Patients undergoing Inpatient Surgery arrive from the IPU, ICU or Emergency Unit on beds. “Day Surgery” or “Day of Surgery” patients arrive from the Peri-operative unit on foot or on a wheelchair.

The Reception should serve as the control check point and should therefore ensure the security of the entire Unit through access control. Generally, the reception points for Inpatient arriving on a bed from Inpatient Units, ICU or Emergency will be separate from the Reception for Day Surgery or Day of Surgery patients.

3.7.2 Pre-operative (Pre-op) Holding

Incoming patients under the “Day Surgery” or “Day of Surgery” operational models are first received in a reception area. Then they are directed to a curtained holding bed bay (or cubicle), preferably with solid side walls and curtain front. The recommended number of bays/ cubicles is a ratio of 1:1

for each operating room (or procedure room). If necessary, a patient relative or carer may accompany the patient and give assistance.

There is no need for separate change rooms as the Pre-op cubicle is regarded as the equivalent of a temporary inpatient bedroom. The bed bay/ cubicle has facilities such as a bedside locker and medical gases. Patient toilets should be located nearby. Patients are generally transferred from this point on beds/trolleys and the same bed may go to surgery without patient transfer.

3.7.3 Operating Room/s (or Procedure Room)

The Operating or Procedure rooms are designed and set up to perform any type of procedure on the patient. The procedures may be highly invasive, minimally invasive, sterile or non-sterile and the design may vary slightly according to the intended procedures. It is recommended that designers minimise the degree of specialisation as far as practical. A very high level of specialisation can lead to inefficiency in surgical throughput due to the number of useable operating rooms. Under this definition, a Procedure room includes a Catheter Lab, Endoscopy Procedure Room etc.

If obstetric services are provided in the hospital an additional dedicated Operating Room is recommended for obstetrical emergencies. The Operating Room used for obstetric emergencies such as C section may be within the main Operating Unit or as a fully functional satellite within the Delivery Unit.

Operating and Procedures Rooms shall comply with **Standard Components Room Data Sheets** and **Room Layout Sheets**, in these Guidelines.

3.7.4 Dental Surgery additional requirements

In addition to the standard operating room equipment and services (refer to Standard Component Operating Rooms), items considered essential for dental procedures may be provided to enable

Dental Surgery. These may include compressed dental air, medical gases and dental x-ray facilities. Refer to **Standard Components** for these provisions.

3.7.5 Scrub Bays

Scrub facilities shall be located adjacent to the Operating Rooms. Scrub Bays require sufficient enclosure to ensure the mechanical ventilation system can extract the air and create a relative negative pressure. This is to contain the floating droplets of water and minimise the spread of contaminants potentially floating in the air and within the droplets.

Privacy can be provided to female staff through the use of doors off the corridor or a similar privacy feature.

Scrub bays do not require a door to the corridor, however there must be a door access to the operating room. For clarity, scrub bays created directly inside the operating rooms are not permitted. Also, open scrub troughs along the main Operating Unit corridors are not considered desirable.

The door from the scrub bay to the operating room may be dedicated and direct. Alternatively, surgeons and nurses can use the main doors to the operating room as long as electric doors are provided with knee, elbow, gesture or similar activation pads.

Direct doors from scrub rooms to the operating rooms should ideally be light doors, opening both ways by light pressure. This allows the surgeons and nurses to enter the operating rooms backwards without touching the door or door handle.

Optionally, a window may be provided between the scrub bay and the operating room. This allows the surgeons to observe the way the room is being set up for the next case.

3.7.6 Laboratory Areas

Depending on the service plan and unit policy, an area for preparation and examination of frozen sections may be provided. This may be part of the general Pathology Laboratory if immediate results are obtainable without unnecessary delay in the completion of surgery.

3.7.7 Flash Sterilising Facilities

A Flash Steriliser should be located in the unit. However, the use of this method of sterilising should be restricted to situations where a single instrument has been dropped and there is no sterile duplicate available. Flash sterilising is not suitable for processing of cannulated, complex instruments, suction and other tubing, textiles, paper or liquids. The number of Flash Sterilisers should be limited to 1 or very few, to prevent in-appropriate operational practice.

3.7.8 Storage

Adequate Equipment Store room/s for equipment and supplies used in the Operating Unit shall be provided. Equipment Stores should be provided at the minimum rate of 10 m2 per Operating Room.

Note:

- Store Rooms do not necessarily require doors
- Store Rooms are best designed in an elongated rectangular shape to allow easy access to all items
- The design of the Operating Unit should allow for ease of access to the storage areas for delivery of Operating Unit consumables. Controlled access from an external corridor is highly desirable
- Store Rooms in the Operating Unit require positive pressure in relation to adjacent areas and high efficiency filtration. Refer to **Part E - Engineering Services** for technical air-conditioning requirements

Mobile Equipment Bays shall be provided for equipment such as portable X-ray equipment, stretchers, trolleys, warming devices and mobile equipment. Mobile Equipment Bays shall comply with Standard Components and provided at the minimum quantity of one per operating room. Equipment Bays are best designed as elongated rectangular shapes and may be combined for space efficiency.

3.7.9 Recovery Areas

Recovery areas shall be separated into male and female zones with sufficient privacy screening.

There are two types of Recovery space, which are used in according to the operational models explained earlier in these guidelines.

Recovery Stage 1- After operations which require general anaesthesia, patient is taken to Recovery Stage 1 and kept there until the effect of anaesthesia dissipates, patient is conscious and gag reflex is present. During stage 1 recovery close monitoring of the patient is essential.

Following Recover Stage 1, patients who have undergone complex surgery which requires longer term recovery are taken to an inpatient bed room or ICU. This applies to “Inpatient Surgery” and “Day of Surgery” operational models. However, Patients who undergo “Day Surgery” and are discharged the same day are moved to Stage 2 Recovery, vacating the bed bays for new patients. Patients who stay overnight under the “23-hour surgery” model, stay in Stage 1 Recovery, unless Stage 2 Recovery is also equipped with beds and sufficient privacy similar to Stage 1 Recovery.

If ICU is immediately adjacent the Operating Unit, it is possible to transfer some patients directly to ICU. However not all surgical patients require transfer to ICU. This depends on the operation performed and the opinion of the responsible clinicians.

The number of bed/trolley spaces in the Stage 1 Recovery Area will be dependent upon the nature of surgery or procedures performed as outlined in the Operational Policy and the proposed throughput. As a minimum, 2 bed/trolley spaces per Operating Room shall be provided.

The Stage 1 Recovery area will require the following support facilities:

- Staff station/s with a centrally located resuscitation trolley
- Bays for linen and mobile equipment
- Clean Utility
- Dirty Utility
- Store room
- Patient toilets and showers, if used for overnight stay under “24-hour surgery” model

Recovery Stage 2- Patients undergoing Day Surgery require a Stage 2 Recovery area. Patients who undergo general anaesthetic must first spend some time in Recovery Stage 1 as explained above. Then they move to Recovery Stage 2 on foot or wheel chair. Stage 2 recovery requires, as a minimum, a number of comfortable recliners. However, a percentage of bed bays may also be incorporated for patients who may feel uncomfortable on recliners.

Patients who undergo local anaesthesia or are already awake upon leaving the operating room may be taken directly to Recovery Stage 2, by-passing Recovery Stage 1.

The number of recliner/bed bays in the Stage 2 Recovery Area will be dependent upon the following:

- Nature of surgery or procedures typically performed as outlined in the Operational Policy
- The expected throughput based on the surgery time + change-over
- The expected recovery times

For fast throughput operations, more Stage 2 recovery bays are required. All of the above factors may change on a daily basis and over time. Therefore, for Operating Units which perform a mix of Inpatient and Outpatient Surgery, on balance it is considered that as a minimum 2 (but ideally 3) Stage 2 recovery bays per Operating Room shall be provided. Within Recovery Stage 2 patients may remain in surgical gowns or change back to street clothes. Whilst in Recovery Stage 2 patients may want to drink or eat, therefore access to facilities for serving drinks and light meals such as sandwiches should be provided.

Following Recovery Stage 2, patients may be discharged via the reception/ waiting area. Optionally a dedicated Discharge Lounge (also referred to as Departure Lounge or Recovery Stage 3) may be provided for a formal hand-over of the patient to family members or carers.

Depend on the operational model, Recovery Stage 2 may be combined back to back with the Pre-operative areas, but management should ensure in-coming and out-going patients are not mixed or confused.

In facilities which mainly cater for Day Surgery, Recovery Stage 2 may be placed back to back with Recovery Stage 1.

All Recovery bed bays, recliner bays and support areas shall comply with the details identified in Standard Components Room Data Sheets and Room Layout Sheets.

3.7.10 Administrative Areas

General and individual offices shall be provided as required for unit administration, record holding and management, clerical and professional staff. These shall be separate from public and patient areas with provision for confidentiality of records.

Office spaces shall be provided for the Unit Manager, or Nurse Manager, medical and administrative staff as required.

Offices are to comply with Standard Components.

3.7.11 Staff Areas

Appropriate Change Rooms, toilet and showers shall be provided separately for male and female personnel (nurse, doctors and technicians) working within the Operating Unit. The Change Rooms shall contain adequate lockers, showers, toilets, hand basins and space for donning surgical attire and booting. Staff Change Rooms shall be arranged to encourage a one-way traffic pattern so that personnel entering from outside the surgical suite can change and move directly into the Operating Unit.

Alternatively, the entrance to the Change Rooms may be planned in direct view of a Staff Station at the entrance to the Operating Unit. The Change Room entrance door shall be provided with locks or electronic access devices to prevent the entry of unauthorised persons into the Operating Unit.

Notes:

- It is desirable but not mandatory to increase the number and area of facilities for female change rooms by approximately 30%
- In male change rooms 50% of toilets may be replaced with urinals
- Warm air hand dryers shall be avoided
- Staff showers are mandatory in Operating Units

4 Functional Relationships

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

4.1 External Relationships

The Operating Unit requires close relationships with the following areas, particularly for urgent cases:

- Emergency Unit
- Intensive Care Units
- Obstetric/ Birthing Unit for Caesarean Section procedures (unless dedicated facilities are provided)
- Helipad
- Inpatient Units

Links between these Units and the Operating Unit should be rapid, direct (as far as possible) and discreet; transit of severely ill patients to and from the Unit through public corridors should be avoided.

The Operating Unit has a direct operational link with the following Units:

- Peri-operative Unit/ Day Surgery (in an integrated unit)
- SSU

4.2 Internal Relationships

Internally, the Operating Unit will be arranged in the functional zones described above. Due to the complexity of this unit and different models of care which may be implemented at the same time, the Internal Relationships are best demonstrated by a series of Functional Relationship Diagrams and their permutations provided below.

4.3 Functional Relationship Diagrams

The requirements for the models of care, infection control and patient management result in a number of planning 'models' that have proved successful through numerous built examples and

many years of practice. Most contemporary Operating Unit plans are a variation of one of these 'models'.

A plan substantially based on one of these diagrams is 'deemed to satisfy' the requirements of these Guidelines. A plan that is significantly different to these diagrams should be carefully examined by expert reviewers against all the individual requirements and principles established in these Guidelines, especially those of Infection Control, to determine if it is acceptable.

In reviewing and using the Operating Unit Functional Relationship Diagrams, designers should carefully consider a number of issues:

- Each diagram represents a method of managing the patient access, surgeon and nurses access, sterile instrument flows, clean/dirty flow, air pressurisation.
- The diagrams may present different permutations of solutions, but each addresses the issues involved in a satisfactory manner. Each option may suit a different management mode or building configuration.
- Designers are strongly cautioned against creating hybrid options by combining features of various diagrams. This may result in wrong clean/ dirty flows or other unacceptable features. If in doubt, designers should seek advice from specialist Operating Room consultants and Infection Control nurses, who should in turn be guided by the principles established here.
- Designers are strongly advised not to mix the recommendations of different standards and guidelines.

The functional relationship diagrams below show base linear models. The models can be stretched or contracted to create the exact number of Operating Rooms desired. The support facilities required also grow with the number of Operating Rooms.

Each module includes the configuration of:

- Operating Rooms
- Anaesthetic Induction Rooms (optional)
- Scrub Bays
- Sterile Stock Store / Set-up Room
- Clean-up Room

The optimal internal relationships demonstrate:

- Arrows indicate the direction of flow
- Adjacencies of rooms indicate the desired relationships
- Separate entrances to the Unit for staff, services and patients
- Control of access for all persons and patients entering
- Staff Station located in relation to bed bays
- Air Pressurisation Regime intended to ensure uni-directional flow of air

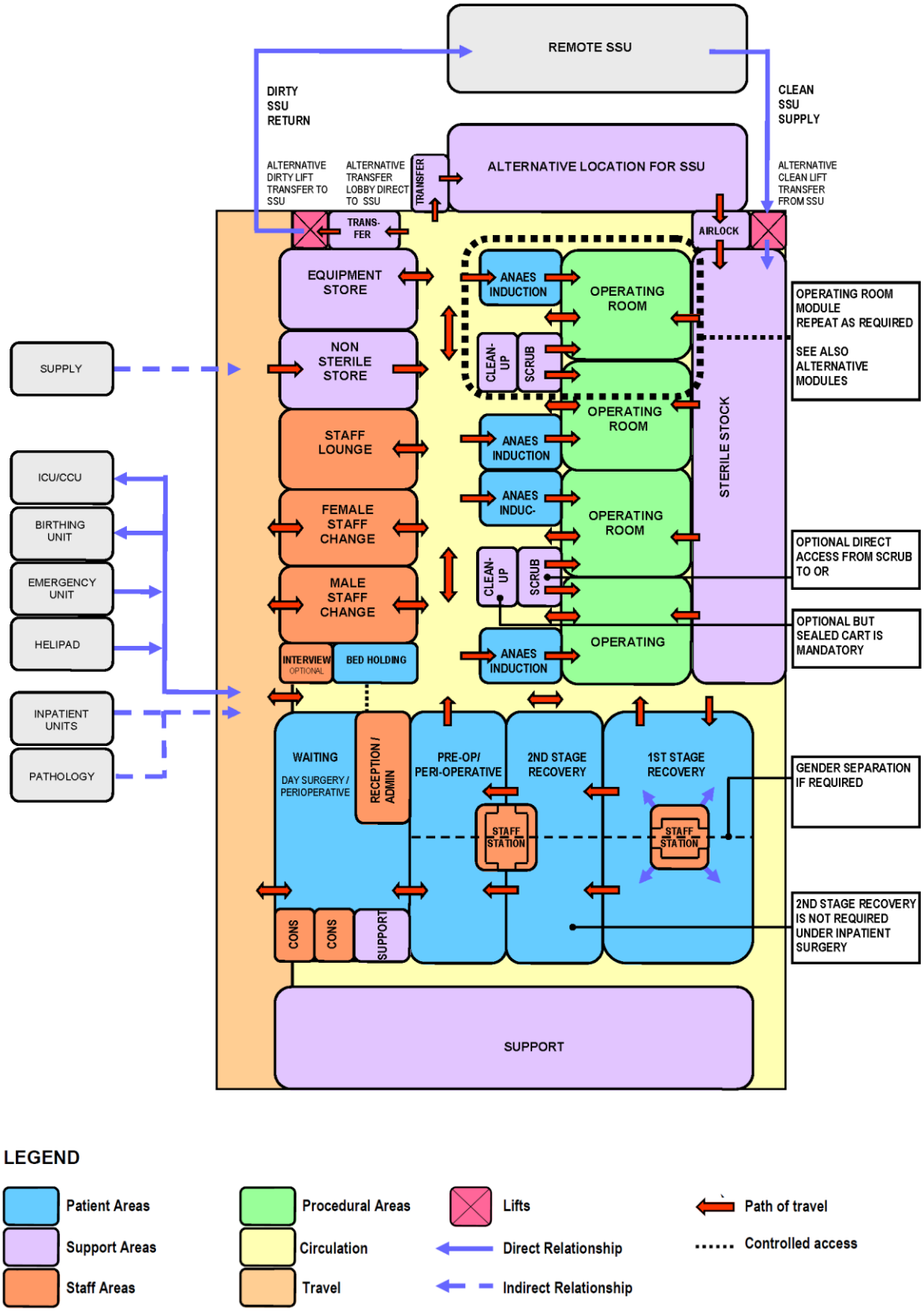
Functional Relationship Diagrams provided are based on two planning models considered efficient and most appropriate. These also allow for easy expansion when required. The models are referred to as “Single Corridor” and “Double Corridor”.

The cluster of key rooms such as operating room, scrub room, sterile stock/setup room, clean-up room and optional anaesthetic induction room are regarded as a “Module”. Several Alternative Modules have been provided which and considered acceptable.

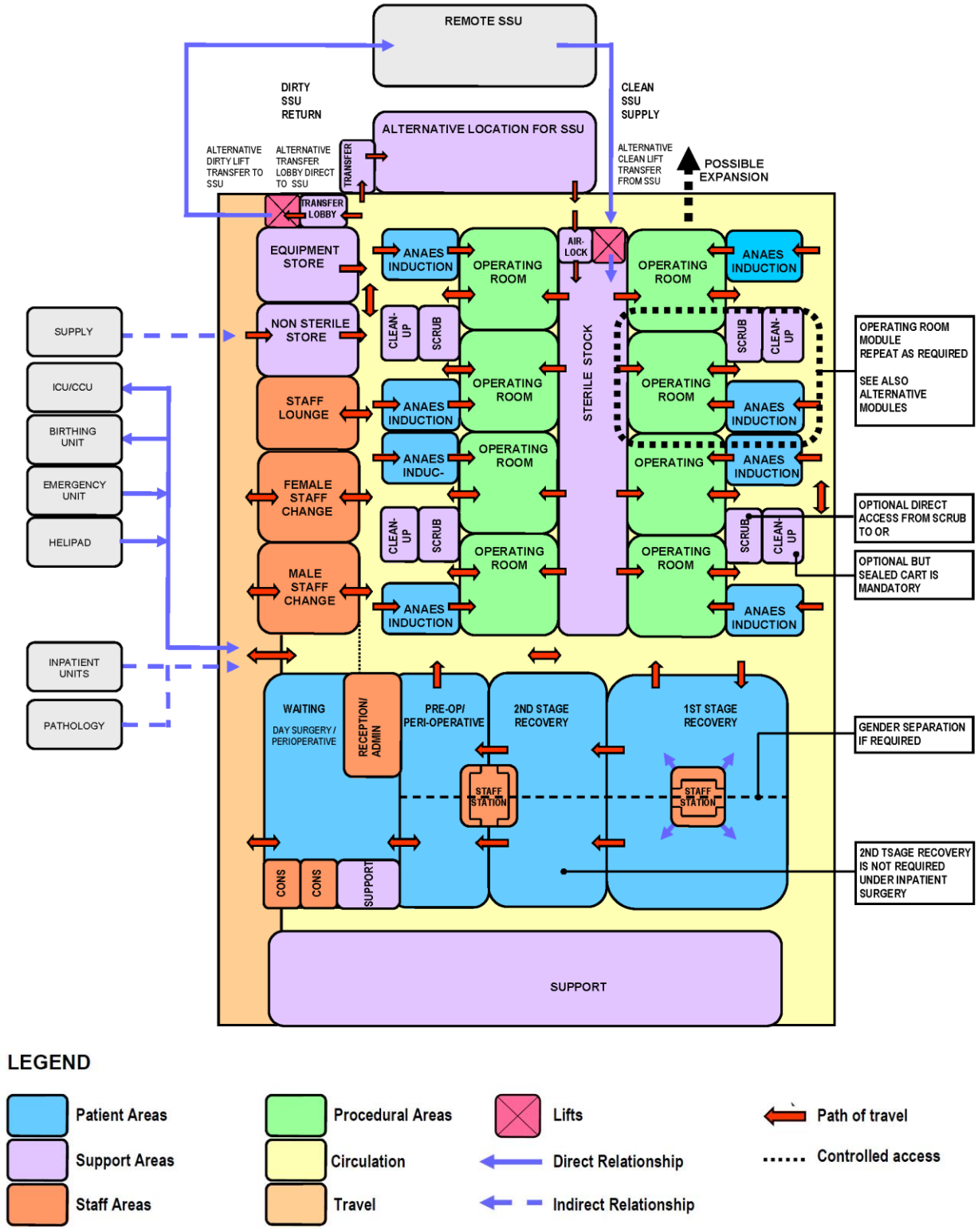
Nothing in the following diagrams should be interpreted to encourage or require a “Dirty Corridor”. In modern Operating Unit design, all corridors are considered as different degrees of clean. In Alternative Modules which connect operating rooms directly to the decontamination area of SSU

(eg Alternative Module G) such corridors should be regarded as regular service corridors, like any other within the unit.

4.3.1 Operating Unit Single Corridor Model



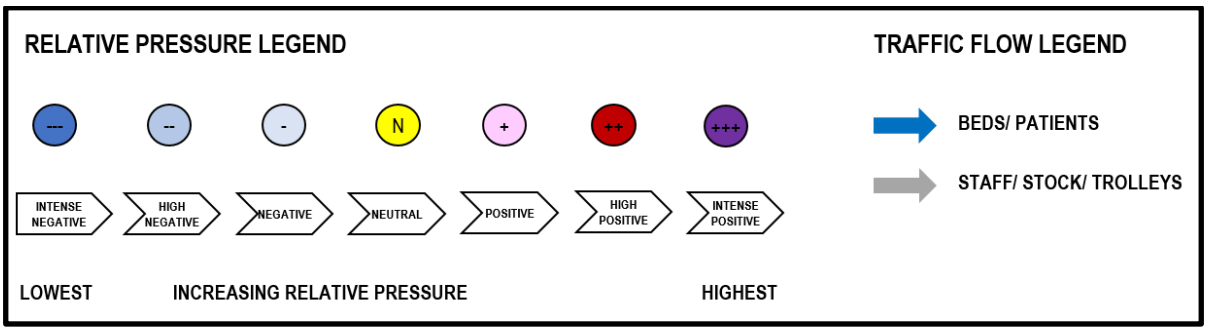
4.3.2 Operating Unit Double Corridor Model



4.3.3 Alternative Modules and Air Pressurisation Diagrams

The alternative module diagrams with air pressurisation shown below represent acceptable variations of the arrangement of Operating Rooms with Anaesthetic and support rooms. Each module represents ideal relationships and maintains correct clean/ dirty flows.

Air pressurisation and traffic flows have been graded according to the following legend below. For the pressure differential between each two grads, refer to **Part E - Engineering Services** of these guidelines:



4.3.3.1 Alternative Modules A to D

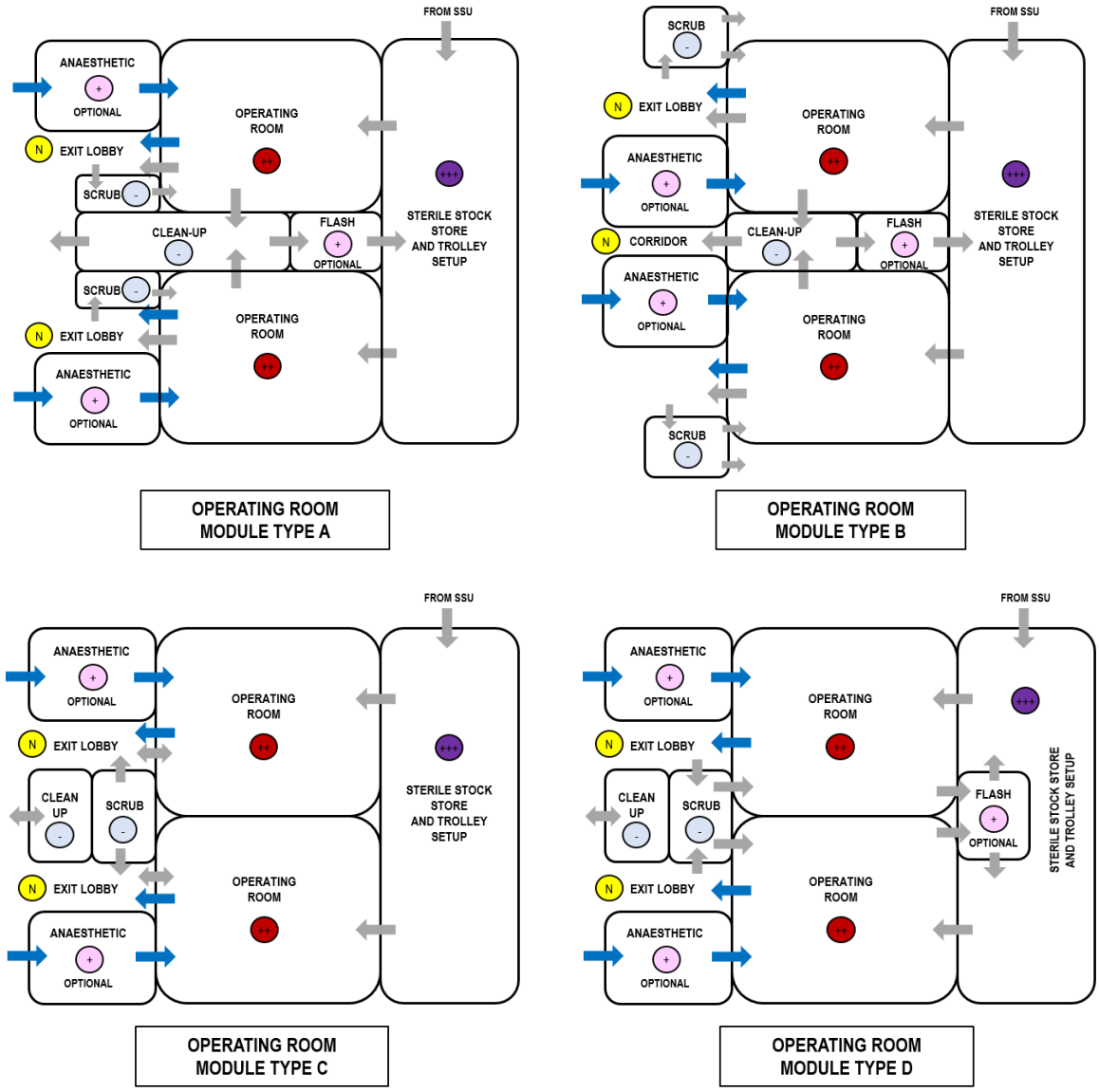


Figure 3. Air Pressurisation Diagram: Operating Unit – Modules A to D

4.3.3.1 Alternative Modules E to H

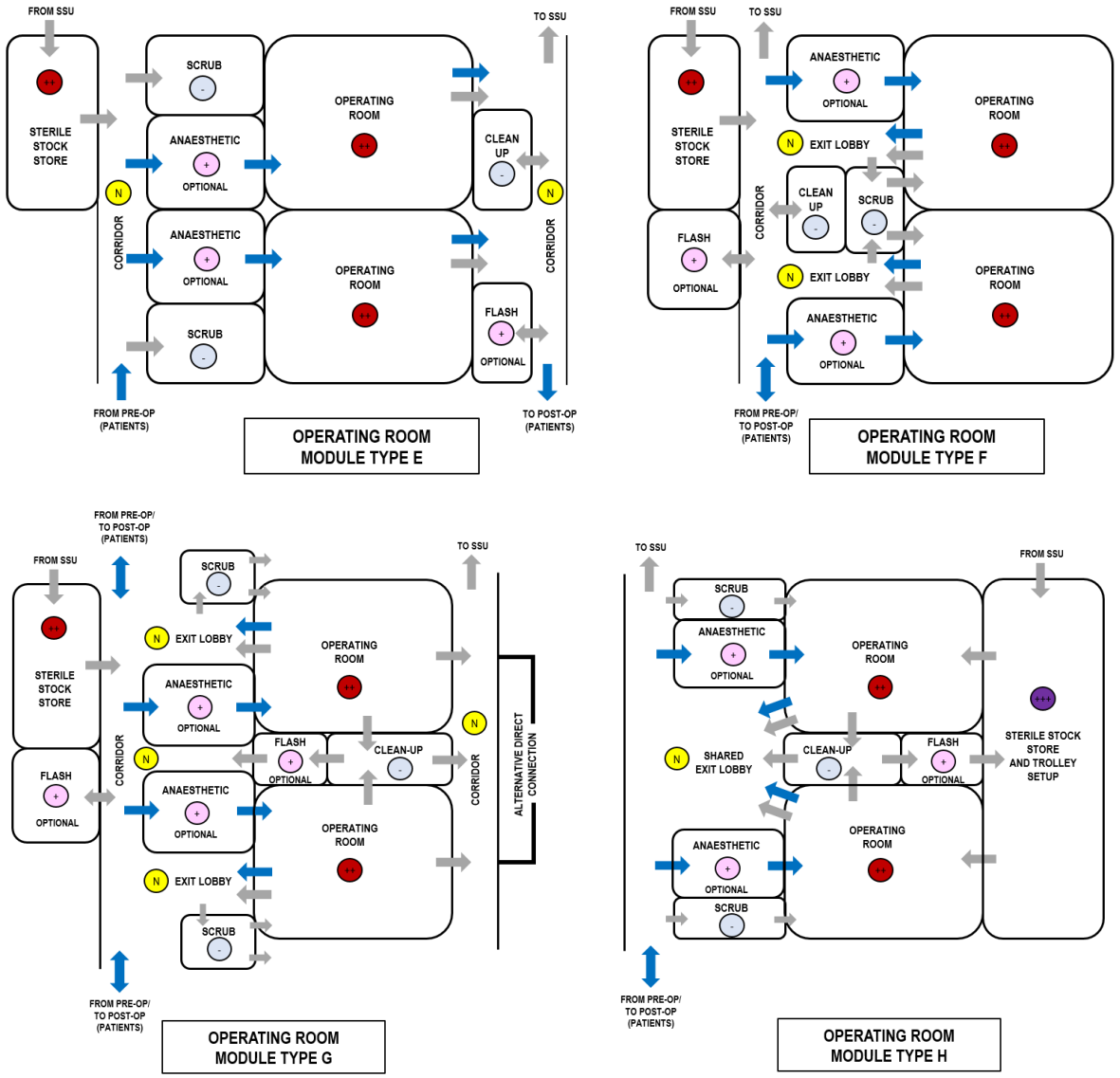


Figure 4. Air Pressurisation Diagram: Operating Unit – Modules E to H

5 Design Considerations

5.1 Environmental Considerations

5.1.1 Acoustics

Acoustic privacy is required in Operating Rooms/ Procedure rooms, Interview rooms and any rooms where confidential information may be discussed.

The transfer of sound between clinical spaces should be minimised to reduce the potential of staff error from disruptions and miscommunication and to increase patient safety and privacy. Noisy areas such as Staff rooms should be located away from procedural areas.

It should be noted that it is common to have sound systems to provide piped music in operating rooms. Therefore, the acoustic design should take this into consideration.

5.1.2 Natural Light

The need for an external view from the Operating Room is an important consideration. Provision of windows need to consider the following:

- Vision from the Operating Room could be through a corridor, set up area or directly to the external environment.
- Many procedures require black-out, so any windows should incorporate black-out features.
- There are heating, cooling and shading implications for windows in the Unit located on the outside of the building that may have an impact on the recurrent costs for maintenance and cleaning.
- Viewing windows from a corridor to the Operating Room can be useful for supervision and training purposes.
- Any window to the operating room must be fixed, be double glazed with internal louvers for light control.

Windows to Recovery areas are desirable, but not mandatory.

Windows to Staff Lounge where staff spend a considerable amount of their time should be given a high priority in design. However, this is not a mandatory requirement.

5.1.3 Privacy

The design of the patient areas within the Day Surgery Unit needs to consider the contradictory requirement for staff visibility of patients while maintaining patient privacy. Unit design and location of staff stations will offer varying degrees of visibility and privacy. The expected patient acuity, age, gender and level of dependency should be considered.

Each bed bay or recliner bay in pre-op and post-op areas shall be provided with bed screens (curtains) to ensure privacy of patients when needed. Refer to the **Standard Components Room Data Sheets** and **Room Layout Sheets** for examples.

The following features shall be integrated to the design of the Unit:

- doors and windows to be located appropriately to ensure patient privacy and not comprise staff security
- discreet spaces to enable confidentiality of discussions related to a patient
- location of patient change areas to provide direct access to waiting areas to prevent patients in gowns travelling through public areas when changed before and after procedures

5.2 Accessibility

All patient areas and paths should be wheelchair accessible and designed to comply with relevant accessibility standards. Reception desks and Staff stations should provide wheelchair accessible counters.

The Reception desk, Waiting areas and Interview rooms should provide access for patient relatives and visitors in wheelchairs. Also refer to **Part C - Access, Mobility, OH&S** within these Guidelines.

5.3 Doors

All entry points, doors or openings requiring bed/trolley access including Operating Rooms are recommended to have a clear opening of 1400 mm. Larger openings may be required for special

equipment, as determined by the Operational Policy, to allow the manoeuvring of equipment without manual handling risks and risk of damage.

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

5.4 Ergonomics/ OH&S

Design of clinical spaces including Operating and Procedure rooms must consider Ergonomics and OH&S issues for patient and staff safety and welfare. Particular attention should be given to storage of stock and equipment, to minimise manual handling and provide minimum distances between shelving aisles.

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

5.5 Size of the Unit

The size of the Operating Unit as defined by the number of Operating Rooms will be determined based on the Clinical Services Plan (SCP) or Feasibility Study establishing the intended services scope, complexity and population catchment served.

Generic Schedules of Accommodation (SOA) have been provided for typical units at role delineation levels 3 (less complex services) to 6 (teaching/ research facilities).

5.6 Safety and Security

The Operating Unit shall provide a safe and secure environment for patients, staff and visitors, while maintaining a non-threatening and supportive atmosphere conducive to recovery.

Internal spaces and zones should offer security through grouping functions, controlling access and egress from the Unit and providing optimum observation for staff. Patient holding, procedural and recovery areas will require restricted and controlled access to prevent unauthorised entry by visitors or others.

5.7 Restricted Staff Access

It should be noted that hospital staff may not enter the unit without first changing in the change rooms provided. This also applies to staff delivering patients on beds and trolleys, those delivering rood for the staff rooms and those delivering boxes to the non-sterile store. Design should restrict the access to staff who deliver the items mentioned above but are not required to enter the unit in person. The typical solution is a hand-over zone where items are passed from the outside to the inside, across a table, through a hatch or across a red line.

5.8 Drug Storage

Narcotics, Controlled and Semi Controlled drugs must be kept in a secure cabinet with alarm within the Anaesthetic Room, Anaesthetic Store, Operating Room or Clean Utility/ Medication Room, according to operational and drug storage policies.

A lockable refrigerator or a refrigerator located within a lockable room is required to store restricted substances.

5.9 Finishes

Finishes including fabrics, floor, wall and ceiling finishes, should be appropriate to the highly clinical nature of this unit including the following considerations:

- Ease of cleaning
- Infection control
- Acoustic properties
- Durability
- Fire safety
- Movement of equipment and impact resistance

Operating Units shall have the following finishes:

- Floors that are smooth, non-slip, impervious, continuous and cleanable with aggressive chemical agents
- Wall finishes which are seamless, impervious and washable
- Ceilings which are smooth and impervious and cleanable
- Floors and ceiling finishes should be anti-bacterial and anti-fungal
- Intersections of walls and ceilings to be smooth without any gaps or joints

In areas where clinical observation is critical such as Operating/ Procedure rooms, Recovery and bed bays, lighting and colour selected must not impede the accurate assessment of skin tones.

For further information and details refer to **Part C – Access, Mobility, OH&S** within these Guidelines.

5.10 Curtains/ Blinds

Windows that require screening within the entire Operating Unit shall be double glazed with internal blinds. Surface mounted blinds or window curtains are not permitted in Operating Unit due to difficulty in cleaning and maintaining a dust free environment.

Privacy bed screens/curtains must be washable, fireproof and cleanly maintained at all times. Disposable bed screens may also be considered.

5.11 Fittings, Fixtures and Equipment

Consideration should be given to Occupational Health and Safety (OH& S) aspects of compactus units for sterile items, storage and movement of heavy loan equipment and shelving for storage of heavy items within the Operating Unit.

Refer to **Part C - Access, Mobility, OH&S** of these Guidelines, the **Room Layout Sheets (RLS)** and **Room Data Sheets (RDS)** for more information.

5.12 Add-on Modules

A number of compatible modules may be integrated with a typical Operating Unit catering for Inpatients and Day Surgery patients. These modules include Catheter Labs and Endoscopy.

In doing so, the procedural areas (e.g. Cath Lab or Endoscopy Room) may be grouped together with the Operating Rooms or slightly separated.

The patient management area such as Reception, Pre-op and Post Op may also be integrated with the balance of the Operating Unit.

Refer to separate FPU's for the requirements of these facilities and ensure all items are provided or shared within an integrated unit.

5.13 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.

5.13.1 Information and Communication Technology

The Operating Unit will require special consideration of the following IT/ Communications systems:

- Electronic Health Records (EHR) which may form part of the Health Information System (HIS), incorporating Patient Administration System (PAS).
- Hand-held tablets and other smart devices
- Picture archiving communications systems (PACS) and location of monitors
- Paging and personal telephones replacing some aspects of call systems
- Voice and data cabling for telephones and computers
- Bar coding systems for supplies and records

- Wireless network requirements
- Videoconferencing requirements for meeting rooms
- Digital operating room requirements particularly linkages to seminar and education facilities for teaching purposes
- Communications rooms and server requirements

5.13.2 Staff Call

Patient, Staff Assist and Emergency Call facilities shall be provided in all patient bed areas (e.g. Anaesthetic Induction Rooms, Holding bays, Recovery bays, Lounges, Change Rooms and Toilets) in order for patients and staff to request for urgent assistance. Staff assist, and Emergency call facilities are required in each Operating/ Procedure room.

All calls are to be registered at the Staff Stations, in circulation corridors and must be audible within the service areas of the Unit including stores, Clean Utilities and Dirty Utilities. If calls are not answered the call system should escalate the alert accordingly. The call system may also use mobile paging systems or SMS to notify staff of a call.

5.13.3 Heating Ventilation and Air-conditioning (HVAC)

The Operating Rooms will require special air-conditioning with positive pressure, HEPA filtration. Temperature, humidity and air changes per hour are to comply with relevant standards and guidelines established in Part E of these guidelines as well as other standards and guidelines referenced. Individual Operating Room temperatures should be controllable by staff from within the room.

Refer to **Part E - Engineering Services** in these Guidelines for specific details.

5.13.4 Medical Gases

The Operating Unit shall provide medical gases and quantities of outlets identified in Standard Components Room Data Sheets and Room Layout Sheets for Operating/ Procedures rooms and various Pre-op and Post-op bed bays.

Each space routinely used for administration of inhalation anaesthesia or analgesia shall include a gas scavenging system to vent waste.

Medical Gases must be dedicated to each patient. Gas outlets may not be shared between two patients in bed/chair bays.

Provision shall be made in the hospital for additional separate storage of reserve gas cylinders necessary to complete at least one day's procedures.

Refer to **Part E - Engineering Services** in these Guidelines for medical gases technical design requirements.

5.13.5 Radiation Shielding and Radiation Safety

Operating Rooms that are used for undertaking imaging procedures require radiation shielding. A certified physicist or qualified expert will need to assess the plans and specifications for radiation protection as required by the FANR. A radiation protection assessment will specify the type, location and amount of radiation protection required for an area according to the final equipment selections, the layout of the space and the relationship between the space and other occupied areas.

Incorporate all radiation protection requirements into the final specifications and building plans and re-evaluate radiation protection if the intended use of a room changes, equipment is upgraded, or surrounding room occupancy is altered. Consideration should be given to the provision of floor and ceiling shielding when rooms immediately above and below are occupied.

As the future use of operating rooms may not be predictable, it is highly desirable to provide Radiation shielding to all operating rooms by default.

5.13.6 Hydraulics

Warm water supplied to all areas accessed by patients within the Unit must not exceed 43 degrees Celsius. This requirement includes all staff handwash basins and sinks located within patient accessible areas.

5.14 Infection Control

Consideration of Infection Control is important in the design of this Unit. Separation of clean and dirty workflows in surgery and clean-up areas and separation of patient care areas and contaminated spaces and equipment is critical to the function of the Unit and to prevent cross infection. Procedure/ Operating rooms will be used for a variety of clients whose infection status may be unknown. Standard precautions must be taken for all clients regardless of their diagnosis or presumed infectious status.

Staff hand washing facilities, including disposable paper towels, must be readily available and highly visible.

Standard precautions apply to the Day Surgery Unit areas to prevent cross infection between patients, staff and visitors.

Refer also to **Part D - Infection Control** in these Guidelines for additional information.

5.14.1 Hand Wash Basins

Clinical hand-washing facilities shall be provided within all patient holding and recovery areas and convenient to the Staff Stations. The ratio of provision shall be a minimum of one clinical hand-washing facility for every four patient bays in open-plan areas.

Refer also to **Part D - Infection Control** in these Guidelines for additional information.

5.14.2 Antiseptic Hand Rubs

Antiseptic hand rubs should be located so they are readily available for use at points of care, at the end of patient beds and in circulation areas.

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, cannot fully replace Hand Wash Bays. Both are required.

5.14.3 Isolation Rooms

By default, Operating Rooms will require Positive Pressure. The need for Negative Pressure Operating Rooms shall be determined by the Service Plan and Operational Policy of the Unit. Such a provision must be restricted to certain patient types.

The need for Isolation rooms (Positive and Negative Pressure) in Holding and Recovery areas is to be evaluated by an infection control risk assessment and will reflect the requirements of the Service Plan.

Any Endoscopy rooms integrated within the Operating Unit may be designed with Positive Pressure or Negative Pressure. However, considering the range of usage of Endoscopy Rooms, it is recommended that all endoscopy rooms be designed with Negative Pressure.

Switchable negative/ Positive pressure rooms must be avoided.

6 Standard Components of the Unit

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
2	Provided by the Client and installed by the builder
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 Operating Unit will consist of Standard Components to comply with details described in these Guidelines. Refer to Standard Components Room Data Sheets (RDS) and Room Layout Sheets (RLS) separately provided.

6.1 Non-Standard Rooms

Non-standard rooms are 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.

6.1.1 Exit Bay

The Exit Bay is an area adjacent to the Operating/ Procedure rooms which is designed to hold the patient bed/trolley during the procedure. The Exit Bed Bay should consider and include the following:

- 1 Exit Bay must be provided per Operating / Procedure Room
- Adequate space to accommodate patient bed without encroaching on circulation corridor
- Adequate power should be provided to recharge the bed and any equipment attached

6.1.2 Perfusion Room

The Perfusion Room is for the preparation of perfusion equipment, and where set-up for cardiac procedures is undertaken. The room will be located in close proximity to the Cardiac Operating Room/s and adjacent to a Perfusion Store. Room requirements may include:

- Heavy duty shelving for storage of perfusion fluids and equipment
- Computer workstation for a perfusion technician including power and data outlets
- Handwashing basin Type B with paper towel and soap fittings
- Bench, sink and cupboard unit for servicing of the perfusion machine

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 sum of theroom areas is shown as the Sub Total as the Net Area. The Total area is the Sub Total plus the circulation percentage. The circulation percentage represents the minimum recommended target area for corridors within the Unit 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 Schedule of Accommodation are developed for particular levels of services known as Role Delineation Level (RDL) and numbered from 1 to 6. Refer to the full **Role Delineation Framwork** (**Part A - Appendix 6**) in these gduielines for a full description of RDL's.

The table below shows a typical Operating Unit at RDL's 3 to 6 with 2 OR's, 4OR's, and 12 OR's.

Any proposed deviations from the mandatory requirements, justified by innovative and alternative operational models may be proposed and record in the **Non-Compliance Report** (refer to **Part A - Appendix 4**) with any departure from the Guidelines for consideration by the DHA for approval

7.1 Operating Unit

Note: RDLs 1 and 2 involve minor day surgery and are not applicable for Operating Unit.

ROOM/ SPACE	Standard Component Room Codes		RDL 3 Qty x m²			RDL 4 Qty x m²			RDL 5/6 Qty x m²			Remarks
Admission/ Reception/ Pre-op Holding			**2 ORs**			**4 ORs**			**12 ORs**			
Reception/ Clerical	RECL-10-D similar RECL-15-D		1	x	12	1	x	12	1	x	15	
Waiting	WAIT-10-D WAIT-30-D		1	x	10	1	x	10	1	x	30	Divided into male/ female areas
Waiting - Family	WAIT-10-D WAIT-30-D		1	x	10	1	x	10	1	x	30	
Meeting Room - Small	MEET-9-D similar		1	x	9	1	x	9	1	x	12	Interviews with family
Staff Station	SSTN-5-D								1	x	5	Reception area can be used for levels 3-4
Patient Bay - Holding (Male/ Female)	PBTR-H-10-D similar		2	x	10	2	x	10	6	x	12	1 per 2 Operating Room; optional; Separate Male/Female
Toilet - Patient	WCPT-D		2	x	4	2	x	4	2	x	4	Separated for male and female.
Bay - Blanket Warmer	BBW-1-D similar					1	x	2	1	x	2	As required
Bay - Handwashing, Type B	BHWS-B-D		1	x	1	1	x	1	2	x	1	
Bay - Linen	BLIN-D					1	x	2	1	x	2	May be shared for Level 3; 1 per 16 bed spaces
Clean Utility - Sub	CLUR-8-D		1	x	8	1	x	8	1	x	8	
Dirty Utility - Sub	DTUR-S-D					1	x	8	1	x	8	RDL 3 may share Dirty Utility
Office - Write-up Bay	OFF-WI-1-D similar		1	x	6	1	x	6	1	x	6	Staff work area based on 3m2 per person, as required
Operating Rooms (OR) Areas			**2 ORs**			**4 ORs**			**12 ORs**			
Anaesthetic Induction	ANIN-D		2	x	15	4	x	15	10	x	15	Optional
Anaesthetic Induction - Large	ANIN-D similar								2	x	18	Optional, larger room for teaching purpose if required
Operating Room - General	ORGN-D		2	x	42	1	x	42	2	x	42	For minor procedures
Operating Room - Digital	OR-DIG-D					3	x	55	10	x	55	55m2 is the optimal size for this OR
Operating Room - Large	ORLA-D								1	x	60	Optional; Provide according to service demand
Operating Room - Hybrid/ CT	OR-HY-CT-D								1	x	70	Optional; Provide according to service demand
Operating Room - CT Control	OR-CTCR-D								1	x	10	For Operating Room - Hybrid/ CT
Computer Equipment Room	COEQ-D								1	x	8	For Operating Room - Hybrid/ CT

ROOM/ SPACE	Standard Component Room Codes				RDL 3 Qty x m^2			RDL 4 Qty x m^2			RDL 5/6 Qty x m^2			Remarks
Operating Room - Hybrid/ MRI	ORLA-D similar										1	x	60	Optional; Provide according to service demand; Provide a door (1200mm clear opening) from Operating Room going into the adjoining MRI Scanning Room.
MRI Scanning Room	MRI-42-D										1	x	42	Optional; Provide according to service demand; Adjoining an Operating Room.
Control/ Reporting Room	ANCRT-D similar										1	x	14	For MRI Scanning Room
Computer Equipment Room	COEQ-D										1	x	8	For MRI Scanning Room
Operating Room - Imaging (Vascular/ Cardiac)	OR-VC-D										1	x	70	Optional; Provide according to service demand
Operating Room-Control Room	OR-CTCR-D										1	x	10	For Operating Room - Hybrid/ CT
Computer Equipment Room	COEQ-D										1	x	8	For Operating Room - Imaging (Vascular/ Cardiac)
Operating Room - Robotic	ORRB-D										1	x	55	Optional; Provide according to service demand
Scrub-Up/ Gowning	SCRB-6-D similar				1	x	8	2	x	8	6	x	8	1 per 2 Operating Room
Exit Bay	NS				2	x	8	4	x	8	12	x	8	1 per Operating Room
OR Support Areas														
Audio-visual Room	audv-d										1	x	10	As required for digital recording
Anaesthetic Store	anst-d similar				1	x	15	1	x	20	2	x	20	
Anaesthetic Workroom	anwm-d similar				1	x	10	1	x	15	1	x	20	Also used for Biomedical equipment
Bay - Blanket/ Fluid Warmer	bbw-1-d				1	x	1	1	x	1	1	x	1	Optional
Bay - Linen	blin-d				1	x	2	2	x	2	2	x	2	
Bay - Mobile Equipment	bmeq-4-d similar				1	x	2.5	2	x	2.5	6	x	2.5	1 per 2 OR, may be collocated
Bay – Resuscitation Trolley	bres-d similar				1	x	1.5	2	x	1.5	2	x	1.5	
Bay - Pathology	bpath-1-d similar				1	x	1	1	x	4	1	x	6	Optional for RDL 3 & 4
Blood Store	blst-d similar				1	x	2	1	x	2	1	x	4	
Cleaners Room	clrm-6-d				1	x	6	2	x	6	4	x	6	Minimum of 1 per approximately 1000m^2
Clean-Up Room	clup-7-d				1	x	7	2	x	7	6	x	7	1 per 2 OR, may be collocated and shared between ORs
Disposal Room	disp-8-d similar				1	x	10	1	x	10	2	x	10	
Flash Steriliser	fst-2-d				1	x	2	1	x	2	1	x	2	Optiona,Only for emergency use and dropped single instruments

ROOM/ SPACE	Standard Component Room Codes				RDL 3 Qty x m^2			RDL 4 Qty x m^2			RDL 5/6 Qty x m^2			Remarks
Office - Write-up Bay	off-wi-1-d similar				1	x	6	1	x	6	1	x	6	
Set-up Room	setup-8-d similar				1	x	8	1	x	16	1	x	16	Optional. depends on Operational Policy of the unit
Store - Drugs	stdr-5-d similar							1	x	5	1	x	10	
Store - Equipment, Major	steq-14-d steq-20-d similar				1	x	14	1	x	30	2	x	36	$6m^2$ per OR recommended for RDL 5/6
Store - Equipment, Minor	steq-14-d steq-20-d similar				1	x	14	1	x	14	2	x	30	$5m^2$ per OR recommended for RDL 5/6
Store - Loan Equipment	steq-10-d steq-16-d similar				1	x	10	1	x	10	1	x	15	Optional, for equipment on consignment
Store - Non-Sterile/ De-boxing	steq-20-d similar				1	x	20	1	x	30	1	x	30	
Store - Sterile Stock	stss-20-d similar				1	x	24	1	x	44	1	x	120	Based on 10-12 m^2 per OR
Perfusion Room	NS										1	x	20	Optional, for cardiac specialties
Store - Perfusion	stgn-20-d										1	x	20	Optional, for cardiac specialties
Toilet - Staff	wcst-d							2	x	3	2	x	3	In addition to toilets in Change Rooms
Recovery Areas – Stage 1					**2 ORs**			**4 ORs**			**12 ORs**			
Patient Bay – Recovery Stage 1	pbtr-rs1-12-d similar				4	x	9	8	x	12	22	x	12	2 bays per OR(including isolation); separate Male/ Female areas
1 Bed Room – Isolation, Negative Pressure	1br-isn-18-dsimilar										2	x	12	Provide according to service demand
Anteroom	anrm-d										2	x	6	for Isolation Room, Negative Pressure
Ensuite	ens-st-d										2	x	5	For Isolation Room Negative Pressure
Staff Station	sstn-14-d similar sstn-20-d				2	x	10	2	x	12	2	x	20	1 each for Male/ Female areas
Bay – Blanket Warmer	bbw-d				1	x	1	1	x	1	1	x	1	As required
Bay - Handwashing, Type A	bhws-a-d				1	x	1	2	x	1	6	x	1	1 per 4 bays; Refer to Infection Control Part D
Bay - Linen	blin-d				1	x	2	2	x	2	2	x	2	
Bay - Resuscitation	bres-d				1	x	1.5	1	x	1.5	1	x	1.5	
Clean Utility	clur-12-d similar				1	x	12	2	x	12	2	x	14	
Dirty Utility	dtur-12-d				1	x	12	2	x	12	2	x	12	
Store - General	stgn-8-d similar				1	x	6	2	x	6	2	x	10	
OR Staff Areas					**2 ORs**			**4 ORs**			**12 ORs**			
Change - Staff (Male/Female)	chst-20-d similar				2	x	20	2	x	35	2	x	70	Toilets, Shower & Lockers; size depends on staff numbers
Meeting Room - Small	meet-9-d similar				1	x	9	1	x	9	1	x	12	Optional, according to service demand
Meeting Room – Medium/ Large	meet-l-15-d meet-l-30-d							1	x	15	1	x	30	Optional, according to service demand

ROOM/ SPACE	Standard Component Room Codes				RDL 3 Qty x m²			RDL 4 Qty x m²			RDL 5/6 Qty x m²			Remarks
Office - Single Person	off-s12-d							1	x	12	1	x	12	Note 1; Service Manager
Office - Single Person	off-s9-d				1	x	9	1	x	9	2	x	9	Note 1; Unit Manager OR, Unit Manager Recovery
Office - Single Person	off-s9-d				1	x	9	2	x	9	4	x	9	Note 1; Surgeons, Anaesthetists, Specialist Nurses
Office - 2 Person, Shared	off-2p-d							1	x	12	1	x	12	Note 1; Nurse Educators, Medical Specialists, Clinicians
Office - 3 Person, Shared	off-3p-d							1	x	15	2	x	15	Note 1; Registrars, Medical Officers
Staff Room	srm-15-d srm-25-d similar				1	x	15	1	x	30	1	x	60	May divide into Male & Female areas
Toilet - Staff	wcst-d										2	x	3	In addition to toilets in Change Rooms, separate M/ F
Toilet - Accessible, Staff	wcac-d										1		6	Unless available nearby
Sub Total							**551.5**			**1042.5**			**2941.5**	
Circulation %							**40**			**40**			**45**	
Area Total							**772.1**			**1459.5**			**4118.1**	

7.2 Peri-operative Unit (Optional)

The Perioperative Unit required for the management of Day Surgery patients may be collocated with Operating Unit for Inpatient Surgery. If collocated, the following SOA applies. Otherwise refer to Day Surgery FPU for further details.

ROOM/ SPACE	Standard Component Room Codes				RDL 3 Qty x m²			RDL 4 Qty x m²			RDL 5/6 Qty x m²			Remarks
					2 ORs			4 ORs			12 ORs			
Admissions/ Reception														
Reception/ Clerical	recl-10-d similar recl-15-d similar				1	x	9	1	x	9	1	x	12	May be shared with OR/ Day Surgery Reception
Office	off-s9-d off-2p-s				1	x	9	1	x	9	1	x	12	Clerical Support/ records; May be shared with OR/ Day Surgery
Toilet – Public (Male/ Female)	wcpu-3-d				2	x	3	2	x	3	2	x	3	Unless available nearby
Toilet - Accessible	wcac-d				1	x	6	1	x	6	2	x	6	Unless available nearby
Waiting	wait-20-d similar				1	x	20	1	x	20	1	x	25	
Waiting – Female/ Family	wait-20-d wait-30-d similar				1	x	20	1	x	30	1	x	50	Separate Female/ Family Waiting areas may be provided

ROOM/ SPACE	Standard Component Room Codes				RDL 3 Qty x m^2			RDL 4 Qty x m^2			RDL 5/6 Qty x m^2			Remarks
					2 ORs			4 ORs			12 ORs			
Waiting	wait-sub-d				1	x	5	1	x	5	1	x	5	Wards persons/ Orderlies
Pre-operative Area														
Change –Patient (Male/ Female)	chpt-12-d similar				2	x	12	2	x	12	2	x	24	Optional, Includes Toilet, Shower, Lockers; provide toilets not less than 1:6 bed bays
Waiting – Changed Patient (Male/ Female)	wait-10-d wait-20-d similar				2	x	10	2	x	25	2	x	25	Optional, Alternatively, use patient holding bays
Patient Bay - Holding	pbtr-h-10-d				2	x	10	3	x	10	10	x	10	1 per OR (including isolation) recommended
Patient Bay Enclosed, Isolation	pbtr-h-e-12-d							1	x	12				Class S Isolation
1 Bed Room – Isolation, Negative Pressure	1br-isn-18-d										2	x	18	Provide according to service demand
Anteroom	anrm-d										2	x	6	for Isolation Room, Negative Pressure
Ensuite	ens-st-d							1	x	5	2	x	5	For Enclosed Bed Bay & Isolation Room Negative Pressure
Bay - Handwashing, Type B	bhws-b-d				1	x	1	1	x	1	3	x	1	1 per 4 bays; Refer to Part D Infection Control
Bay - Linen	blin-d							1	x	2	1	x	2	May be shared with Recovery
Bay - Resuscitation Trolley	bres-d				1	x	1.5	1	x	1.5	1	x	1.5	May be shared with Recovery if close
Clean Utility	clur-8-d clur-12-d				1	x	8	1	x	12	1	x	12	Includes medications; May be collocated with Staff Station
Consult/ Exam Room	cons-d				2	x	13	3	x	13	4	x	13	Provide according to service demand
Dirty Utility	dtur-s-d				1	x	8	1	x	8	1	x	8	May be shared with Recovery
Toilet – Accessible, Patient	wcac-d				1	x	6	2	x	6	2	x	6	May share with Recovery areas if close
Post-operative Area (Recovery Stage 2/3)														
Patient Bay - Holding, Recovery Stage 2	pbtr-h-10-d				6	x	10	12	x	10	24	x	10	Separate Male/Female areas, may be combination of bed and chair spaces; allow 3 beds/ chairs per Day Surgery OR
Lounge – Recovery, Stage 2/3	lnpt-rs2-d				2	x	18	2	x	36	2	x	54	Optiona,Separate Male/Female areas, may be collocated; allow 3 lounge chairs per Day Surgery OR at 6m^2 per chair as per the nominated standard component
Staff Station	sstn-14-d similar				1	x	10	2	x	12	2	x	14	
Bay - Beverage, Open Plan	bbev-op-d				1	x	5	1	x	5	1	x	5	
Bay -Blanket/ Fluid Warmer	bbw-d				1	x	1	1	x	1	1	x	1	As required
Bay - Handwashing, Type B	bhws-b-d				4	x	1	6	x	1	9	x	1	1 per 4 beds/ chairs; refer to Part D Infection Control
Bay - Linen	blin-d				1	x	2	1	x	2	2	x	2	

ROOM/ SPACE	Standard Component Room Codes		RDL 3 Qty x m^2			RDL 4 Qty x m^2			RDL 5/6 Qty x m^2			Remarks
			2 ORs			4 ORs			12 ORs			
Bay - Pathology	bpath-1-d		1	x	1	1	x	1	1	x	1	
Bay - Resuscitation Trolley	bres-d		1	x	1.5	1	x	1.5	1	x	1.5	
Cleaner's Room	clrm-6-d		1	x	6	1	x	6	1	x	6	
Clean Utility	clur-8-d clur-12-d similar		1	x	8	1	x	12	1	x	14	
Dirty Utility	dtur-s-d dtur-12-d dtur-14-d		1	x	8	1	x	12	1	x	14	May be shared
Disposal Room	disp-8-d similar		1	x	8	1	x	10	1	x	10	May be shared
Store - Equipment/ General	steq-14-d steq-20-d		1	x	14	1	x	14	1	x	20	Equipment, consumable stock
Toilet – Patient	wcpt-d					2	x	4	4	x	4	
Toilet - Accessible	wcac-d		2	x	6	2	x	6	2	x	6	
Staff Areas												
Meeting Room - Small	meet-9-d		1	x	9	1	x	9	1	x	9	May be shared
Office – Write-up (Shared)	off-wis-d		1	x	12	1	x	12	1	x	12	Note 1
Office – Single Person	off-s9-d		1	x	9	1	x	9	1	x	9	Note 1; Unit Nurse Manager
Property Bay - Staff	prop-3-d similar		1	x	3	2	x	6	2	x	6	
Staff Room	srm-15-d similar		1	x	15	1	x	20	1	x	20	May share with an adjacent Unit
Toilet - Staff	wcst-d		2	x	3	2	x	3	2	x	3	
Sub Total					**420**			**656**			**1026**	
Circulation %					**40**			**40**			**40**	
Total Area					**588**			**918.4**			**1436.4**	

Note 1: Offices to be provided according to the number of approved full-time positions within the Unit

Please 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 RDL and number of OR's
- 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 identified in the service plan and the policies of the Unit
- Room sizes indicated should be viewed as a minimum requirement; variations are acceptable to reflect the needs of individual 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:

- AORN (Association of peri-Operative Registered Nurses (USA); Position Statement on Perioperative Safe Staffing and On-Call Practises, 2014; refer to website: https://www.aorn.org/guidelines/clinical-resources/position-statements
- AHIA, Australasian Health Facility Guidelines, Part B Health Facility Briefing and Planning, 520 - Operating Unit, Revision 5, 2016, refer to: https://healthfacilityguidelines.com.au/health-planning-units
- ASHRAE American Society of Heating Refrigeration and Air-conditioning Engineers, HVAC design manual for hospitals and clinics, 2003 refer to website: https://www.ashrae.org/standards-research--technology/standards--guidelines
- CDC Centres for Disease Control and Prevention, Guideline for Disinfection and Sterilisation in Healthcare Facilities, 2008, refer to website: http://www.cdc.gov/hicpac/pdf/guidelines/Disinfection_Nov_2008.pdf
- DH (Department of Health) (UK) Health Building Note HBN 26 Facilities for surgical procedures: Volume 1, 2009, refer to website: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/148490/HBN_26.pdf
- DH (Department of Health) (UK) Health Building Note HBN 00-03 Clinical and clinical support spaces, 2013, refer to website: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/147845/HBN_00-03_Final.pdf

Guidelines for Design and Construction of Health Care Facilities; The Facility Guidelines Institute, 2014 Edition refer to website: www.fgiguidelines.org