Australasian Health Facility Guidelines

Part B - Health Facility Briefing and Planning

0520 - Operating Unit

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Australasian Health Facility Guidelines

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01 INTRODUCTION

01.01 Preamble

This Health Planning Unit (HPU) has been developed for use by project staff - architects, planners, engineers, project managers and other consultants, and for end users to facilitate the process of planning and design.
The HPU developed for NSW Health in 2004 has been revised for Australasian use. Its development has been informed by a national workshop and an extensive consultation process.

01.02 Introduction

GENERAL
This HPU outlines the specific requirements for the planning and design of an Operating Unit.
It should be read in conjunction with the following generic requirements in the Australasian Health Facility Guidelines (AusHFG).

- Part A: Introduction and Instructions for Use
- Part B: Section 80 - General Requirements & Section 90 - Standard Components
- Room Data and Room Layout Sheets
- Part C: Design for Access, Mobility, OHS and Security
- Part D: Infection Prevention and Control
- Part E: Building Services and Environmental Design.

TERMINOLOGY
'Perioperative' is the term used to describe:

- the preoperative phase of patient management to the point of transfer to the operating room;
- the intraoperative phase - surgery or procedure; and
- the postoperative phase - from point of transfer to recovery followed by transfer to an inpatient unit or 2nd stage recovery and discharge.

In the context of this HPU it is used to describe the facilities for preoperative management of day only, day of surgery admission (DOSA) patients, inpatients and emergency patients and 2nd stage recovery and discharge facilities for day only patients.

01.03 Policy Framework

Policies for the provision of healthcare services are formulated in accordance with the following principles:

- appropriate service models that ensure a comprehensive service network throughout state and regional health jurisdictions;
- deployment of resources in a fair and cost effective manner to optimise health outcomes;
- provision of a safe and efficient environment that minimises risk to all users; and
- development and support for enhanced information systems to monitor, plan and evaluate services.

Readers should also refer to individual jurisdiction policies and to specific service planning guidelines under References and Further Reading.

01.04 Description

The Operating Unit is a physically distinct and environmentally controlled area comprising one or more operating rooms and perioperative areas. Increasingly, the postoperative area for day only patients is developed as an Extended Day Only Unit. The design of the Operating Unit should be sufficiently flexible to

accommodate the day-to-day fluctuations in surgical and procedural caseload and enable the adoption of emerging technologies and changing models of care. Whilst facilitating the management of patients, the Unit should also provide facilities to meet the needs of staff working in the area, authorised visitors to the Unit (professional and students), families and carers.
This HPU describes the facilities required for:

- patient reception, identification and admission;
- patient and visitor waiting and amenities;
- patient preoperative holding and preparation;
- induction of anaesthesia and associated procedures;
- surgery and procedures such as endoscopy;
- 1st stage recovery (Post-Anaesthetic Care Unit or PACU);
- 2nd stage recovery and discharge including Extended Day Only accommodation;
- clinical support functions;
- administrative support functions;
- staff offices and amenities; and
- eaching and research functions as required.

If a dedicated Day Surgery / Procedure Unit is to be provided, refer to Part B: HPU 270 Day Surgery Procedure Unit, Australasian Health Facility Guidelines (AHIA, 2010) for details.

NUMBER OF OPERATING ROOMS
The number of operating and procedure rooms will be determined by:

- the case mix and complexity of the surgical and procedural caseload as defined in the service plan;
- the anticipated volume of procedures including some assumptions regarding the anticipated number of cancellations;
- operating hours - an eight to 10 hour day - and weekend surgery;
- management of emergencies; and
- the length of time of changeover between procedures.

The number of rooms will then assist in defining the number and type of recovery bays/rooms required and the extent and configuration of support and other facilities

OPERATING ROOM SIZES
Advances in surgical techniques and the use of new equipment and technology are driving a requirement for larger operating rooms. The sizes listed in this HPU are minimum sizes and a final space allocation will depend on many factors including surgical case mix and use of new technology in the room e.g. robotics and computers.
The usable floor area should be considered. For every door into the operating room or item fixed onto a wall the usable space in the room is reduced. Carefully consider the number of doors and fixed workstations and their locations in terms of their impact on usable floor area.
Flexibility of use should be considered when planning new units. The impact of this planning principle may result in the adoption of one operating room size, rather than a mix of standard and large sizes. This allows for a change in case mix over time and provides a more flexible footprint when new technologies or practices are adopted. For operating room sizes, refer to the Schedule of Accommodation.

OPERATING ROOM LAYOUT
Operating rooms should be planned with a separate entry for clean goods and the patient, and a separate exit for the patient post-surgery and removal of waste to maintain clean and dirty separation. Trolley holding and stock may be located on one side and a clean-up bay and waste holding on the other side. Refer to the Operating Unit Flow Diagrams (Enclosures B7-1 and Enclosure B7-2) for more information.
Wherever possible the layout and equipment provided should be consistent but this should not interfere with function and usability.
There are two options for operating room layout - single handing and mirror reversal. Refer to Part C Section 705 - Physical Planning Models and Policies, Australasian Health Facility Guidelines (AHIA, 2010).
Single handing means that the layout of each room is identical including door locations and the layout of equipment and fittings e.g. medical services panels is standardised. Single handing may provide benefits including enhanced safety, a reduced rate of errors, and more intuitive use by staff and ease of staff training. A staff member entering any operating room, regardless of its approach from the corridor,

will find the service panel on the left, X-ray viewer on the right, etc. However, this configuration presents fewer opportunities for sharing support rooms. Operating rooms are frequently configured in pairs and this generally results in mirror imaging of operating room layout. This maximises opportunities for sharing facilities such as scrub bays and clean-up rooms. The Operating Unit Flow Diagrams (Enclosure B8 and Enclosure B9) illustrate the two approaches and sharing possibilities.

FUTURE TRENDS

Technology for surgical services is continually changing. It is essential that all new technology is evaluated as it is unlikely that one solution will be applicable in all situations. In some cases, expensive technologies may not be implemented across all rooms but in areas where the most benefit can be demonstrated. Issues for consideration also include occupational and safety issues. Future trends and technologies may include:

- robotic surgery;
- increasing use of imaging technology in the operating room particularly CT and magnetic resonance imaging (MRI);
- digital operating rooms; and
- use of ultrasound for image-guided insertion of lines.

PATIENT CHARACTERISTICS

Patients may be fully ambulant, in wheelchairs, on trolleys or in beds. Special consideration in terms of the physical environment and operational policies should be given to the needs and management of:

- infants, children and their parents where a paediatric service is provided. Segregated areas for the reception of children and for their recovery is recommended where possible in order to screen children from and avoid potential distress to adult patients;
- mothers, partners and babies post-caesarean section;
- patients with known infections;
- bariatric patients with regard to equipment, manual handling and patient amenities;
- patients with physical and cognitive disabilities needing additional care and supervision; and
- patients with mental health conditions undergoing electroconvulsive therapy (ECT).

02 PLANNING

02.01 Operational Models

HOURS OF OPERATION
The hours of operation of an Operating Unit will vary according to the level of service, model of care and operational policies. Large tertiary units will provide services 24 hours/day subject to planned closures and arrangements for emergency surgery during those periods. Smaller units may provide an on-call service after hours and at week-ends. Consideration will need to be given to the needs of night staff.

MODELS OF CARE
The model of care and range of services to be provided will determine the configuration and component parts of the Operating Unit and the functional relationships required with other units. Examples of models of service delivery are described below.

INTEGRATED UNIT
A fully integrated unit provides all the facilities for preoperative, surgical and postoperative management of all patients including DOSA and day only patients within a single envelope. It may or may not have access to an Extended Day Care Unit.
If day surgery and endoscopy are to be performed in a dedicated Day Surgery / Procedure Unit, refer to Part B: HPU 270 Day Surgery Procedure Unit, Australasian Health Facility Guidelines (AHIA, 2010) for details.

SINGLE SPECIALTY OPERATING UNIT
This may be a unit catering to a single specialty such as burns, obstetrics, plastic surgery, ophthalmology or plastic surgery. Patients are frequently day-only admissions.

PERIOPERATIVE MODEL
Facilities for preoperative management of day and DOSA patients and postoperative care of day patients may be undertaken in a separate unit that could additionally operate as an Extended Day Only Unit. Patients undergoing planned surgery as day-only or day-of-surgery admissions are admitted to a dedicated facility prior to surgery. Surgery and 1st stage postoperative recovery are undertaken in the Operating Unit. DOSA patients are transferred to an inpatient unit. Day-only cases are transferred to the Perioperative Unit for pre-discharge care.

EXTENDED (23 HOUR) DAY ONLY UNIT
The Extended Day Only Unit model is based on the premise that the majority of surgical and procedural care can be provided within a 24 hour period in a non-inpatient unit environment. Patients are admitted, prepared for the procedure, then recovered post-surgery before protocol-based discharge. While some patients may only need a few hours of care post procedure, others may stay in the Unit for up to 23 hours. These units require similar rooms/spaces to a general inpatient unit.
Refer to Extended Day Only (EDO) Admission Policy (PD2007_065) (NSW Health, 2011).

SHORT STAY UNIT
Patients undergoing planned surgery as a day only or overnight admission are admitted to a dedicated short stay unit, transferred to the Operating Unit for surgery and 1st stage recovery, and then returned to the short stay unit. Postoperative stay is usually 48 hours or less. Refer to NSW model - Surgical Acute Rapid Assessment Unit (SARA) / NSW Health, Clinical Services Redesign Program (NSW Health, Clinical Services Redesign Program, 2008).

COLLOCATED OPERATING UNIT AND INTERVENTIONAL IMAGING
his is a model whereby operating rooms and interventional angiography rooms are collocated, allowing for easy access to anaesthetic support and shared use of perioperative facilities thus reducing unnecessary duplication.

02.02 Operational Policies

GENERAL
Users are required to define their own operational policies as one of the earliest steps in the planning process.
Policies that may affect planning include:

- booking procedures;
- inclusion or exclusion of day only procedures and endoscopy;
- admission procedures for DOSA and day only patients including arrangements for pre-admission clinic assessment;
- discharge protocols;
- allocation of specialty-specific operating rooms;
- provision of a dedicated emergency operating room;
- the manner in which food, linen and supplies are ordered, supplied and stored;
- medical records management;
- provision of sterile supplies from a Sterile Supplies Unit (SSU) or Theatre Sterile Supplies Unit (TSSU);
- use of emergency (flash) sterilization for instruments;
- procedures for cleaning and sterilizing endoscopes;
- flow and management of patients within the Operating and Perioperative Units e.g. will day and DOSA patients walk to the Operating Room?;
- the management of additional procedures requiring anaesthetic support and/or recovery (e.g. transoesphageal echo, endoscopy, bronchoscopy). Will this happen at multiple sites around the hospital or be managed in a minimal number of locations to ensure patient safety is not compromised;
- management of visitors and students;
- management of mothers, babies and partners post-caesarean section; and
- management of children and parents.

Refer to Part B: Section 80 General Requirements for further details.

CASE ASSEMBLY / SET-UP
Assembly / set-up is the process of compiling all the packs and sterile consumables required for each surgical case / procedure. It will need to be determined whether this process will be carried out in SSU, TSSU or the Operating Unit's own Sterile Stock Store. A range of equipment may be used for case assembly:

- case carts - one case per cart;
- shopping trolley-like containers - one case per trolley; and
- shelved trolleys that may contain the requirements for several cases.

The opening and laying out of the contents of the packs occurs in the operating / procedure room and is performed under sterile conditions by a scrubbed staff member. In some jurisdictions, set-up may refer to the process of opening and laying out of contents - as distinct from assembly - but provision of separate set-up rooms for this purpose is not recommended.

CONSIGNMENT (LOAN) INSTRUMENTS
Most Operating Units utilise consignment (loan) instruments, the majority of which are orthopaedic instruments. There may be 20 or more trays delivered in crates / boxes. Provide a designated area in the SSU or Operating Unit accessible from the main corridor, where trays can be delivered, opened and checked prior to being wrapped and sterilized. The reverse process occurs after use prior to return to the provider. In some instances, loan sets may be photographed prior to and after use as a quality assurance measure.
Instrument trays may be extremely heavy and the area needs to be designed to minimise risks of injury associated with manual handling (Designing Safer Buildings And Structures (WorkSafe Victoria, 2005)).

EMERGENCY (FLASH) STERILIZING

Emergency (flash) sterilizing is restricted to situations where a single instrument has been dropped and no sterile duplicate item is available. It may only be used for unwrapped, non-porous items as the process does not dry the load, therefore textiles and paper wraps cannot be used. Downward displacement sterilizers should not be considered for new or refurbished facilities. There are pre-vac sterilizers that have a fast cycle that can be used to fast track items using a flash-pack system. The sterilizers are not designed to sterilize liquids, and cannulated, complex instruments, suction and other tubing should not be processed by this method.

It is recommended that emergency sterilizing is carried out in the TSSU or SSU, not in the Operating Unit to ensure that instruments are appropriately cleaned and processed before being sterilized. This allows appropriate tracking and ready identification of new instruments to prevent unnecessary emergency processing.

Where emergency sterilizing is undertaken in the Operating Unit, a dedicated sterilizing bay is required. The sterilizers should be under the control of SSU or TSSU and tested daily to ensure that the parameters of sterilizer performance comply with AS/NZS 4187:2014 Reprocessing of Reusable Medical Devices in Health Service Organizations (Standards Australia, 2014).

NOTE: The use of flash sterilizing as a convenience or a cost saving measure is not acceptable. An adequate supply of instruments should be available.

MEDICAL IMAGING

Intra-operative diagnostic imaging equipment will have design ramifications, including the growing need for Imaging control rooms and viewing rooms.

PATIENT PREOPERATIVE PREPARATION AND HOLDING

The operational model for the Operating Unit will determine the need for preoperative Holding Bays and Patient Change facilities and amenities. The space allocation of 9m2 for Holding Bays provides sufficient space for a patient to change into a theatre gown. In this case additional Patient Change Rooms may not be required. Alternatively, patients may change into a theatre gown prior to surgery and walk into the Anaesthetic Bay or Operating Room. In such cases, holding bays for elective surgery patients may not be required and instead be replaced with a waiting area.

PRE-ADMISSION CLINICS

Centre or within or near the preoperative zone of the Perioperative Unit. Consulting rooms, ECG capability, pathology testing and access to medical imaging will need to be considered as a minimum.

02.03 Planning Models

GENERAL PRINCIPLES

The operational model chosen for the Operating Unit will greatly influence the planning model adopted. The location of units such as Day Surgery Unit, Extended Day Only Unit, TSSU / SSU, Admissions / Bookings and Administrative Services will have an impact on the selection of the planning model.

LOCATION

The shape of the building and the location of the Operating Unit within the building will affect the planning of the unit. However there are a number of other issues / planning parameters that will need to be evaluated prior to commencing the internal planning of the Unit as described in the following sections.

TRAFFIC FLOWS

When planning the Operating Unit, it is necessary to understand the flows of:

- people - patients, staff and visitors;
- supplies and equipment, and;
- information.

It is preferable to separate the booked, routine traffic from inpatient and emergency patients, and staff and goods traffic or movement.

Traditional operating unit designs featured clean and dirty zones and completely separate corridor systems for patients and for clean and dirty goods. In a modern unit, operational policies play a greater role in managing and controlling the different flows but control of traffic flows remains a key issue in unit design.

SINGLE CORRIDOR DESIGN
A single corridor is an option where goods - clean and used and all pre and post operative patients traverse the one corridor. There is ongoing debate as to the suitability of this approach but it may be considered suitable provided:

- the main circulation corridor is sufficiently wide in order to permit separation of the passage of goods and services; and
- handling of clean supplies and waste is carefully addressed.

RACE TRACK DESIGN
This model aims to separate dirty from clean traffic by controlling the use of each corridor.
As sterile stock storage is usually centralised in this model, both stock and staff can be concentrated in one location. This prevents duplication of equipment stock and staff.

CLUSTERS / PODS
A cluster of two to four Operating Rooms with a shared Sterile Stock Store is a model often considered during the planning stages. Clusters of rooms are often grouped around surgical specialities. The operating costs of providing dedicated staff and stock duplication in this arrangement of Operating Rooms need to be considered.
This model can add to the corridor space and circulation space and staff may prefer the extra space to be allocated to stock storage.

DEDICATED OPERATING ROOMS WITH FIXED EQUIPMENT
This model dedicates particular operating rooms to specific types of surgery using fixed equipment for specialities such as Urology with a dedicated table and drainage, and Ophthalmology with ceiling-mounted microscopes. This may be beneficial in larger units where work volumes justify this specialisation. In smaller units the benefits of flexible use of operating rooms usually outweighs the benefits of specialisation. However, fixed equipment can preclude the multifunctional use of the room and if a piece of equipment needs servicing or repair, the room cannot be used. Fixed radiology equipment is large and difficult to clean and may not be required for all cases.

DEDICATED MEDICAL IMAGING ROOMS
Locate dedicated medical imaging rooms within the Operating Unit (such as MRI and CT) adjacent to the operating rooms that will access this technology.
Two models for the use of these imaging rooms are emerging. Either the imaging modality is moved via tracks to the patient in the operating room or the patient is moved to the imaging room. In both cases the option of accessing the imaging room at other times (e.g. for use by intensive care patients) is desirable. In either case, there will be a requirement for a control room.

DIGITAL OPERATING ROOMS
The digital operating room integrates operating room systems, the hospital's information system (HIS), Picture Archive and Communications Systems (PACS), internet access, and video and audio technology. Staff will be able to access images, results and medical records via sterile touch screens. The images can be transmitted in real time which allows education and/or supervision to occur in other locations that may be an adjoining observation room, other hospital, conference facility, etc. In the observation room, visitors can view the surgery on monitors and communicate with the surgical team through intercoms.
The structure of a digital operating room differs from a traditional room. Critical components such as monitors, cameras and certain instruments are suspended from the ceiling instead of sitting on carts beside the operating table.

LAMINAR FLOW OPERATING ROOMS
There has been much discussion regarding the efficacy of laminar flow in operating rooms for infection control (the exception being 'barn' operating rooms - refer below). Inclusion of laminar flow should be a project-specific decision. Refer to HB 260:2003 Hospital Acquired Infections - Engineering Down the Risk (Standards Australia, 2003).

'BARN' OPERATING ROOMS
The Barn concept provides a single space for many operating stations. Each station within the larger space has its own air handling system (laminar flow), ductwork, lighting, controls, and shares preparation and cleaning facilities. This arrangement allows some team members, such as anaesthetic and radiology staff, to move between cases, supervise staff and be easily on-hand if problems arise (Operating Theatres: Barn

Blueprint, Hospital Development (Advani, Sonali, 2007)). This concept may be considered as part of overall service planning and in the development of a facility model. It will need to address the number of work areas and the procedures to be undertaken.

MULTI-STOREY UNITS
There may be occasions when there is insufficient floor area for the entire Operating Unit to be accommodated on one floor. All patient-related facilities should be collocated but facilities such as Staff Change Rooms, Staff Lounge, meeting and training rooms and some offices may be located on a floor above or below the main Operating Unit.
In this model, ease of access to Operating Rooms and the Recovery area via internal lift or stairs is essential. Stairs or lifts should be centrally located and designed so that clothing disciplines can be maintained.
Stairs should be of adequate width to accommodate the anticipated traffic. Adequate communication facilities are required to reach staff in case of emergency e.g. phone, pager or annunciator system.
Additional staff toilets should be provided on the main floor.

EXTENDED DAY ONLY UNITS
Should the Operational Model determine the need for an Extended Day Only Unit, consider the need for patient toilets and showers. While some patients being cared for in this Unit may only need a few hours care post procedure, other will stay in the Unit for between eight and 20-plus hours and may need access to a shower. These should be supplied at a ratio of one to six beds but should be dependent on projected activity.
Access may be required to a:

- beverage bay with refrigerator;
- waiting area for visitors and families;
- staff station; and
- accessible shower/ or toilet that will also accommodate bariatric patients.

OPPORTUNITIES FOR SHARING SPACE
Perioperative Units can have predictable peaks and troughs in activity which may provide opportunities to share space. Holding Bays may be used in the morning to prepare patients for their procedure. As preoperative activity decreases during the day, these spaces may be used to recover patients attending for day-only procedures. Consideration needs to be given to mixing these two groups of patients and this could be addressed in the design stage of planning.

02.04 Functional Areas

UNIT FUNCTIONAL ZONES
The Operating / Perioperative Unit comprises the following functional zones:

- admissions / reception area: for the reception and identification of patients to the unit with general supervision of day-to-day administrative management of the unit, control of the main entry and general administrative tasks;
- preoperative area: for the admission, holding and preparation of patients prior to their surgery or procedure;
- operating area: where procedures are carried out. this generally comprises operating room, anaesthetic room, scrub bay, exit lobby and clean-up areas;
- clinical support areas: control centre, emergency sterilizing, case assembly;
- storage: sterile stock and consumables, general stores, equipment, linen, anaesthetic supplies, pharmacy supplies, waste holding;
- recovery area(s): where patients are assisted through the process of recovering from the effects of surgery and anaesthesia. this may be stage 1, stage 2 and discharge;
- staff areas: male and female change rooms, staff room and teaching / meeting spaces;
- restricted access entry area - for entry of clinicians, inpatients and others, and for access to back-of-house functions; and
- Administrative support areas: offices and administration areas for clinical staff.

ANAESTHETIC ROOMS
Debate continues regarding the inclusion of these rooms as general anaesthesia frequently only takes place in these rooms for specialities such as paediatrics, neurosurgery and cardiothoracic surgery.

Associated costs such as potential equipment duplication is a factor to consider as each anaesthetic room will require its own complete set of anaesthetic equipment and supplies in addition to the services required for the equipment.
The rooms do however provide a location for the administration of anaesthetic blocks and insertion of intravenous lines - which are common practice in specialties such as orthopaedics and obstetrics - and facilitate rapid patient turnaround. In future the room may need to accommodate an ultrasound machine to provide image guided support for the insertion of lines.
The ability to accommodate changes in practice that follow changes in case mix makes provision of anaesthetic rooms an important future-proofing investment for facilities that anticipate significant growth or changes in catchment population.
An alternative to anaesthetic rooms is holding bays where procedures such as line insertion and blocks may be undertaken and where equipment may be more easily shared.

SCRUB BAYS
Many units are planned with a shared Scrub Bay between two operating rooms that allows more than two or three persons to scrub at any one time.
Most Operating Rooms are planned with the Scrub Bay located on the patient entry side and this is recommended. Where space on the entry side is at a premium, Scrub Bays may be located on the sterile stock inward flow side.
The Scrub Bay should be defined and separated from the corridor and Exit Bay. This allows for the air pressure to be maintained and will not interfere with easy access if the space is shared between two Operating Rooms. Refer to the air pressurisation diagrams at the end of this HPU. One point of access only from within the operating room itself may facilitate management of air pressure.

STERILE STOCK STORAGE AREAS
The Operating Unit is a major user of sterile stock and the size of the Sterile Stock Store/s and relationship to the Operating Rooms is of high importance.
The use of disposable instruments, linen and other supplies is increasing which will impact on the total amount of supplies needed to support the Operating Unit. This will also increase the need for waste management and this should be reflected in operational policies for the facility.
Supplies may be provided from a dedicated TSSU, from the SSU that also serves other areas of the healthcare facility or from the Operating Unit's own Sterile Stock Store.
If supplied by the SSU, the Operating Unit will usually have its own Sterile Stock Store. If supplied by the TSSU, one central Sterile Stock Store may suffice. Ensure that storage systems comply with AS/NZS 4187:2014 Reprocessing of Reusable Medical Devices in Health Service Organizations (Standards Australia, 2014).
For optimum efficiency, it is preferable that the TSSU is located adjacent to the Operating Unit with direct internal access between the two units. If the footprint for the TSSU cannot be located on the same floor, dedicated clean and used goods lifts will be required with adequate parking space for trolleys in front of each of the lifts.

EQUIPMENT STORAGE
Considerable attention should be given to the quantity, size and range of equipment to be stored, to storage locations and storage methods in order to maximise efficiency, reduce unnecessary duplication and minimise staff travel. In large units particularly, an equipment tracking system may be installed.
Equipment not in regular use should be stored in a central store or stores. Smaller items of regularly used equipment may be stored in Exit Lobbies. Equipment Bays should be provided for storage or parking of equipment in regular use such as balloon pumps, portable X-ray units, lead aprons, warming devices, and auxiliary lamps. Additional space may be required to store image intensifiers and ultrasound units.
Equipment Bays should be provided at a minimum rate of 4m2 shared between two Operating Rooms with minimum depth of 0.8m (1m preferred) and are best designed as elongated rectangular shapes. The Bays should be recessed off the corridors so that equipment does not disrupt traffic nor cause a hazard, and power outlets may be required for recharging equipment.

RECOVERY - POST ANAESTHETIC CARE UNIT (PACU)
A Stage 1 Recovery Unit will be incorporated into the Operating Unit. Location of 2nd stage recovery for day only patients will depend on the planning model selected and may be collocated with 1st stage recovery or in a separate perioperative unit. Refer to Recommendations for Post Anaesthesia Recovery Rooms (ANZCA, 2006).

RECOVERY STAGE 1
The number of Stage 1 recovery bays / rooms will depend on:

- the overall number of operating rooms;
- case mix including patients requiring minimal postoperative supervision; and
- number of likely direct transfers from the operating room to a critical care unit.

Stage 1 recovery bays or rooms should be configured to permit good observation from the Staff Station via open fronted bays, glazed partitions between bays and wide central doors to any single rooms.
Access should be provided to suitable isolation space e.g. a larger curtained area of space that can be segregated for this purpose. Single rooms may be used for preoperative preparation, changing or waiting, isolation of infectious patients, for children and for post caesarean section mothers, their babies and partner.

RECOVERY - STAGE 2
curtained cubicles or single rooms of adequate size. There should be a clearance of at least 1.2 metres between patient trolleys or recliners and between patient bedsides and adjacent walls. Patients require access to toilets, showers, and beverage facilities.

STAFF CHANGE ROOMS
The space allocated in the Schedule of Accommodation for change rooms is indicative only and will be affected by:

- number of operating rooms;
- staff numbers - full time, part time, visiting, session peaks;
- proportion of male to female staff;
- operational policies regarding the provision of lockers to permanent staff, visiting staff, students etc.
- Facilities will be divided for female & male staff according to relevant awards & legislation and will comprise;
- showers;
- toilets and urinals;
- hand basins;
- lockers (full, half, interlock);
- storage for surgical clothing (scrubs), masks, gowns, boots, overshoes etc;
- linen and waste receptacles; and
- booting area.

Access should be via keypad or swipe card with intercom to Reception for admittance of authorised visitors.

02.05 Functional Relationships

EXTERNAL
Patients may enter the Unit from a number of locations. Some of these will be emergencies in need of urgent surgery or procedure. For these reasons, it is critical to have close and direct relationships with;

- Emergency Unit;
- Delivery Suite;
- ICU/NICU; and
- helipad and lift.

Less critical but still important are relationships with:

- Anaesthetic Unit;
- Surgical Inpatient Units; and
- Day Surgery/ Procedures Unit.

To minimise stress to patients and other hospital users, transfer of patients between these units and the Operating Unit should be rapid, direct and discreet and the use of public corridors and lifts avoided.
Other units that are intimately linked with the day-to-day running of the Operating Unit and are often planned as a part of the Unit include:

- Perioperative / Extended Day Only Unit; and
- SSU or TSSU.

Other units that may require a functional link include;

- Pathology Unit, including the Blood Bank; and
- Medical Imaging.

INTERNAL
Planning of an Operating Unit is complex and requires the correct relationships to be achieved between the functional zones listed previously. Key issues to be managed include:

- logical orderly patient flow from arrival at Reception, through Preoperative Holding, Operating Rooms and Recovery back to either the Perioperative Unit, an Inpatient Unit or discharge to home;
- ready access to sterile stock and equipment;
- the ability of staff to monitor the condition and safety of patients at all times;
- the ability of staff to manage some patient groups (e.g. children) with some degree of separation;
- maintenance of patient privacy; and
- the efficient management of the Unit, in particular consideration of staffing and equipment costs.

For further information, refer to Enclosures B7, B8 and B9 at the end of this HPU.

03 DESIGN

03.01 Accessibility

Access to the Operating Unit should be controlled for infection control reasons, the security of drugs and equipment and the safety of patients and staff.
Access will be required for:

- day and DOSA patients (trolley, wheelchair, ambulant);
- general inpatients (bed/trolley access);
- emergency patients (trolley/bed);
- general staff working in the unit (e.g. receptionists, secretaries i.e. staff not required to change into surgical clothing);
- staff change rooms (controlled access via keypad or swipe card);
- visiting staff and students;
- goods and services and maintenance;
- official visitors; and
- general public.

Generally, this is achieved by having one only point of entry for patients and the public, and separate security-controlled entries for authorised staff and goods and supplies.
Bed access and separate holding area for inpatients will be required.

03.02 Parking

For staff parking, refer to Part C: Section 790, Safety and Security Precautions. Consideration should be given to drop-off parking for day/DOSA patients and non-emergency ambulances.

03.03 Disaster Planning

A Disaster Management Plan should be in place that describes the role of the healthcare facility in a disaster situation.
Depending on the type of disaster the Operating Unit may be a key element of the disaster plan with a substantially increased workload. The role of the Unit in the disaster plan should be understood before planning commences. Disaster planning is addressed in more detail in Part B: Section 80 General Requirements.

03.04 Infection Control

GENERAL
Due to the invasive procedures undertaken, infection control is a key issue in the design and planning of the Operating Unit.
Specific issues include:

- air handling (airflow management, air filtration, pressure gradients and humidity);
- access control;
- policies on surgical attire (scrubs);
- management and integrity of sterile supplies;
- waste management; and
- provision of an isolation room or rooms in Recovery.

For general details, refer to Part D: Infection Prevention and Control.

ZONING
Surgical clothing policy is an important infection control measure and applies in the following zones:

- zone 1: No surgical clothing required in rooms/spaces located on the unit perimeter and accessible from the hospital side of any demarcation point, such as change rooms, reception and waiting, disposal room, bulk receiving store, biomedical workshop. Similarly in pre-op holding areas and discharge areas;
- zone 2: Surgical clothing comprising scrubs, shoes and head covering worn in all inner areas of the Unit including Recovery; and
- zone 3: Surgical clothing plus gowns, aprons, masks, gloves, etc worn in the Operating Rooms where the highest level of cleanliness is required.

03.05 Environmental Considerations

GENERAL
The Operating Unit can be a stressful environment for both patients and staff. Consider environmental factors such as daylight, noise management, colours, etc that may ameliorate the impact of a very clinical area.

NATURAL LIGHT
The inclusion of natural light and views can improve the environment considerably, however, care should be taken to control glare and light intensity in clinical areas. Given that only a limited number of windows can be achieved within a Unit, it may be preferable to provide the Staff Lounge and the patients in Recovery and Day Surgery with the benefits of natural light rather than the staff working in the Operating Rooms.

WINDOWS IN OPERATING ROOMS
Staff often request windows in the operating rooms - not necessarily for views but at least for a perception of the weather. The resulting ability to adjust eyesight from very close work to an extended view is also an advantage especially during long cases. An external aspect may be achieved by locating the operating rooms on external walls or around an internal light court. However there may be heating and cooling implications that will have a considerable impact on the recurrent costs of managing the Unit.
Borrowed daylight may be achieved by locating windows in the operating room opposite a corresponding window in a corridor running between the operating room and external wall. Depending on the purpose of the corridor, these windows can be useful for supervision and training purposes.
Many procedures require black-out and there are additional costs associated with provision of integral blinds - and associated cleaning costs.
Windows or viewing panels in doors to lead-lined operating or other rooms should be protected to maintain the level of protection required. See the section on glazing in Part C: Section 710, Space Standards and Dimensions.

INTERIOR DÉCOR
Colour can be used to avoid an institutional atmosphere. However, in areas where patient observation is critical such as Operating Rooms, Anaesthetic Rooms, Recovery, Holding Areas, colours should be chosen that do not alter the observer's perception of skin tones.

03.06 Space Standards and Components

HUMAN ENGINEERING
Human engineering covers those aspects of design that permit effective, appropriate, safe and dignified use by all people, including those with disabilities. It includes occupational ergonomics, which aims to fit the work practices, furniture, fittings and equipment (FF&E) and work environment to the physical and cognitive capabilities of all persons using the Unit.
The requirements of occupational health and safety and antidiscrimination legislation will apply. Refer to Part C: Section 790, Safety and Security Precautions and to OHS legislation.

ERGONOMICS
Operating Units should be planned and designed to prevent exposure of patients, staff, visitors and maintenance personnel to avoidable risks of injury.
Poorly designed recurring elements such as height, depth and design of workstations and counters, shelving and the layout of critical rooms have a great impact on the Occupational Health and Safety (OHS) of staff as well as the welfare of patients. Refer to Part C: Section 730, Human Engineering.

ACCESS AND MOBILITY
Accessible toilets, showers and change rooms should be provided as necessary for patients, public and staff and comply with AS/NZS 1428:2010 Design for Access and Mobility (Set) (Standards Australia, 2010). Also Refer to Part C: Section 730, Human Engineering.

BUILDING ELEMENTS
Building elements include walls, floors, ceilings, doors, windows and corridors and are addressed in detail in Part C: Section 710, Space Standards and Dimensions. Ensure that doorways are sufficiently wide and high enough to permit the manoeuvring of wheelchairs, trolleys and equipment without risk of damage or manual handling risks.

03.07 Safety and Security

RISK MANAGEMENT
Occupational Health and Safety (OHS) legislation requires designers to identify, assess and control risks in order to provide an optimal ergonomic design and to do this in consultation with stakeholders.
Safety considerations need to address the health and safety of end users, including staff, maintenance personnel, patients and visitors.
By adopting a risk management approach, many safety and security related hazards can be eliminated or minimized at the planning stage before work even begins, reducing the likelihood of adverse incidents occurring.
For further details refer to:

- Part C: Section 730, Human Engineering and Part C: Section 790, Safety and Security Precautions for specific OHS requirements;
- AS/NZS 4360:2004 Risk Management (Standards Australia, 2004);
- TS11 - Engineering Services and Sustainable Development Guidelines (NSW Health, 2013); and
- TS7 - Floor Coverings in Healthcare Buildings, Issue V1.1 (NSW Health, 2009).

SAFETY
Employers and employees have a statutory obligation to ensure the health, safety and welfare at work of all employees.
The design of the Unit should seek to prevent injury, reduce the number of potential hazards and be safe by design.
Hazards that may be found in the Operating Unit environment include:

- exposure to infectious substances;
- exposure to radioactive materials;
- exposure to anaesthetic gases;
- exposure to decontamination agents; and
- injury from machines and lifting.

Also refer to AS/NZS 4173: Guide to the Safe Use of Lasers in Health Care (Standards Australia, 2004).

SECURITY
Aspects of security may include:

- equipment;
- drugs;
- medical gases;
- fixed and personal duress alarms; and
- controlled access.

Refer to individual jurisdiction guidelines and to Part C: Section 790, Safety and Security Precautions.

03.08 Finishes

GENERAL
As with most units, the selection of finishes for the Operating Unit is influenced by both durability and infection control.
The finishes in the Operating Unit should be easy to clean, hard wearing and impervious to moisture. Refer to Part C Section 710 and also to specific Room Data Sheets and Room Layout Sheets for recommended finishes and further information.

FLOOR FINISHES
Floor finishes should be impervious to moisture, easily cleaned, stain resistant, comfortable for long periods of standing and suitable for wheeled traffic. In the Operating Rooms and Procedure Rooms, the colour should allow for sufficient contrast to find small dropped items.
A slip resistant, resilient floor finish with welded joints and coved skirtings is considered appropriate throughout the Unit. Carpet may be used in waiting areas, staff areas and offices where appropriate.
Where there are changes in types of floor finishes e.g. vinyl to carpet, there should not be a change in floor levels. Ridged cover strips and humps where two surfaces meet represent an infection control risk, and a safety hazard for potential slips, trips and falls. Refer to Part C: Section 710, Space Standards and Dimensions for further information.

WALL FINISHES
Due to the high number of trolley movements in the Unit, wall protection is an important issue. Wall and corner protection is required wherever there is the potential for damage. All wall surfaces in the Operating Unit are subject to the cleaning protocols documented in the operational policies for the Unit.
Ceramic tiles are not recommended as a wall finish due to their potential to compromise infection control. These tiles are also susceptible to damage from trolleys and if cracked or broken, individual tiles may be difficult to replace. Refer to specific Room Data Sheets for recommended wall finishes.

GAPS
Gaps between dissimilar surfaces should be avoided. For example, avoid gaps between the top edge of vinyl skirting and wall, between x-ray viewers and wall, window frames and wall, etc. All areas where possible gaps between dissimilar materials may occur should be checked and sealed prior to occupation.

CEILING FINISHES
Ceiling performance requirements include aesthetics, acoustics, infection control, access to services and durability. In the operating environment, infection control is a significant factor.
Key risks in operating rooms include potential for drop down contamination, splash or soiling. The material chosen should meet the performance requirements and there may be a need for supporting operational policies to be developed to maintain relevant standards. Acoustic tiles should not be used in clinical areas. Ceilings will be subjected to the cleaning protocols documented in the Operational Policy for the Unit. Refer to Part C: Section 710, Space Standards and Dimensions and Part D Section 880, Surfaces and Finishes for further information.

BENCH TOPS
Consideration should be given to the use of the bench tops and the type of material most suitable to the task. Bench tops should be of a smooth, impervious finish, resistant to damage and stains. Joins should be avoided if possible because they are difficult to keep clean. A range of products is suitable e.g. laminates (providing post-forming or other means of avoiding jointing is considered), synthetics and stainless steel.

WINDOW TREATMENTS
Window treatments to patient bed areas may require external or internal (between double glazing) treatments for light and temperature control.
See Part C: Section 710, Space Standards and Dimensions for further information.

CLEANING REQUIREMENTS
The cleaning policy of the Operating Unit should be determined during the design period. Design layout, fittings, furnishings, floor coverings and finishes will have significant impact on the cleaning of the Unit. Ledges, corners and all other surfaces which are difficult to clean should be minimised.

Facilities should be provided that will assist in the efficient cleaning of the Unit e.g. appropriate location of power outlets, adequate storage for cleaning materials and equipment, waste disposal and hand washing facilities.

03.09 Fixtures, Fittings & Equipment

DEFINITION
Within the context of the AusHFG, Room Data Sheets (RDS) and Room Layout Sheets (RLS), Fixtures and Fittings are defined as follows:

- **Fixtures:** Refers to fixed items that require service connection (e.g. electrical, hydraulic, mechanical) and includes basins, light fittings, clocks, medical service panels, etc., but excluding fixed items of serviced equipment such as operating lights; and
- **Fittings:** Refers to fixed items attached to walls, floors or ceilings that do not require service connections such as curtain and IV tracks, hooks, mirrors, blinds, joinery, pin boards etc.

Also refer to Part C: Design for Access, Mobility, OHS and Security, Space Standards and Dimensions and to the Standard Components - Room Data Sheets (RDS) and Room Layout Sheets (RLS) for further detailed information.

03.10 Building Service Requirements

PLANNING FOR FUTURE TECHNOLOGY - ADAPTABLE INFRASTRUCTURE
Consideration should be given to planning flexibility in order to adapt to new technology solutions and capability as they become available. This may include:

- structural considerations for floors and ceilings;
- planning for future access to conduits / wiring to enable ease of wiring new equipment; and
- infrastructure for digital operating rooms.

CEILING STRUCTURE
Increasingly, services and equipment are ceiling rather than floor mounted. These structures will need to be supported as the weight of these items can be significant.
Ceiling heights also need to accommodate equipment requirements such as operating lights and ceiling-mounted equipment. Provide appropriately designed, rigid support structures located above the finished ceiling.

AIR HANDLING
Operating Units will be air-conditioned and particular parameters apply to the Operating Rooms and the Sterile Stock Store/s.
Provide ventilation, air-conditioning and humidity in accordance with relevant standards, and to meet the needs of the patient and clinical team. Temperatures may range from 16 to 28˚C. Refer to:

- TS11 - Engineering Services and Sustainable Development Guidelines (NSW Health, 2013);
- AS 1668.2:2002 The Use of Ventilation and Airconditioning in Buildings, Part 2; and
- HB 260:2003 Hospital Acquired Infections - Engineering Down the Risk (Standards Australia, 2003).

Also refer to Enclosures B8 and B9 - Unit Flow and Pressurisation Diagrams at the end of this HPU for further guidance.

SERVICES AND SYSTEMS
Services and systems to be provided include:

- blood gas machines;
- blood fridge;
- medical gases;
- vacuum tube;
- light and power including emergency and uninterrupted power supply;
- bar code readers;

- thermostatic mixing valves;
- ice making facilities;
- temperature controls and alarms as required (blood fridges, etc);
- radiation shielding in rooms where medical imaging equipment is used (mobile or inbuilt); and
- fume extraction where glutaraldehyde is used.

These are described in more detail in Room Data and Room Layout Sheets for standard component rooms.

MEDICAL GASES
The range of medical gases includes:

- oxygen;
- suction;
- medical air;
- nitrous oxide;
- scavenging; and
- carbon dioxide.

Locate the main storage of medical gases outside the unit reticulated internally to gas outlets. Provision should be made for additional separate storage of reserve gas cylinders necessary to complete at least one day's procedures.

INFORMATION TECHNOLOGY AND COMMUNICATIONS
Operating Units should be planned with consideration to the following information technology and communications (IT&C) requirements including:

- personal computers;
- wireless technology;
- voice/data systems for telephones, computers, email, internet;
- cordless telephone system (with headsets) for internal communications;
- staff assist and emergency call systems;
- porter/orderly call system;
- patient monitoring systems;
- telemetry systems;
- point of care clinical systems;
- high speed networks to support the requirements of digital operating rooms and other equipment;
- teleconferencing and videoconferencing ability;
- stock management systems - bar coding and lean systems;
- PACS;
- education requirements; and
- equipment and instrument tracking systems.

As requirements continue to evolve, adequate capacity should be provided to anticipate this change.

ELECTRICAL SERVICES
Project teams, particularly engineers, need to consider the following aspects of electrical services:

- provision of general power outlets (GPOs) particularly in corridors for cleaning and in bays and store rooms for recharging equipment;
- emergency power supply;
- uninterruptible power supply (UPS) for critical equipment;
- surge protection to electronic equipment to ensure that critical data is not lost;
- cardiac protection – using core balance devices (CBD) or line isolation; and
- body protection.

References:

- TS11 - Engineering Services and Sustainable Development Guidelines (NSW Health, 2013);
- AS/NZS 3009: 1998, Electrical Installations – Emergency Power Supplies in Hospitals (Standards Australia, 1998);
- AS/NZS 3000:2007 Electrical installations (known as the Australian/New Zealand Wiring Rules) (Standards Australia, 2007); and

- AS/NZS 3003:2011 Electrical Installations - Patient Areas (Standards Australia, 2011).

SIGNAGE
Specialised signage requirements may include:

- lasers in use; and
- x-ray in use.

04 COMPONENTS OF THE UNIT

04.01 Standard Components

Rooms / spaces are defined as:

- *standard components* (SC) which refer to rooms / spaces for which room data sheets, room layout sheets (drawings) and textual description have been developed;
- *standard components – derived rooms* are rooms, based on a SC but they vary in size. In these instances, the standard component will form the broad room 'brief' and room size and contents will be scaled to meet the service requirement;
- *non-standard components* which are unique rooms that are usually service-specific and not common.

The standard component types are listed in the attached Schedule of Accommodation.

The current Standard Components can be found at: www.healthfacilityguidelines.com.au/standard-components

04.02 Non-Standard Components

Non-Standard Components are unit-specific and are listed and described below:

- Anaesthetic Store;
- Anaesthetic Workroom and Biomedical Equipment;
- Audiovisual Workroom;
- Control Centre;
- Emergency (Flash) Sterilizing Bay;
- Exit Bay;
- Perfusion Room;
- Store - Non-Sterile / De-boxing; and
- Store - Perfusion.

ANAESTHETIC STORE
Description and Function
This is an area for storage of consumables, monitors and spare parts for anaesthetic equipment. It may form part of the Anaesthetic Workroom.

Location and Relationships
Direct access is required from the Operating Unit and from the external corridor for staff and equipment.

Considerations
Floor parking space is required for large items of equipment. Shelving and hooks are required for smaller items.

ANAESTHETIC WORKROOM AND BIOMEDICAL EQUIPMENT
Description and Function
This is area for the repair, maintenance and calibration of both anaesthetic and biomedical equipment, and a work base for anaesthetic and biomedical technicians when visiting the Unit.

Location and Relationships
It may be located on the perimeter of the Unit with internal and external access.

Considerations
Fixtures and fittings may include:

- medical gases - oxygen, suction, medical air, nitrous oxide;
- power for recharge and checking;
- workbenches;
- storage shelving for small items;
- sink; and
- Handbasin Type B.

AUDIOVISUAL WORKROOM
Description and Function
This is a room for audiovisual technicians to manage the recording, editing, broadcast and storage of video images used for teaching purposes.

Location and Relationships
Locate in a non sterile part of the Unit with ready access from outside the Unit. Irregular access to the Operating Rooms may be required for camera maintenance.

Considerations
Fixtures and fittings may include:

- benches;
- storage cupboards;
- computers; and
- power outlets.

CONTROL CENTRE
Description and Function
The Control Centre is the focal point controlling the functioning of the Operating Unit.
Functions and activities include:

- staff handover;
- communications centre (telephone & computer) for the Operating Unit;
- preparation of operating lists;
- control and updating of drug records;
- stock control of supplies; and
- report writing.

Location and Relationships
Operational policies will affect the design and location of the Control Centre e.g. the operational policies may require that the Control Centre has overview of one or more of the following areas: Reception / Entry Area, Holding Bay or Recovery.

Considerations
Fittings and fixtures may include:

- interactive ‘smart’ boards;
- flat panel plasma screens; and
- wall or ceiling suspended arms or brackets for this equipment.

EMERGENCY (FLASH) STERILIZING BAY
Description and Function
The Sterilizing Bay is an alcove within the Operating Unit where dropped instruments are rinsed and sterilized when a duplicate item is not available.

Location and Relationships
Ready access is required from the Operating Rooms. The Sterilizing Bay should not be located in an area where steam could affect sterile stock.

Considerations
Fittings and fixtures include:

- sterilizer;
- bench for QA activities; and

- sink.

EXIT BAY
Description and Function
Functions and activities include;

- egress of the patient and used equipment at the conclusion of a procedure;
- storage of patient bed while procedure is in progress;
- storage of clean bed linen and used linen trolley (optional);
- location for fluid warming cabinet; and
- storage of table accessories.

Location and Relationships

Direct access is required:

- into the Operating Room; and
- from the Operating Room into the corridor.

Considerations
Wall protection is required.

PERFUSION ROOM
Description and Function
An area for cleaning, set up and maintenance of perfusion equipment. In sizing, consider the volume of equipment, machines, number of staff accessing this space and the specialty theatres served.

Location and Relationships
Direct access is required to the Operating Rooms in which the equipment is used and the Perfusion Store.

STORE - NON STERILE/DEBOXING
Description and Function
This is a room for storage of non-sterile goods on an open mobile shelving system for use in the Operating Unit.

Location and Relationships
Direct access is required to the Operating Unit corridor and from the Reception/Entry Area.

STORE - PERFUSION
Description and Function
This is a room for the storage of consumable goods and spare parts for the perfusion equipment with a workstation for the perfusionist.

Location and Relationships
Direct access to the Perfusion Room is required.

AX APPENDICES

AX.01 Schedule of Accommodation

A Schedule of Accommodation for Operating Units providing service levels 2, 3, 4, and 5/6 follows.

The 'Room/ Space' column describes each room or space within the Unit. Some rooms are identified as 'Standard Components' (SC) or as having a corresponding room which can be derived from a SC. These rooms are described as 'Standard Components –Derived' (SC-D). The 'SD/SD-C' column identifies these rooms and relevant room codes and names are provided.

All other rooms are non-standard and will need to be briefed using relevant functional and operational information provided in this HPU.

In some cases, Room/ Spaces are described as 'Optional' or 'o'. Inclusion of this Room/ Space will be dependent on a range of factors such as operational policies or clinical services planning.

ADMISSIONS / RECEPTION AREA

AusHFG Room Code	Room / Space	SC / SC-D	Qty x m2 Level 2	Qty x m2 Level 3	Qty x m2 Level 4	Qty x m2 Level 5/6	Remarks
RECL-10	Reception / Clerical	Yes	9	12	12	15	Level 2 includes space for porter.
WAIT-10	Waiting	Yes		4	8	16	Near Unit entry & reception.
MEET-9	Meeting Room, 9m2	Yes		9	9	9	May also accommodate office and interview functions.
WCAC	Toilet - Accessible, 6m2	Yes			6(o)	6(o)	Optional if no facilities nearby.
WCPU-3	Toilet - Public, 3m2	Yes			3(o)	3(o)	Optional if no facilities nearby.

PREOPERATIVE HOLDING AREA

AusHFG Room Code	Room / Space	SC / SC-D	Qty x m2 Level 2	Qty x m2 Level 3	Qty x m2 Level 4	Qty x m2 Level 5/6	Remarks
PBTR-H-9	Patient Bay - Holding, 9m2	Yes	9	9	9	9	1 per OR; sized for trolleys, but some may be recliner chairs.
OFF-WI-3	Office - Write-up, 3m2	Yes		3	3	3	Staff work area. Ready access from OR, main corridor. Quiet and privacy desirable.
SSTN-10	Staff Station	Yes				6	Only allocated for L5/6 as Reception could be base used for other levels.
BHWS-B	Bay - Handwashing, Type B	Yes	1	1	1	1	Accessible from OR & Patient Holding Areas. Refer to Part D for details.
BLIN	Bay - Linen	Yes		2	2	2	Min 1 per 16 bays. Corridor with ready access to Holding/ Anaesthetic Bays.
BBW	Bay - Blanket / Fluid Warmer	Yes		2	2	2	Min 1 per 8 bed bays.
CLUR-8	Clean Utility / Medication Room - Sub, 8m2	Yes				8(o)	Direct access from Patient Holding Areas, may be shared with Recovery.
DTUR-S	Dirty Utility - Sub, 8m2	Yes				8(o)	Increase to 12m2 if shared with Recovery & Post-Op Lounge.

For inpatients, day and day of surgery patients admissions.

OPERATING ROOM AREA

AusHFG Room Code	Room / Space	SC / SC-D	Qty x m2 Level 2	Qty x m2 Level 3	Qty x m2 Level 4	Qty x m2 Level 5/6	Remarks
ANIN	Anaesthetic Induction Room	Yes		15	15	15	Refer Note 1 above.
ANIN	Anaesthetic Induction Room - Large	Yes				18	
ORGN	Operating Room - General, 42m2	Yes	42	55	55	55	Refer Notes 2, 3 and 4 above.
SCRB-8	Scrub-up / Gowning	Yes	6	8	8	8	1 per operating room. If shared between 2 rooms, increase to 10m2.
SETUP-8	Set-up Room	Yes		8	8	8	Depends on Operational Policy for case assembly
	Exit Bay		8	8	8	8	1 per operating room. If shared between 2 rooms, increase to 16m2.
CLUP-15	Clean-Up Room, 15m2	Yes	15	15	15	15	1 per 2 Operating Rooms.

Notes:

- Note 1: Provide 1 anaesthetic room per operating room for Levels 5/6. The number of anaesthetic rooms for Levels 3 and 4 to be determined during planning with consideration to operational policy and throughput.
- Note 2: The number of operating rooms will be determined for each project based on consideration of throughput and casemix.
- Note 3: The provision of a procedure room in a Level 2 unit for minor surgical procedures will be determined on consideration of workload and casemix.
- Note 4: Consideration may be given to a larger operating room for highly specialised surgery.

CLINICAL SUPPORT AREAS

AusHFG Room Code	Room / Space	SC / SC-D	Qty x m2 Level 2	Qty x m2 Level 3	Qty x m2 Level 4	Qty x m2 Level 5/6	Remarks
	Control Centre				9	12	
	Bay - Flash Sterilizing		2	2	2	2	If area required to accommodate a Steris machine, increase size to 6m2.
BBW	Bay - Blanket / Fluid Warmer	Yes	1	1	1	1	Provide at least 1 of each Bay for L5/6 Operating Rooms.
BLIN	Bay - Linen	Yes	2	2	2	2	1 per Operating Room. Corridor recess with ready access to Operating Room.
BMEQ-4	Bay - Mobile Equipment, 4m2	Yes	4	4	4	4	1 bay per 2 Operating Rooms. Provide power outlets for recharging.
STSS-12	Store - Non-sterile / Deboxing		20	20	30	30	
STEQ-20	Store- Sterile Stock, 12m2	Yes	12	12	12	12	12m2 per Operating Room. Direct relationship to SSU/ TSSU.
STEQ-14	Store - Equipment	Yes	30	30	40	*	*Plan at 6m2 per Operating Room for L5/6. Major equipment
	Store - Equipment			10	10	*	*Plan at 5m2 per Operating Rooms for L5/6. Minor equipment
	Store - Loan Equipment			9(o)	10(o)	12(o)	May be located in SSU/TSSU.
	Anaesthetic Workroom & Biomedical Equipment			10(o)	15(o)	20	Assumes dedicated space for levels 5/6.
	Anaesthetic Store			15	20	35	
	Perfusion Room - Set-up					20	
	Store - Perfusion					20	
	Audiovisual Workroom					12	
CLRM-5	Cleaner's Room, 5m2	Yes	5	5	5	5	Provide at least 1 room per 1,000m2. Ready access to all areas of the unit, pref on perimeter.
DISP-10	Disposal Room	Yes	10	10	15	20	
BLST	Blood Store	Yes	2(o)	2	2	2	May be for whole healthcare facility.
BPATH	Bay - Pathology	Yes		9(o)	9(o)	9	
STDR-10	Medication Room				6	9	
OFF-WI-3	Office - Write-up, 3m2	Yes	3	3	3	3	1 per 2 Operating Rooms.
OFF-S9	Office - Single Person, 9m2					9	Duty anaesthetists.
WCST	Toilet - Staff, 3m2			3	3	3	
	Discounted Circulation %		35%	35%	40%	45%	

RECOVERY AREA

AusHFG Room Code	Room / Space	SC / SC-D	Qty x m2 Level 2	Qty x m2 Level 3	Qty x m2 Level 4	Qty x m2 Level 5/6	Remarks
PBTR-RS1	Patient Bay - Recovery Stage 1, 9m2	Yes	9	9	9	9	2 bays per Op. & Procedure Room. L2 assumes Day Surgery patients recover in that unit.
1BR-H-12	1 Bed Room, Holding				12	12	
SSTN-10	Staff Station			9	12	24	
CLUR-10	Clean Utility / Medication Room	Yes		10	12	14	Direct access from Recovery; may be shared with Patient Holding Areas.
DTUR-12	Dirty Utility, 12m2	Yes		12	12	12	Direct access from recovery and post operative areas, may be shared with holding.
BLIN	Bay- Linen	Yes		2	2	2	1 per 16 spaces.
BBW	Bay - Blanket / Fluid Warmer	Yes		1	1	1	1 per 16 spaces.
STGN-8	Store - General	Yes		6	6	10	Large enough for cots, IV poles, blood warmers, etc. Low traffic area, access to patient holding large equip and delivery trolleys, wide and shallow preferred.
BRES	Bay - Resuscitation	Yes		1.5	1.5	1.5	Access from Operating Rooms and Patient Care / Holding Areas.
BHWS-B	Bay - Handwashing, Type B	Yes		1	1	1	1 per 4 bays.
MEET-9	Meeting Room, 9m2	Yes				9(o)	May be used for interview and other purposes.

STAFF AMENITIES

AusHFG Room Code	Room / Space	SC / SC-D	Qty x m2 Level 2	Qty x m2 Level 3	Qty x m2 Level 4	Qty x m2 Level 5/6	Remarks
CHST-20	Change - Staff (Male / Female)	Yes	20	30	80	120	Indicative only.
SRM-18	Staff Room	Yes	20	20	30	60	Smaller units may share as appropriate. External window desirable.
WCAC	Toilet - Accessible, 6m2	Yes			6	6	Unless easily available elsewhere.

ADMINISTRATIVE SUPPORT AREAS

AusHFG Room Code	Room / Space	SC / SC-D	Qty x m2 Level 2	Qty x m2 Level 3	Qty x m2 Level 4	Qty x m2 Level 5/6	Remarks
OFF-S12	Office - Single Person, 12m2	Yes			12	12	Unit Manager.
OFF-S9	Office - Single Person, 9m2	Yes		9	9	9	NUMS, IT Manager, Surgeon, Anaethetist.
OFF-2P	Office - 2 Person Shared, 12m2	Yes			12	12	CNC/ Educator.
Off-3P	Office - 3 Person Shared, 15m2	Yes			15	15	
MEET-12	Meeting Room, 12m2	Yes	Shared	12			Quantity to be determined by service demand. May be used for education purposes.
MEET-L-20	Meeting Room	Yes			15 - 20	20-30	Quantity to be determined by service demand. May be used for education purposes.

ADMISSION/ RECEPTION

AusHFG Room Code	Room / Space	SC / SC-D	Qty x m2 Level 2	Qty x m2 Level 3	Qty x m2 Level 4	Qty x m2 Level 5/6	Remarks
	Entry Canopy		Varies (o)	Varies (o)	Varies (o)	Varies (o)	Only required if external access is available.
AIRLE-10	Airlock - Entry	Yes	12(o)	12(o)	12(o)	12(o)	Only required if external access is available.
	Clerical Support / Medical Records		9	9	9	9	May be shared with Operating Unit or Ambulatory Care Unit.
RECL-10	Reception / Clerical	Yes	9	9	9	12	May be shared with Operating Unit or consolidated with Reception in smaller units.
WCAC	Toilet - Accessible, 6m2	Yes	6	6	6	6	
WCPU-3	Toilet - Public, 3m2	Yes	3	3	3	3	
	Waiting - Ward Person			6	6	9	

A Schedule of Accommodation for Perioperative Units providing service levels 2, 3, 4, and 5/6 follows.

May also be used to plan an extended day only unit.

PREOPERATIVE AREA

AusHFG Room Code	Room / Space	SC / SC-D	Qty x m2 Level 2	Qty x m2 Level 3	Qty x m2 Level 4	Qty x m2 Level 5/6	Remarks
WAIT-10	Waiting	Yes	10	12	15	30	Lounge area for waiting relatives and patients.
CHPT	Change Cubicle - Patient, 2m2	Yes	2	2	2	2	The requirement for change rooms in addition to Holding Bays needs to be evaluated.
CHPT-D	Change Cubicle - Accessible, 4m2	Yes	4	4	4	4	30% of the change rooms should be accessible.
1BR-H-12	1 Bed Room, 12m2		12	12	12	12	Class S.
ENS-ST	Ensuite - Standard	Yes	5	5	5	5	For each isolation room.
BRES	Bay - Resuscitation	Yes	1.5	1.5	1.5	1.5	
CONS	Consult Room	Yes	12	12	12	12	Option to design one room for pre-op eye examinations.
PBTR-H-9	Patient Bay - Holding, 9m2	Yes	9	9	9	9	1 per Operating Room.
	Bay - Patient Property		2	2	4	4	May be located with Patient Toilet and Change.
BHWS-B	Bay - Handwashing, Type B	Yes	1	1	1	1	Quantity to comply with Part D.
WCPT	Shower - Patient, 4m2	Yes	3	3	3	3	Provide at a ratio of not less that 1:6 if extended day-only activity is planned.
WCPT	Toilet - Patient, 4m2	Yes	3	3	3	3	Provide at a ratio of not less than 1 toilet per 6 bays if extended day-only activity is planned. Additional may be required if colonoscopy performed.
WCAC	Toilet - Accessible, 6m2	Yes	6	6	6	6	
CLUR-12	Clean Utility / Medication Room	Yes	10	10	12	12	Could be shared.

POSTOPERATIVE AREA

AusHFG Room Code	Room / Space	SC / SC-D	Qty x m2 Level 2	Qty x m2 Level 3	Qty x m2 Level 4	Qty x m2 Level 5/6	Remarks
PBTR-RS1	Patient Bay - Recovery Stage 1, 9m2	Yes	9	9	9	9	The number of second and third stage recovery bays will be dependent on service planning requirements as these beds form part of the day only complement of beds. These bays may be incorporated into the Operating Unit first stage recovery.
	Lounge - Patient Recovery (Stage 2)		12	16	16	20	A number of chairs may be provided at 5m2 per chair.
SSTN-10	Staff Station	Similar	9	9	12	16	
CLUR-12	Clean Utility / Medication Room	Yes	10	10	12	12	Could be shared.
DTUR-12	Dirty Utility, 12m2	Yes	12	12	12	12	Could be shared.
DISP-8	Disposal Room, 8m2	Yes	8	8	8	8	
BLIN	Bay - Linen	Yes	2	2	2	2	
BBW	Bay - Blanket / Fluid Warmer	Yes	1	1	1	1	
STGN-8	Store - General	Yes	6	6	8	10	
BRES	Bay - Resuscitation	Yes	1.5	1.5	1.5	1.5	
BHWS-B	Bay - Handwashing, Type B	Yes	1	1	1	1	Quantity to comply with Part D: Infection Prevention and Control.
MEET-9	Meeting Room, 9m2	Yes				9	May be shared with Ambulatory Care or Operating Unit.

SUPPORT AREAS

AusHFG Room Code	Room / Space	SC / SC-D	Qty x m2 Level 2	Qty x m2 Level 3	Qty x m2 Level 4	Qty x m2 Level 5/6	Remarks
BBEV-OP	Bay - Beverage, Open Plan	Yes	4	4	4	4	For patients post-procedure.
BMT-4	Bay - Meal Trolley	Yes	4(o)	4(o)	4(o)	4(o)	Only required if an extended day-only service is operated.
PROP-2	Property Bay - Staff	Yes	2	3	3	3	
BPATH	Bay - Pathology	Yes	5	5	5	5	May be shared with Ambulatory Care or Operating Unit.
OFF-CLW	Office - Clinical Workroom	Yes	12	16	16	16	Write-up, multipurpose function.
OFF-S9	Office - Single person, 9m2	Yes	9	9	9	9	
STGN-9	Store - General	Yes	12	14	14	16	
CLRM-5	Cleaner's Room	Yes	5(o)	5(o)	5 (o)	5 (o)	May be shared with Ambulatory Care or Operating Unit.

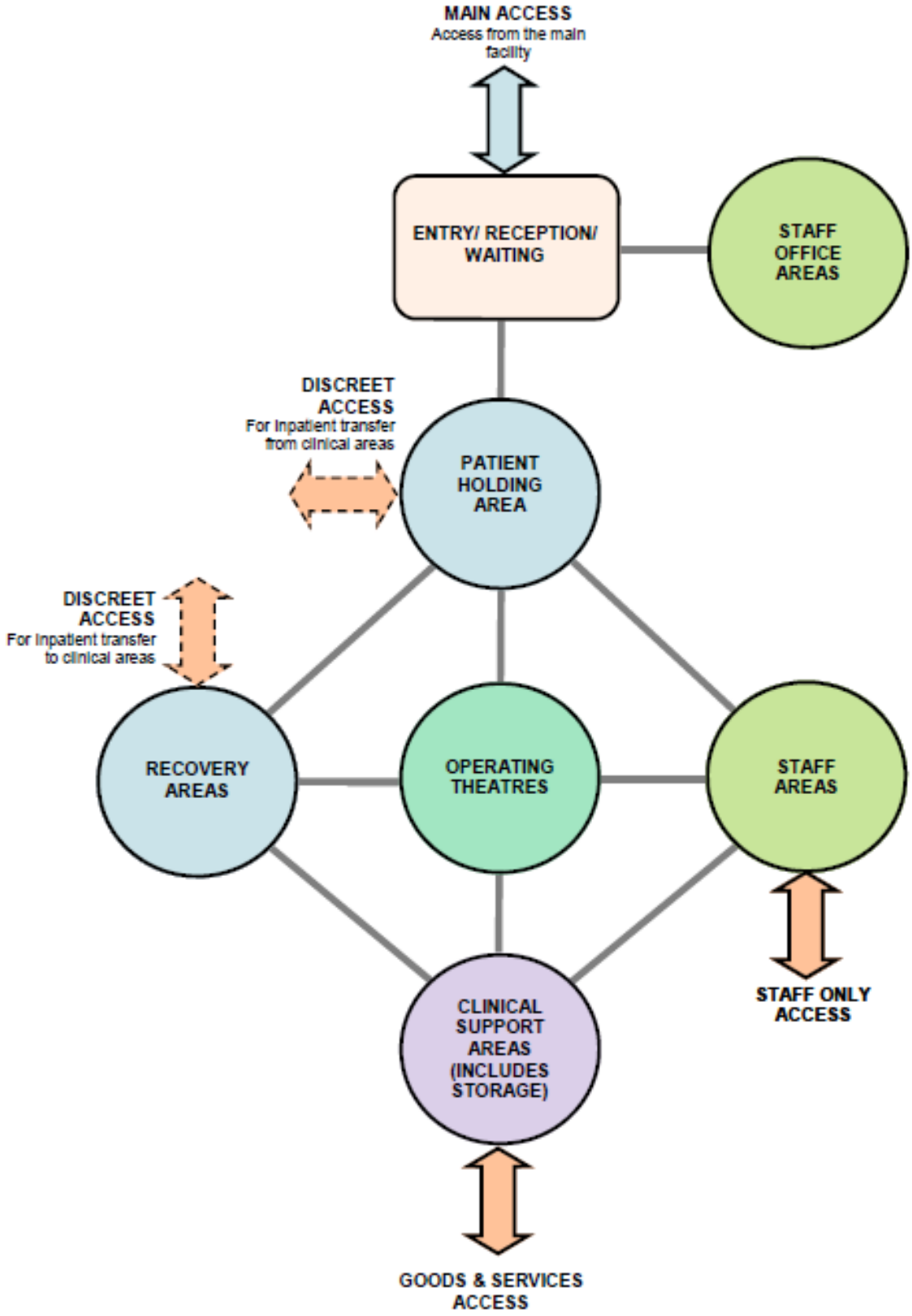
PREADMISSION CLINIC

AusHFG Room Code	Room / Space	SC / SC-D	Qty x m2 Level 2	Qty x m2 Level 3	Qty x m2 Level 4	Qty x m2 Level 5/6	Remarks
CONS	Consult Room	Yes	12	12	12	12	May be shared with Preoperative Area. Numbers dependent on activity levels.
BMT-4	Clinical Measurement					12	Provided in consult rooms in smaller units.
OFF-S9	Office - Single Person, 9m2	Yes			9	9	

Alternatively, this area may be collocated with Ambulatory Care.

AX.02 Functional Relationships / Diagrams

A diagram showing the functional relationships in the zones of the Operating Unit is shown below.



AX.03 Checklists

Refer to the planning checklists at the end of Parts A, B, C and D of these Guidelines for general requirements.

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AX.06 Operating Unit Flow Diagrams

The relationships between the various components of an Operating Unit are best described by process flow diagrams. The requirements for infection control and patient management result in planning models that have proved successful through numerous built examples and many years of practice.
Most Operating Unit plans are a variation of one of these base planning models and are presented in Enclosures B7-1 and B7-2. They are linear models that can be stretched to provide the number of Operating Rooms desired. The support facilities required also grow with the number of Operating Rooms. These base models also show the relationships between typical adjoining Units such as SSU and Day Surgery.
Enclosures B8 and B9 show eight alternatives to a typical Operating Room module that can be designed to work with the base Operating Unit model and also address air pressurisation flows. Each module includes the configuration of:

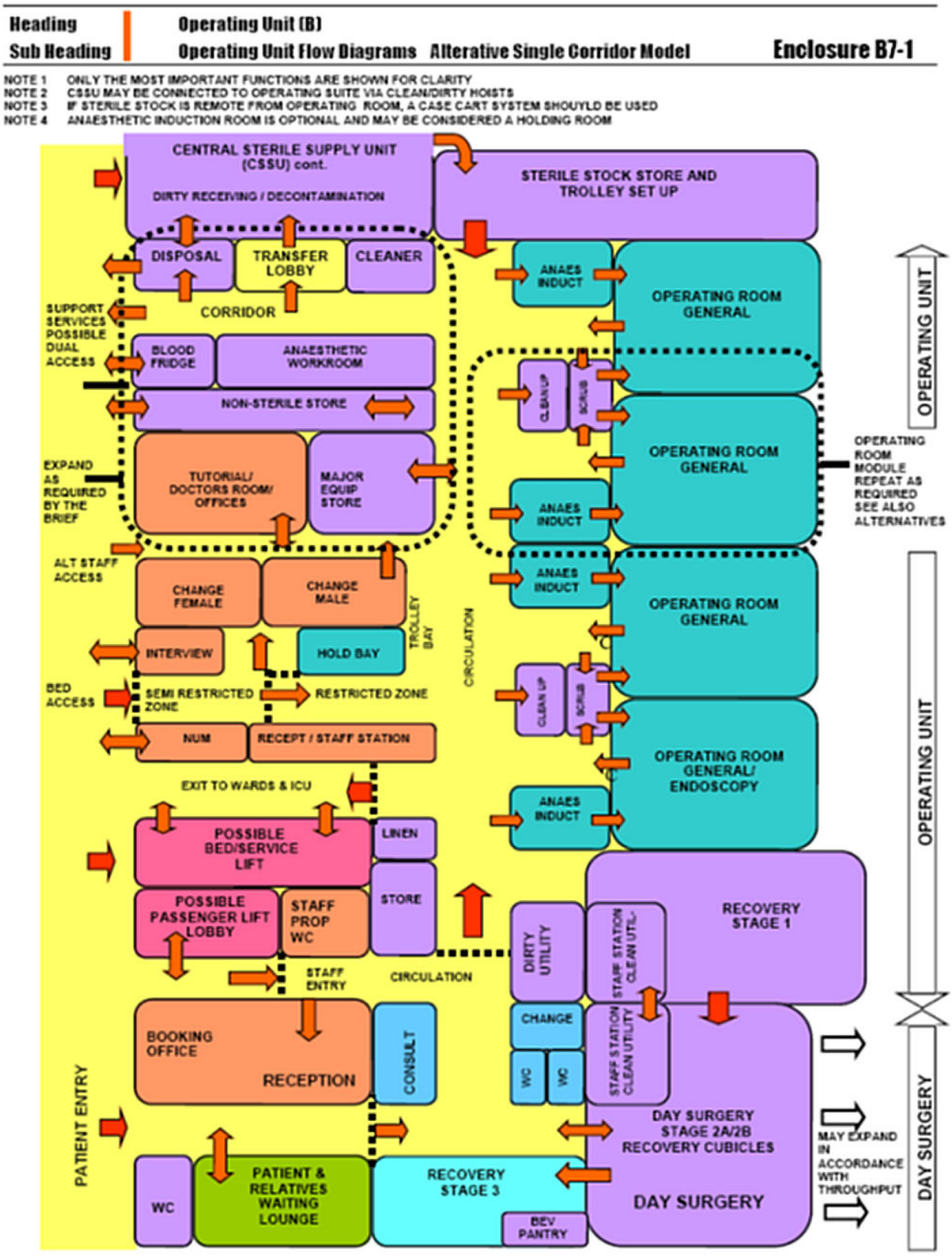
- Operating Room;
- Anaesthetic Induction Room;
- Scrub Bays or Room;
- Sterile Stock Store / Set-Up Room;
- Clean-Up Room; AND
- Flash Sterilizing Bay.

Air pressures, in particular the relative pressures between Operating Rooms and directly adjoining Sterile Stock Stores (refer diagrams A,B,C,D and H) must comply with AS 1668:2012 The Use of Ventilation and Airconditioning in Buildings **-** Mechanical Ventilation in Buildings (Standards Australia, 2012) http://infostore.saiglobal.com/store/PreviewDoc.aspx?saleItemID=254974

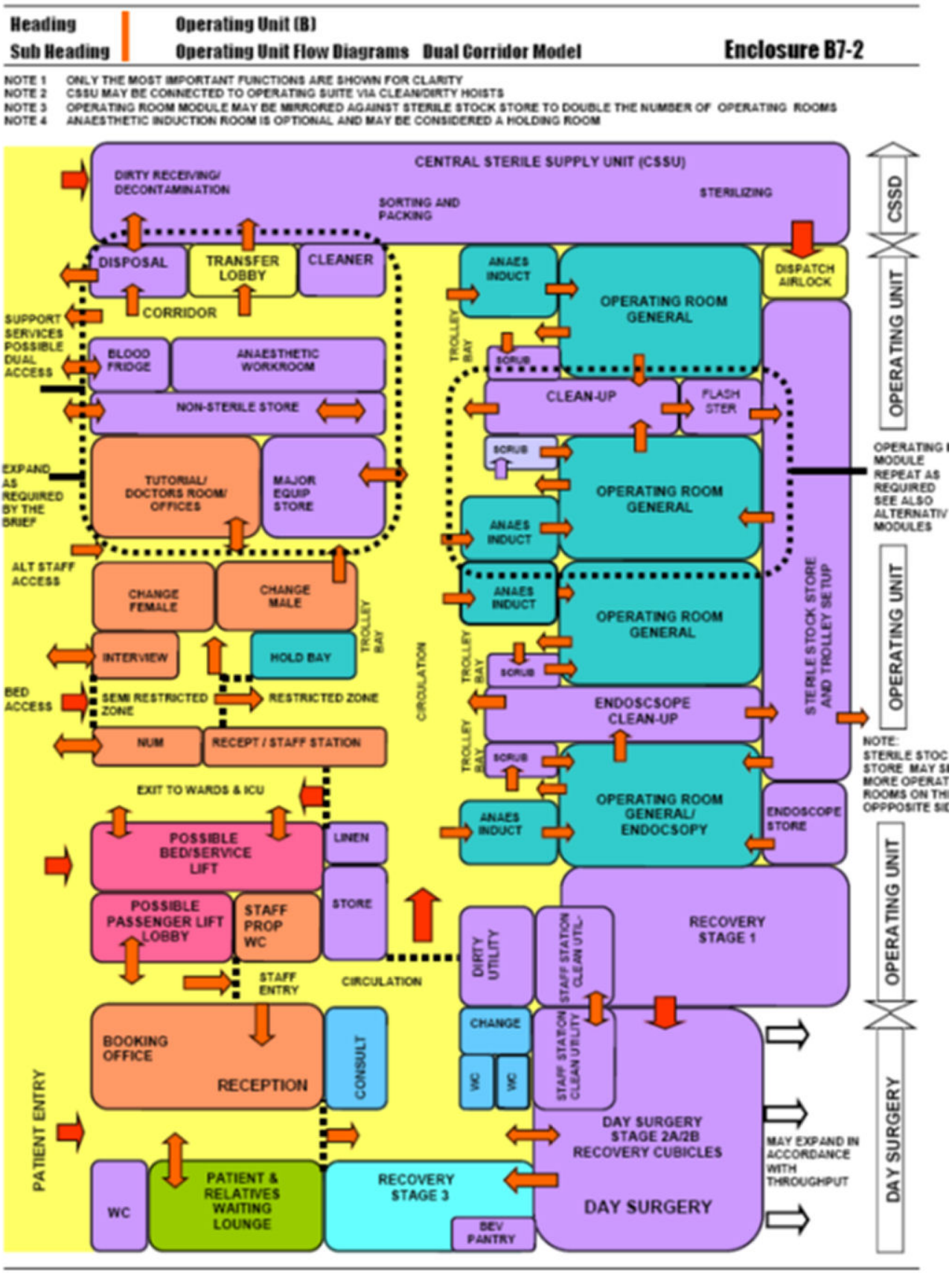
A plan substantially based on one of these diagrams is 'deemed to satisfy' the requirements of this HPU. In reviewing and using the enclosed Operating Unit diagrams, designers should carefully consider a number of issues.
Each flow diagram represents a method of managing patient access, clean/dirty flow, air pressurisation, sterilisation of dropped instruments etc.

The diagrams are different, 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 Unit consultants and Infection Control staff.

ENCLOSURE B7-1: ALTERNATIVE SINGLE CORRIDOR MODEL



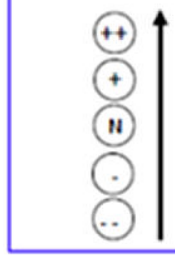
ENCLOSURE B7-2: DUAL CORRIDOR MODEL



Heading | **Operating Unit (B)**
Sub Heading | **Operating Unit Flow Diagrams & Air Pressurisation** **Enclosure-B8**

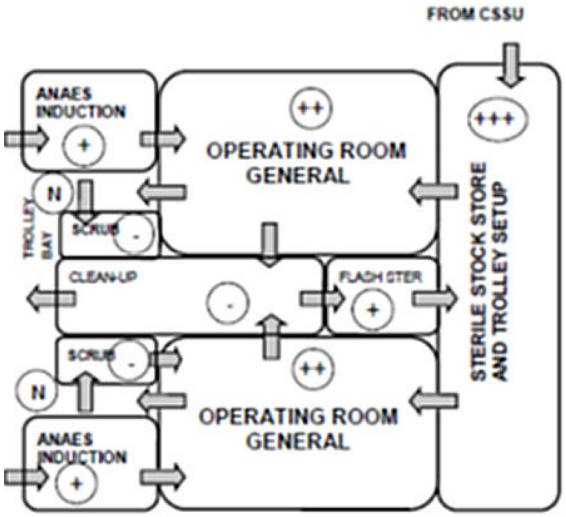
Operating Room Modules

NOTE 1 ONLY THE MOST IMPORTANT FUNCTIONS ARE SHOWN FOR CLARITY
NOTE 2 CSSU MAY BE CONNECTED TO OPERATING SUITE VIA CLEAN/DIRTY HOISTS
NOTE 3 OPERATING ROOM MODULE MAY BE MIRRORED AGAINST STERILE STOCK STORE TO DOUBLE THE NUMBER OF OPERATING ROOMS
NOTE 4 ANAESTHETIC INDUCTION ROOM IS OPTIONAL AND MAY BE CONSIDERED A HOLDING ROOM
NOTE 5 AIR PRESSURISATION IS NOTED ACCORDING TO THE FOLLOWING LEGEND:

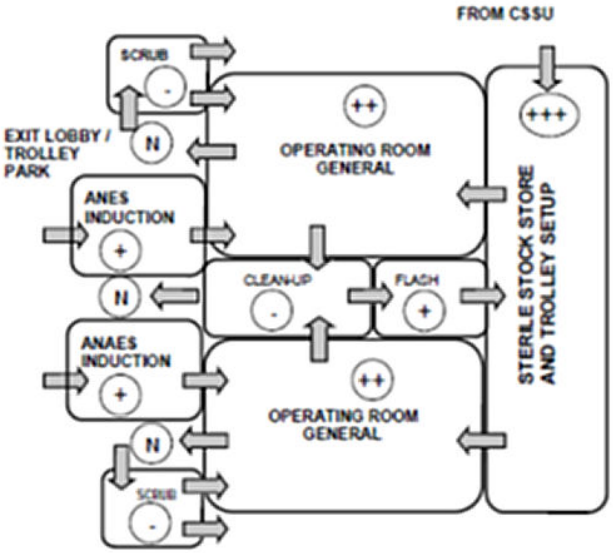


RELATIVE PRESSURE LEGEND

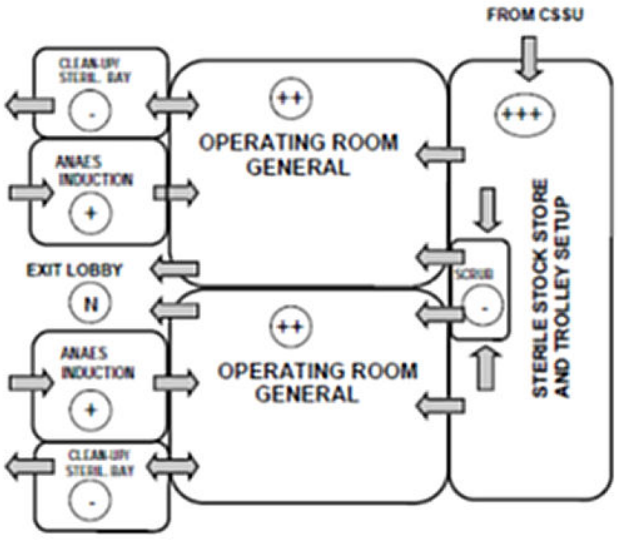
INCREASING RELATIVE PRESSURE



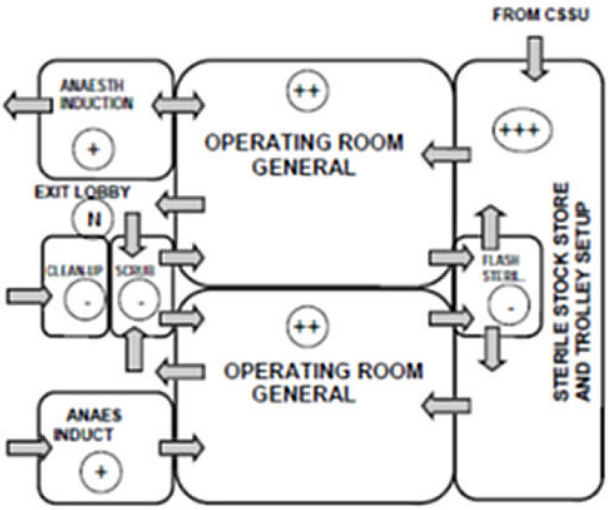
Operating Room Module Type A



Operating Room Module Type B



Operating Room Module Type C

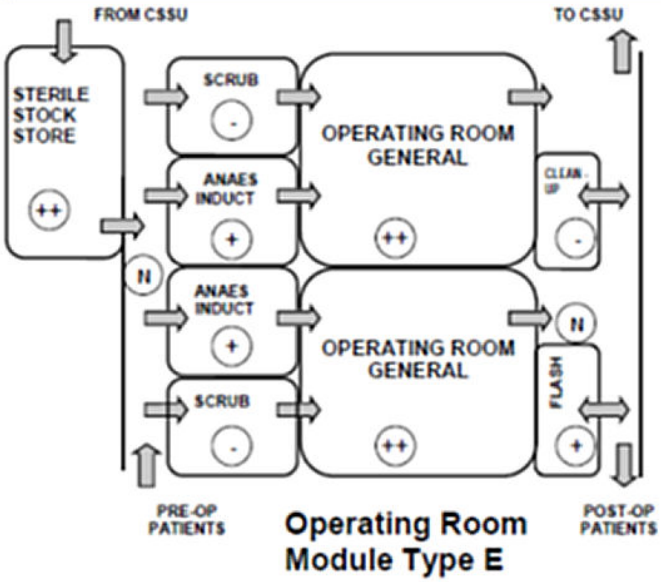


Operating Room Module Type D

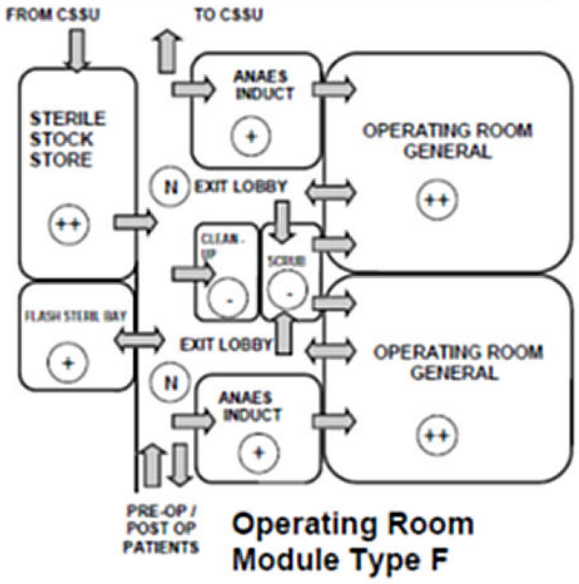
Heading Operating Unit (B)
Sub Heading Operating Unit Flow Diagrams & Air Pressurisation — **Enclosure-B9**

Operating Room Modules

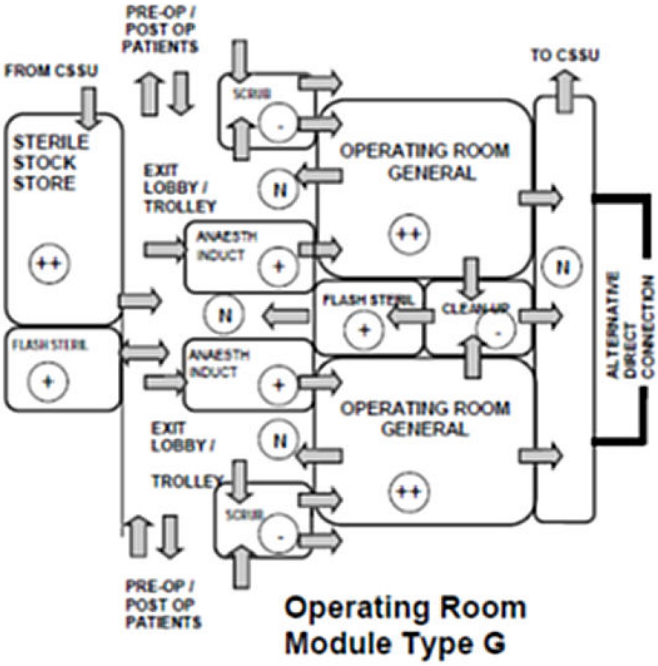
NOTE 1 ONLY THE MOST IMPORTANT FUNCTIONS ARE SHOWN FOR CLARITY
NOTE 2 CSSU MAY BE CONNECTED TO OPERATING SUITE VIA CLEAN/DIRTY HOISTS
NOTE 3 OPERATING ROOM MODULE MAY BE MIRRORED AGAINST STERILE STOCK STORE TO DOUBLE THE NUMBER OF OPERATING ROOMS
NOTE 4 ANAESTHETIC INDUCTION ROOM IS OPTIONAL AND MAY BE CONSIDERED A HOLDING ROOM
NOTE 5 AIR PRESSURISATION IS NOTED ACCORDING TO THE FOLLOWING LEGEND:



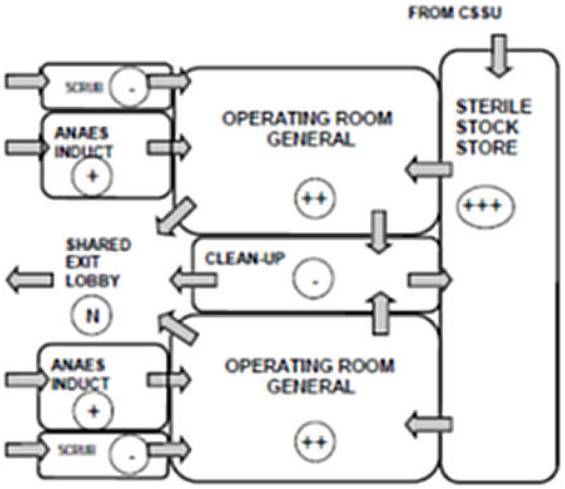
Operating Room Module Type E



Operating Room Module Type F



Operating Room Module Type G



Operating Room Module Type H