PHYSICAL PLANNING

Planning

500006 705 .1.00 Planning of Hospitals and Health Care Facilities requires an understanding of the appropriate relationships between the various components as well as an understanding of site constraints and conformity with various codes and guidelines.

A thorough assessment of the service planning requirements for the proposed project should be made prior to commencing capital planning.

500789 705 .2.00 This section includes a number of planning models that have been designed in NSW Health capital works projects.

500790 705 .3.00 Good planning relationships can :

+ Increase the efficiency of operation;
+ Promote good practice and safe health care delivery;
+ Minimise recurrent costs;
+ Improve privacy, dignity and comfort;
+ Minimise travel distances;
+ Support a variety of good operational policy models;
+ Allow for growth and change over time;
+ Maximise safety, security, OHS and Infection Control.

Planning Models

500048 705 .4.00 The design of Health Care Facilities has evolved around a number of workable Planning Models. These can be seen as templates, prototypes or patterns for the design of new facilities. Typically each model will best suit a certain facility size and site condition.

None of these models override the need for compliance with relevant statutes (such as OHS, planning, building regulations, etc) and government policy.

500008 705 .5.00 The planning team must define a clear model of operation for the facility. This should be readily described in a simple and clear flow diagram. Planning teams are encouraged to seek planning relationships that can satisfy more than one operational model, rather than satisfy limited, unusual or temporary operational policies.

500791 705 .6.00 Requirements for proximity to other components or for independent access to a Unit will govern the planning relationships for each facility. The need for future expansion or change of function should also be reasonably anticipated in all designs.

Planning Models

501426 705 .7.00 The following general planning models and design notes are used to promote good planning, efficiency and flexibility for the design of health facilities in NSW.

Planning Principles

500010 705 .8.00 FLEXIBLE DESIGN

In health care, Operational Policies change frequently. The average cycle may be as little as five years. This may be the result of management change, government policy, turnover of key staff or change in the market place. By contrast, major Health Care Facilities are typically designed for 30 years, but may remain in use for more than 50 years.

If a major hospital is designed very tightly around the Operational Policies of the day, or the opinion of a few individuals (who may leave at any time), then a significant investment may be at risk of early obsolescence.

Flexible Design refers to planning models that can not only adequately respond to today's Operational Policy but have the inherent flexibility to adapt to a range of alternative, proven and forward looking policies.

At the macro level, many of the commonly adopted Hospital Planning Models have proved flexible in dealing with multiple Operational Policies.

At the micro level, designers should consider simple, well proportioned, rectangular rooms with good access to simple circulation networks. Interior features should not be achieved by creating unnecessary complexity.

500011 705 .9.00 ROOMS SHARED BETWEEN UNITS

This concept refers to models that allow for changes in operating mode as a function of management rather than physical building change. For example, two Inpatient Units can be designed back to back so that a range of rooms can be shared. The shared section may be capable of isolation from one or the other Inpatient Unit by a set of doors. This type of sharing is commonly referred to as Swing Beds. It represents a change to the size of one Inpatient Unit without any need to expand the unit or make any physical changes. This is also an example of flexible design.

Designers should consider issues such as compatibility of use, access to Treatment Rooms, Utility Rooms, storage, etc and the supervision of patients when using Swing Rooms.

The same concept can be applied to a range of Health Planning Units to achieve greater flexibility for the management of these units.

500012 705 .10.00 OVERFLOW DESIGN

Some functions can be designed to serve as overflow for other areas that are subject to fluctuating demand. For example, Waiting Areas for different services can be collocated; Procedure Rooms can be equipped to provide capacity for emergency operating needs; day and ambulatory care areas can be adapted for overnight use in emergencies such as those relating to natural disasters.

500050 705 .11.00 STAGED USAGE

Health Care Facilities of all sizes may be subject to fluctuating demand. It is

desirable to implement a Staged Usage policy to close off certain sections when they are not in use. This allows for savings in energy, maintenance and staff costs. It also concentrates the staff around patients and improves communication. In designing for staged usage or progressive shutdown, designers must ensure that:

+ none of the requirements of these Guidelines are compromised in the remaining open sections;

+ the open sections comply with other statutory requirements such as fire egress;

+ the open patient care sections maintain the level of observation required by these Guidelines;

+ in the closed sections, lights and airconditioning can be shut off independently of other areas;

+ the closed sections are not required as a thoroughfare for access to other functions;

+ Nurse Call and other communication systems can adapt to the shutdown mode appropriately;

+ the shutdown strategy allows access to items requiring routine maintenance;

+ a section can be isolated to facilitate the outbreak of infectious diseases.

500013 705 .12.00 ZONING FOR HOURS OF OPERATION

The design should, where appropriate, collocate Units with similar operating hours to allow easy shutdown of larger floor areas or even whole floors after hours. This can bring significant benefits in operating costs, particularly in the areas of light and power, air-conditioning and security. Safe transit routes through the facility must be maintained, and staff shall not be required to traverse closed areas after hours.

Planning teams should take particular care to ensure that staff are not working in isolation after hours, ie 24 hour zones within 8 hour zones. The reverse situation is preferably also avoided.

500014 705 .13.00 OPEN ENDED PLANNING

A Health Care Facility designed within a 'finite' shape, where various departments and functions are located with correct internal relationships, may look and function very well at first; however, any expansion will be difficult. Some expansion requirements can be accommodated in new external buildings with covered links; but over time the site will become complicated with random buildings and long walkways.

The opposite of this scenario is to use planning models and architectural shapes that have the capability to grow, change and develop additional wings (horizontally or vertically) in a controlled way.

The configuration of the circulation system, both vertical and horizontal, on which all functions depend, is critical to the success of Open Ended Planning. Some of the concepts involved in Open Ended Planning Policies include the following:

+ Major corridors located so that they can be extended outside the building

+ As far as possible, Health Planning Units (HPUs) to have one side exposed to the outside to permit possible expansion;

+ If a critical HPU must be internal, it should be adjacent to other areas that can be relocated, such as large stores or administration areas;

+ Avoid HPUs that are totally land-locked between corridors;

+ External shapes should not be finite;

+ External shapes should be capable of expansion;

+ Finite shapes may be reserved for one-off feature elements such as Main Entrance Foyer;

+ Roof design should consider expansion in a variety of directions;

+ Stairs should not be designed to block the end of major corridors;

+ The overall facility flow diagram should be capable of linear or radial expansion whilst keeping all the desirable relationships intact;

+ Fixed internal services such as plant rooms, risers, service cupboards should be placed along major corridors rather than in the centre of HPUs.

Open Ended Planning Policies can be applied to entire facilities as well as individual HPUs.

500015 705 .14.00 MODULAR DESIGN

This is the concept of designing a facility by combining well designed standard components. For example a designer may create a range of Patient Bedrooms, a range of utility rooms and other common rooms that are based on a regular grid such as 300 or 600mm. These rooms can then be combined to create larger Units such as an Inpatient Unit. The Inpatient Unit can then be used as a module and repeated a number of times as required.

This approach has many benefits. Modules can be designed only once, to work very well. No redesign is necessary to adjust to different planning configurations. Instead the plan is assembled to adapt to the modules. Errors in both design and construction can therefore be minimised.

Modular Design should not necessarily be seen as a limitation to the designer's creativity, but a tool to achieve better results. Designers are encouraged to consult with clients and user groups to agree on ideal modules, then adopt them across all HPUs.

In practice, especially in refurbished facilities, it is common for the 'ideal module' to be adjusted to suit the particular circumstances.

500016 705 .15.00 SINGLE HANDING

It is common design practice to design identical and adjoining planning modules in mirror image. Typical examples include Operating Theatres and Patient Bedrooms with En Suite. This may be cost effective due to the sharing of plumbing services and circulation spaces.

Single Handing refers to situations where mirror image (Handing) may not be

necessary or appropriate.

In areas requiring a high level of staff training, such as in Operating Suites, it may be more appropriate to 'hand' all key rooms in identical manner. This makes the task of staff training easier.

For example, a staff member entering any Operating Room, regardless of its location and approach from corridor, will find the service panel on the left, x-ray viewer on the right and the door to the Sterile Stock Room in the front.

At a micro level, medical gases may always be located to the left side of patient's bedhead regardless of the direction of approach. A similar situation may apply to the layout of Consult/Exam Rooms to allow for right-handed examination of a patient.

Note: Planning teams should consider and evaluate the benefits of Single Handing on a case by case basis.

Planning Policies

910537 705 .16.00 UNIVERSAL DESIGN

This concept is similar to Modular Design. Universal Design refers to Modules (or standard components) designed to perform multiple functions by management choice.

For example, a typical Patient Single Bedroom can be designed to suit a variety of disciples including Medical/ Surgical/ Maternity and Orthopaedics. Such a room can be standardised across all compatible Inpatient Units. This will permit a change of use between departments if the need arises. Such Universal Design must take into account the requirements of all compatible uses and allow for all of them. The opposite of this policy is to 'specialise' the design of each component to the point of inflexibility.

Other examples of Universal Design are as follows:

+ Universal Operating Rooms which suit a range of operations;

+ Bed cubicles in Day Surgery which suit both Pre-operative and Post-operative Care;

+ Offices that are standardised into only a limited number of types for example 9 m2 and 12 m2;

+ Toilets may all be designed for disabled access or as unisex.

The main point of Universal Design is to resist unnecessary variation in similar components, where the change in functionality can be accommodated in one standard design.

Efficiency Guidelines

910493 705 .17.00 GENERAL

The concept of efficiency refers to the ratio between nett functional areas and circulation space. Simplistic guidelines on efficiency tend to be misleading and should not be applied to vastly different functional briefs.

It is more appropriate to allocate different circulation percentages for generically different Planning Units. Such a guide has been provided under the Schedule of

Circulation Areas in this section.

Inadequate circulation allowance in briefing documents is not recommended. It can result in undue pressure on designers to reduce sizes and therefore functionality. It must also be noted that the circulation percentages are a guide only. They apply to the Planning Units included in these Guidelines under Generic Schedules of Accommodation.

910507 705 .18.00 NETT FUNCTIONAL AREAS

In briefing documents, Nett Functional Areas represent the sum of individual room areas without any corridors.

If areas are measured off the plans, then the following measurement method will apply:

+ External wall thickness is excluded;

+ Internal wall thicknesses and columns are included;

+ Wall thickness is divided equally between adjoining rooms;

+ Corridor walls are allocated to adjoining rooms;

+ Passing service risers and service cupboard are excluded.

910508 705 .19.00 GROSS DEPARTMENTAL AREAS

Gross Departmental Areas are calculated by adding the Nett Functional Areas and departmental corridors. These are corridors that are entirely within one department (or Planning Unit).

In calculating the departmental corridors the following should be taken into account:

+ Service cupboards and passing risers are excluded;

+ Corridor wall thicknesses are excluded as these are included in room areas;

+ Columns are included;

+ Fire stairs are excluded;

+ Lifts and lift shafts are excluded.

501427 705 .20.00 TRAVEL

'Travel' represents arterial corridors that connect the Units. Travel is required to allow passage from one Unit to another without going through the internal corridors of another Unit. A target of 10-12.5% is appropriate for Travel in a hospital of one to three storeys.

In calculating travel, the following should be considered:

+ Wall thicknesses are excluded as these are part of the Gross Departmental Areas;

+ Fire stairs are included once for each floor to floor connection;

+ External wall thicknesses are included;

+ Lift shafts are excluded;

+ Service cupboards are excluded.

910510 705 .21.00 ENGINEERING

Engineering refers to the area of plant rooms and other service areas. In calculating the Engineering allowance the following areas should be included:

+ Service cupboards;

+ Lift motor rooms;

+ Service shafts and risers.

Lift shafts should be excluded. The target of 10-12.5% applied to Gross Departmental Areas may be used for a typical one to three storey hospital building.

501428 705 .22.00 DEPARTMENT SIZES

The actual size for a department will depend upon its role as set out in the Service Plan and supporting Operational Policies and the organisation of services within the hospital. Some functions may be combined or shared provided that the layout does not compromise safety standards and medical and nursing practices.

Note: Departmental sizes also depend on design efficiency. For guidelines on this subject refer to Efficiency Guidelines - Schedule of Circulation Areas in this section.

501429 705 .23.00 ROOM SIZES

Room sizes may require adjustment in response to current or predicted usage and Furniture, Fittings and Equipment (FFE) requirements. For example, the size of equipment may change over time and this needs to be considered in determining room sizes for specific purposes.

501430 705 .24.00 SCHEDULE OF CIRCULATION AREAS

The following Circulation Areas are recommended as a starting point for briefing typical Health Planning Units (HPUs). Clearly circulation percentages will vary as a result of the configuration of the Unit, including the use of a 'racetrack' arrangement or double loaded corridors.

The figures given are a guide only. The actual spatial allocation will depend on the role delineation of the service, the re- use of existing buildings and the skill of the individual designer.

The provision of appropriate area for circulation requirements will be tested during the preliminary design phases; both under and over provision of circulation space should be avoided.

DEPARTMENT		CIRC'N - %	NOTES
ADMINISTRATION		20	

ALLIED HEALTH		25	
AMBULATORY CARE		32	
BIOMEDICAL ENGINEERING		20	
CATERING UNIT		25	
CENTRAL STERILE SUPPLY		20	
CHAPEL		10	
CHILD CARE		20	
CLEANING/HOUSEKEEPING		10	
CLINICAL INFORMATION		15	
CORONARY CARE		35	
DAY ONCOLOGY		30	
DAY PROCEDURES UNIT		35	
DENTAL		20	
EDUCATION & TRAINING		15	
EMERGENCY UNIT		40	
ENDOSCOPY UNIT		35	
ENGINEERING & MAINTENANCE		15	
INPATIENT UNITS		32	
INTENSIVE CARE		40	
LAUNDRY		10	
LINEN SERVICE		10	
LONG TERM CARE		32	
MEDICAL IMAGING		35	
MORTUARY		20	
NUCLEAR MEDICINE		30	
OBSTETRIC UNIT		35	
OPERATING UNIT		35-40	
OUTPATIENT UNIT		20	Class 5
OUTPATIENT UNIT		25	Class 9A
PAEDIATRIC/ADOLESCENT		32	
PATHOLOGY		25	
PHARMACY		25	
PSYCHIATRIC UNIT		32	

PUBLIC AMENITITES		10	
RADIOTHERAPY		30	
REHABILITATION INPATIENT		32	
RENAL DIALYSIS		32	
STAFF ACCOMMODATION		10	
STAFF AMENITIES		10	
SUPPLY UNIT		10	
WASTE MANAGEMENT UNIT		20	

501431 705 .25.00 SCHEDULE OF ALLOWANCES FOR TRAVEL AND ENGINEERING (from TS13)

The allowance for travel and engineering should be determined in conjunction with the planning team to take account of the requirements of the specific project.

Although these are previously discussed separately in this document, where no other information is available the allowance for combined travel and engineering should be as follows:

TRAVEL & ENGINEERING		AREA %	
ONE STOREY		20	
TWO STOREY		23	
THREE STOREY		25	
FOUR STOREY		28	