Part B – Health Facility Briefing & Design

176 Nursing Home

iHFG

International Health Facility Guidelines

2022

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176 Nursing Home

1 Introduction

Nursing homes serve patients requiring preventive, therapeutic, and rehabilitative nursing care services for non-acute, long-term conditions. Specialized clinical and diagnostic services are obtained outside the nursing home. Most residents are frail and aged, but not bedridden, although often using canes, walkers, or wheelchairs. Stays are relatively long, the majority for life. Nursing homes also care for a smaller percentage of convalescent patients of all ages. These patients are in long-term recovery from acute illnesses, but no longer require hospitalization.

Nursing homes present special design challenges in that for most residents the nursing home is not just a facility, but indeed their home. The reality is that in most cases the residents will live there for the rest of their lives and, moreover, rarely leave the premises at all. The nursing home becomes their entire world in a sense. The challenge is to design a nursing home that is sensitive and responsive to long-term human needs and well-being, both physical and emotional.

The purpose of this FPU is to provide the recommended requirements for building performance, building quality and building function to the consultants who are designing nursing homes. The intent is to standardize system elements based on proven success, so that the final product is appropriate, homelike and safe, yet cost effective, energy efficient, maintainable, and functional for residents and staff.

The occupants of Nursing Homes are treated more like residents than hospital patients. Therefore, the environment created within the nursing homes should be closer to a residential environment rather than a conventional hospital environment. This should be evident in the models of planning as well as interior design. Similarly, nursing homes should be optimised for long periods of stay.

2 Functional & Planning Considerations

A nursing home operates primarily in a patient-care mode rather than a medical mode. Consequently, it's more important attributes are those focusing on the general well-being of its residents rather than high-tech considerations.

All resident rooms in new Complex Care facilities should be private rooms: i.e. accommodate one resident. Renovation of existing facilities should attempt to eliminate double rooms.

The principal attributes of a well-designed nursing home are.

Homelike and Therapeutic Environment

Inherent in any institutional stay is the impact of environment on recovery, and the long-term stays typical of nursing home residents greatly increase this impact. The architect and interior designer must have a thorough understanding of the nursing home's mission and its patient profile. It is especially important that the design address aging and its accompanying physical and mental disabilities, including loss of visual acuity. To achieve the appropriate nursing home environment every effort should be made to:

- Give spaces a homelike, rather than institutional, size and scale with natural light and views of the outdoors
- Create a warm reassuring environment by using a variety of familiar, non-reflective finishes and cheerful, varied colors and textures, keeping in mind that some colors are inappropriate and can disorient or agitate impaired residents
- Provide each resident a variety of spatial experiences, including access to a garden and the outdoors in general
- Promote traditional residential qualities of privacy, choice, control, and personalization of one's immediate surroundings
- Alleviate possible disorientation of residents by providing differences between "residential neighborhoods" of the nursing home, and by use of clocks, calendars, and other "reminders"
- Encourage resident autonomy by making their spaces easy to find, identify, and use
- Provide higher lighting levels than typical for residential occupancies

Efficiency and Cost-Effectiveness

The nursing home design should:

- Promote staff efficiency by minimizing distance of necessary travel between frequently used spaces
- Allow easy visual supervision of patients by minimal staff
- Make efficient use of space by locating support spaces so they may be shared by adjacent functional areas, and by making prudent use of multi- purpose space

Cleanliness and Sanitation

An odor-free environment is a very high priority in nursing homes, since many residents are occasionally incontinent, and the pervasive odors can give an impression of uncleanliness and poor operation to family and visitors. In addition to operational practices and careful choice of furniture, facility design can help odor control by:

- Adequate and highly visible toilet rooms in key locations near spaces where residents congregate
- The use of appropriate, durable finishes for each space used by residents
- Proper detailing of such features as doorframes, casework, and finish transitions to avoid dirt-catching and hard-to-clean crevices and joints
- Adequate and appropriately located housekeeping spaces
- Effective ventilation, which may need to exceed nominal design levels
- Incorporating O&M practices that stress indoor environmental quality (IEQ)

Attention to Wayfinding

Wayfinding should be a major principle in the design of Nursing Homes. Wayfinding is basically how people find their way around an environment. Persons with dementia have difficulty planning and visualizing their rout. They are more dependent upon help with decision points along the way as they occur. They are lost without assistance to pick out relevant information at these decision points.

A consistent and well thought out system of wayfinding helps to maintain the residents' dignity and avoid their disorientation. It should:

- Use multiple cues from building elements, colors, texture, pattern, and artwork, as well as signage, to help residents understand where they are, what their destination is, and how to get there and back.
- Identify frequently used destination spaces by architectural features and landmarks which can be seen from a distance, as well as symbols, signage, art, and elements such as fish tanks, birdcages, or greenery
- Avoid prominent locations and high visibility of doors to spaces which patients should not enter
- Use simple lettering and clear contrasts in signage
- Clearly identify only those rooms that residents frequent

The following items are built into the architectural design to promote way finding:

- Building Structure:
  - Small Scale
  - Corridor Length
  - Lay out
  - Reference Points
  - Minimal Repetative Elements
  - Legible Rooms
  - Spatial Proximity Of Amenities
- Interior Design:
  - Name and Photo
  - Pictograms

- Lettering: Enlarged and Contrasting
- Low Placement
- Landmarks
- Colour Contrast
- Personal Memorabilia
- Lighting – Glare and Lux
- Minimal Information Clutter
- Reduced Floor Patterns and Lines
- Visibly Accessible Toilet
- Multiple Cueing

Accessibility

Many residents may be ambulatory to varying degrees, but will require the assistance of canes, crutches, walkers, or wheelchairs. To accommodate these residents, all spaces used by them, both inside and out, should:

- Be designed so that all spaces, furnishings, and equipment, including storage units and operable windows, are easily usable by residents in wheelchairs
- Be equipped with grab bars in all appropriate locations
- Be free of tripping hazards
- Be located on one floor if feasible, preferably at grade. If residents' bedrooms must be located on more than one floor, then dining space must be apportioned among those floors, not centralized

Complex Care facilities must enhance full wheelchair accessibility. Wheelchair maneuverability is primarily a function of room size, door widths, corridor widths and level access. Frail, disabled patients are less able to manoeuver wheelchairs, often need someone to assist them, and have a more limited reach than independent, more physically sound wheelchair users. Enhanced space allowance makes nursing simpler, puts less strain on staff, gives patients more independence, and requires less patient supervision by a limited staff.

Front Entrance: Level Walkway to Main Entrance:

One would hope that a site chosen for a facility would be relatively level with easy access to outdoors, parking, sidewalks, and surrounding amenities. Minimally it is expected that from the main entrance drop off point there will be an ‘accessible path of travel’ for visitors, staff and residents. The walkway leading to the front door must be contiguous: i.e. a level plane surface. It should be of a minimum 1524 mm (5’) wide and of a permanent firm slip resistant material. If it is sloped it should be inclined at a maximum 1 in 20 gradient. It should have a curb of a minimum 75 mm (3”) if there is a drop off of more than 75 mm.

Front Entrance Door: Power Operated:

Building Codes require a power operated front entrance door for care facilities. This can be initiated by an easily reached manual push pad or by automatically controlled sensors. Sliding doors are preferable and less cumbersome for wheelchair users. They should have a programmable closure delay set at 4 – 6 seconds.

Front Door Width and Clearances:

Front Entrance doors should have a minimum opening of 914 mm (36”). Building Codes and ADA guidelines generally require a minimum 800 mm – 815 mm (32”) for accessible door openings, however Long-Term Care Guidelines recommend 914 mm as a minimum width for wheelchair accessible doors intended for use by frail seniors. Equally important for accessibility is a level clear area before each side of the door. These clearances apply to all accessible doors and are there basically to allow the wheelchair to manoeuver out to the way of the door swing. So, if the door is a swing type, then on the side where the door swings towards the wheelchair user there must be an area of a minimum length of 1100 mm (43”) plus the width of the door swing. If in a vestibule then the minimum length is 1220 mm (48”) plus the width of the door. If the door swings away from the user of if the door is a slider, the area must be a minimum 1100 mm long. A feature often missed is the requirement for width clearance on the latch side of doors: i.e. 600mm (24”) on the side of the swing towards the user; and 300 mm (12”) on the side of the swing away from the user. This means that

the width of the clear and level area must be a minimum of the width of the door plus the latch side clearance. As noted above these are minimum clearances, so a more functional clear and level area before the door would be 1524 mm wide by 1524 mm long plus the width of the door for swings towards the user.

Outside Access:

It is ideal if a care facility is limited to a one or two story building with grade access on both levels for easy accessibility. The site should be large enough and of such profile to support the entire facility as a one or two storey structure with at grade access to each level. This approach improves access to the outdoors and provides more possibilities for enjoying natural stimuli, provides a greater sense of security in terms of evacuation, and promotes less reliance on elevators in manoeuvring to events in public areas of the facility." Such easy access to shared amenities and programs is time efficient for staff and residents. However, this is not always economically feasible, particularly in urban locations. In multi-story configurations it is expected that there will be access from each level to patios, decks, balconies or sunrooms. It is preferable that there be direct access from every House; and that doors to the outside area be powered with a pad.

Contiguous floor levels:

Floor levels must be contiguous and a continuous level surface. Generally changes in flooring level are not permitted, particularly where wheelchair manoeuvrability is critical such as in turning circles and required clear areas in front of doors and fixtures. However, in some areas such as walkways small tolerances are acceptable. Where this occurs, flooring joints should have a maximum vertical height differential of 6mm (1/4") and preferably no more than 2 mm (1/25"). Thresholds should be a maximum 13 mm (1/2") in height and bevelled at 45 degrees or less. (

Turning Circle of 1676 mm (5'6 ″):

We recommend that where possible the basis for area requirements be a minimum turning circle of 1676 mm (5'6″), rather than the Building Code minimum of 1524 mm (5'). This is particularly useful for residents requiring an assistant to help them manoeuvre and for those who utilize motorized wheelchairs. Turning circle allowance has a critical impact on the size of resident rooms in terms of clearances and room to manoeuvre on both sides of resident beds and in ensuites. We consider 1676 mm (5'6")a good compromise that is sensitive to cost issues which result from increased area requirements.

Corridor width of 1830 mm (6 feet):

Guidelines for Nursing Homes generally require a minimum corridor width of 1820 - 1830 mm (6 feet) to comfortably accommodate two passing wheelchairs. (

Corridor width often must accommodate service carts, lifts, motorized wheelchairs, as well as unsteady pedestrians. A minimum for safe passage in the corridor is 1830mm. Lay-bys or alcoves are useful for temporary parking of lifts and carts. Some Guidelines Bill Benbow November 2014 Page 12 require 2400 mm (8 feet) but that requirement was derived from the erroneous assumption that patients are moved in their beds in emergencies. Articulation of the corridor walls particularly at doorways and with alcoves makes the corridor more interesting and functional. So, a minimum of 1830 mm with articulation is a good compromise.

Minimize length of corridors:

Layout of Care Houses should be designed with a view to minimize length of corridors in order to functionally reduce distances travelled for staff and residents

Resident Room Useable Space (excluding ensuite and vestibule):

Resident Rooms come in two basic configurations: a Panhandle design which has a vestibule entrance; and a Paired Ensuite design which has no vestibule and places two ensuites between rooms. This makes Resident Room areas difficult to compare unless the area is reduced to useable space: i.e. excluding the ensuite and vestibule. A vestibule if approximately 2 – 3 square meters and an ensuite generally between 5 and 6 square metres. As a result the Panhandle design needs to have a larger area. The overall area of a private resident room including ensuite should be a minimum of 22–25 sq. m (237 - 265 sq. f) with panhandle designs at the upper end of the range because of the vestibule. For a bare minimum with a 1524 mm (5') turning circle 16 square metres of useable space is acceptable; however, for frail seniors it is preferable if possible to have 17 sq. m (183 sq. f) of

useable space which allows for a 1676 mm (5'6") turning circle. And for a bariatric room New Brunswick has a good graphic showing a paired ensuite design of 21.5 sq. m. of useable space

Resident Room Minimum Dimensions (Clearances):

Clearances:

Although Useable Space is the simplest way to determine a guideline for accessibility, it is also critical to determine minimum dimensions of a resident room. This is to ensure adequate clearances: i.e. passage of wheelchair and walkers past the end of the bed and adequate space for turning circles and access on both sides.

Width:

Given that a reasonable allowance for a bed is 2235 (7' 4") and adding a passing allowance of 1200 mm (47"), an overall width minimum of 3455 (11'4") is tight but acceptable for a paired ensuite design. The width needs to be increased to 4000mm (13'1") in the panhandle design in order to accommodate the minimum ensuite size of approximately 2200 mm (7'3") plus partition and width of the vestibule which needs to be a minimum 1676 mm (5'6") to allow for the entrance door installation and latch side clearance.

Length:

In terms of length a panhandle entrance and adjacent ensuite consumes approximately 2133 mm (7') of the length of the room. In the remaining length 1066 mm (42") of bed width needs to be accommodated, with night tables and perhaps an armoire or chair and bed access clearances. This results in a minimum length of 6550 mm (21' 6") for the panhandle design and 4548 mm (14'11") for the paired ensuite layout.

For a Panhandle Design with a turning circle of 1524mm (5') a minimum of 4000 mm (13' 1") by 6550 mm (21'6") is required. A Paired Ensuite layout needs a room 3455mm (11' 4") by 4548mm (14'11"). Resident rooms based on a 1676 mm (5'6") turning circle will need to be slightly larger, as will rooms designed for bariatric residents.

Resident Room Ensuite Size: The size of ensuites needs to accommodate wheelchairs and should be a minimum 5.3 sq. m (57 sq. feet). This is a minimum size and is designed to allow a 1524 mm (5') turning circle and to include a European style shower where the toilet can be used as a shower seat. Without a shower 4.5 sq. m. is an acceptable minimum. New Brunswick guidelines have an ensuite of 5.6 sq. m. (60 sq. f.) (NB 2010, p.63) A more preferable size is 6 sq. m (65 sq. feet) which can better accommodate trash receptacles and glove and sanitizer dispensers which McGuinness has referenced as a growing concern.

Resident Room and Ensuite Door Openings: Usable door openings for resident rooms should be between 1050 mm (41 inches) and 1220 mm ((48") while ensuites should be a minimum of 914mm (36 inches). Ontario requires 1120 mm (44 inches) for Resident Room doors and 914 mm for ensuites. (Ontario, 2009) Nova Scotia asks for 1050 mm (41") for the entrance doorway; and 914 mm for the ensuite. (NS, 2007) New Brunswick and Vanvouver call for 1220 mm (48") for the entrance door. Vancouver also requires 1220 mm for the ensuite door. (NB, 2010; VCH, 2007) Most will allow two leaves for the entrance door so that the one leaf has a minimum 900 mm clearance.

Ensuite Toilet Access - height and clearances: Barrier free toilets vary from 406 mm (16") to 460 mm (18"). Elderly women tend to be shorter and prefer a medium height of approximately 431 mm (17"). Clearances are critical for toilet access and assistance. Alberta shows 800 mm (31.5") by 1500 mm (5') clear area for side access to the toilet on one or two sides. (Alberta, 2012) Vancouver required access from three sides, with clearances of 600 mm to 800 mm on each side. (VCH, 2007) Ontario is more conservative requiring access from the front and at least one side. (Ontario, 2009) Some facilities install toilets with one side access alternating from room to room on left or right sides to allow for room assignment by need. xiv.

Ensuite Fixtures: A barrier free sink requires at least 700 mm (28")') on at least one side of the sink for an assistant, and 1100 mm long by 800 mm wide in front of the sink. The sink should have a maximum height of 865 mm (34") with under sink clearances of 735 mm (29") at the front edge, tapering to not less than 660 mm at a point 250 mm back from the front face. (Building Access Handbook, 2007) Some care models are including ensuite showers in the resident bathroom to provide privacy and assist with incontinence issues and infection control. (VCH, 2007; CLC, 2011) This is becoming a standard in most new care facilities in British Columbia, is common in Europe and is now a US Veterans Affairs requirement. European style showers use the entire washroom by

providing impervious wall and floor finishes and a floor drain. Modular showers should be 1500 mm by 900 mm (5' by 3'), have a maximum bevelled threshold of 13 mm (1/2") and a clear entrance area of 1500 mm by 900 mm. (Building Access Handbook, 2007) Ensuites should include tilting mirrors for wheelchair users, and sufficient grab bars for safety near all fixtures, as well as glove and sanitizer dispensers and trash receptacle. Consider a nurses cupboard for special supplies. xv.

Assisted Bathing Suite: Assisted bathing tubs are standard in Care facilities, usually with accessible showers although bathing suite showers can be eliminated if they are provided in resident ensuites. Alberta requires a 1200 mm (48") entrance door. (Alberta, 2012) The Assisted tubs come in a variety of formats including recumbent. Sufficient area needs to be allocated to allow manoeuverability of stretchers and lifts. Nova Scotia requires 1200 mm (4') access on three sides. (NS, 2007) Ceiling lifts are usually part of the room specifications although some tubs are designed with their own lifts. An area of 20 to 24 sq. m. (215 – 258 sq. f.) is recommended to accommodate fixtures, clearances and storage. This allowance includes an adjacent toilet and sink. New Brunswick allocates 15.8 sq. m. for a Bathtub Room, 8.4 sq. m. for the Shower Room, plus 5.6 sq. m. for Bathing Suite Storage. (NB, 2010)

In House Amenity Area (Dining plus Lounge plus Activity) Minimum allocation for amenity space for resident use should total 6 sq. m. (64.5 sq. f) per resident in each House unit.: 3 sq. m. (32 sq. f) for dining and 3 sq. m. (32 sq. f) for lounge/activity. Complex care is seeing a rapidly increasing use of wheelchairs, geriatric chairs, and walkers so a total of 7 sq. m. (75 sq. f) would be preferable. BC determined that a minimum of 3 sq. m (32 sq. f) per resident is required for dining in order to accommodate wheelchairs. (MLC, 1994) Subsequent experience indicates that Lounge and Activity allowances need to be right sized as well to a minimum allocation of 3 sq. m. (32 sq. f) per resident. More recently Veterans Affairs determined that activities requiring tables such as dining and social areas need a minimum 3.35 sq. m. (36 sq. f) This is based on 1220 mm (48") square tables arranged at diagonals and provides circulation of 1220 mm (48") which includes turning space to avoid conflicting with other occupants while conserving necessary square footage. (CLC, 2011. p.3- 21) In line with this Nova Scotia requires 3.34 sq. m. (36 sq. f) for dining and 3.34 sq. m. (36 sq. f) for living area per resident in each House for a total of 6.7 sq. m. (72 sq. f). (NS, 2007, p.27 and 28) New Brunswick calls for 3.5 sq. m. (37.5 sq. f) for dining and 2.5 (27 sq. f) for lounge for a total of 6 sq. m. (64.5 sq. f) plus an additional allowance for activity area. (NB, 2010) With the movement towards a Bill Benbow November 2014 Page 17 smaller number of residents in each House it has become difficult to provide a variety of living areas with the traditional per resident amenity area allowance, particularly if there is a desire for shared neighbourhood multipurpose activity space. Six to seven square metres per resident of in-House amenity area is reasonable.

Security and Safety

Design to address security and safety concerns of nursing homes includes:

- Use of non-reflective and non-slip floors to avoid falls
- Control of access to hazardous spaces
- Control of exits to avoid residents leaving and becoming lost or injured
- Provision of secure spaces to safeguard facility supplies and personal property of residents and staff

Door Handles and Closures

The National Building Code requires that door handles be operable by devices which do not require tight grasping or twisting of the wrist. Push-pull mechanisms which do not require grasping are acceptable. Doors need to operate with a force not more than 38 N for exterior doors and 22 N (5 pounds) for interior doors. (Building Access Handbook, 2007) It is preferred that doors not have closures, but if they do, there should be a minimum 5 seconds delay. (ADA, 2010) Lever or blade handles are preferred on both doors and fixtures. Alberta requires blade handles on faucets to be 10.2 cm. (Alberta, 2012) Ontario prefers C or D type handles on sliding doors. It is a good idea to use contrasting colours for handles. (VCH, 2007)

Resident area controls - height from finished floor

Switches and other resident activated controls should be within the reach threshold of frail residents: i.e. located between 900 mm (35.5") and 1200 mm (47") from the floor. (Building Access Handbook, 2007) In addition there should be a clear floor area adjacent to the controls with a minimum of 1220

mm x 1220 mm (48” square). (ADA, 2010) Consider motion sensor activated controls: e.g. for light switches in ensuites.

Resident area windows – viewing height from floor: Alberta requires that each resident bedroom have one operable window located a maximum of 610 mm (24”) from the floor in order to provide direct views of the outside from both a sitting and lying in bed position. The window should provide good levels of natural lighting and not open more than 152 mm (6”) for safety. (Alberta, 2012) Nova Scotia and New Brunswick have similar requirements with a sill height of 630 mm (25”). (NS, 2007, NB, 2010) Ontario follows suit with a requirement for a sill height maximum of 600 mm and an overall window size of at least 10 percent of the floor area of the bedroom to ensure that there is sufficient natural light. (Ontario, 2009)

Lighting

Lighting design needs to accommodate aging eyes. the amount of light in nursing homes was seldom sufficient to meet the visual needs of older people. Due to the thickening of the lens of the eye and the reduced size of the pupil, the light requirements for seniors can be as high as five times greater than for younger people. Low lighting and poor visual acuity double the risk of falling. For persons with dementia shadows and glare increase the difficulty of interpreting the environment and may lead to fear and agitation.

- Ambient Lighting:
- Task Lighting:
- Colour Rendering Index (CRI), Colour Temperature:
- Contrast:
- Natural Light
- Natural Views:
- Transitions:
- Day and Night Adjustments
- Even Distribution of Lighting
- Glare
- Individual Preferences
- Maintenance Standards

Noise

Noise mitigation needs to be designed into nursing homes. A 2012 study found that those with lower cognitive strength may be less able to adapt to environmental stressors such as noise. Obtrusive sound was definitely found to contribute to agitation. And there was a cumulative effect that may well be connected to sundowning. (Joosse, 2012) Of all stimuli noise has the most damaging effect on people with dementia. (Dewing, 2009) Noise generally exceeds recommended levels in nursing homes.

- Ambient Noise Level – Bedrooms:
- Ambient Noise Level – Common Areas
- Layout
- Noise Mitigating Design Features
- Noise Reducing Adaptations
- Scheduling of Intrusive Noise
- Mitigate Disruptive Night-time Environment
- Fire Alarms and Paging Systems
- Staff Training
- Signage

- Surveys
- Maintenance

Aesthetics

Aesthetics is closely related to creating a therapeutic homelike environment. It is also a major factor in a nursing home's public image and is thus an important marketing tool for both residents' families and staff. Aesthetic considerations include:

- Increased use of natural light, natural materials, and textures
- Use of artwork
- Attention to proportions, color, scale, and detail
- Bright, open, generously scaled public and congregate spaces
- Homelike and intimate scale in resident rooms and offices
- Appropriate residential exterior appearance, not hospital-like
- Exterior compatibility with surroundings

Sustainability

Nursing Home facilities are public buildings that may have a significant impact on the environment and economy of the surrounding community. As facilities built for "caring", it is appropriate that this caring approach extend to the larger world as well, and that they be built and operated "sustainably".

Best Practice Nursing Home design should be economically sustainable. “Economic sustainability of capital works and recurrent funding for residential aged care facilities place the onus on designers to provide efficiency in circulation and economy of functional areas. A fine balance between efficient design, longevity and low maintenance buildings, optimum bed numbers, optimum staffing and effective personal and support services management will provide a “best model” facility.

Good facility design results in greater staff efficiency, provides flexibility – possibly for alternative use, results in cost-effective use of space, and minimizes maintenance costs. We have developed a sustainable cost effective model based on a target of 55 building gross square metres (bgsm) per resident for the residential care portion of the facility: i.e. excluding service and support areas which are generally external to the actual residential units: e.g. Commercial Kitchen, Laundry, Bulk Storage, Housekeeping, Mechanical, Electrical and Maintenance areas. This Sustainable Model is based on these assumptions:

- Small House design
- Self-sufficient Houses:
- Private Resident rooms:
- Amenity Areas
- Neighbourhood Model:
- Shared Program Services:
- Multipurpose Area:
- Non-funded amenity spaces:
- Admin and Support Services:
- Corridors

Functional Relationships Diagram

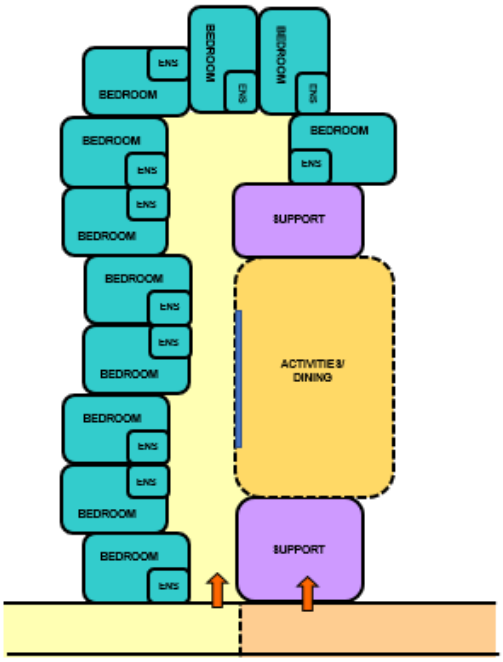
Decisions on the building’s spatial layout are among the first steps when designing care environments. This process involves choosing the size and shape of hallways and the distribution of residents’ rooms as well as common spaces. Staff need to unobtrusively monitor residents throughout the interior and exterior common spaces. Emphasis in dementia care should move towards creating an environment which offers a better balance between quality of life, perceived well-being and care delivery.

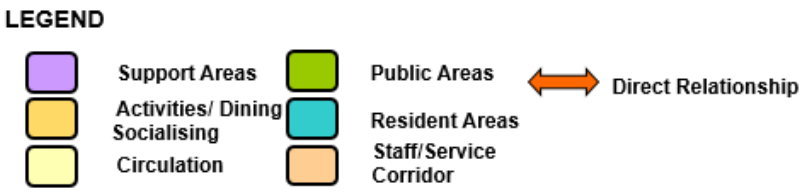
The functional relationships will vary depending on the planning model adopted. However, certain principles are common. These are demonstrated in 4 examples below:

- Linear Model
- Square Model
- “L” Model
- Quadrant Model

LINEAR MODEL

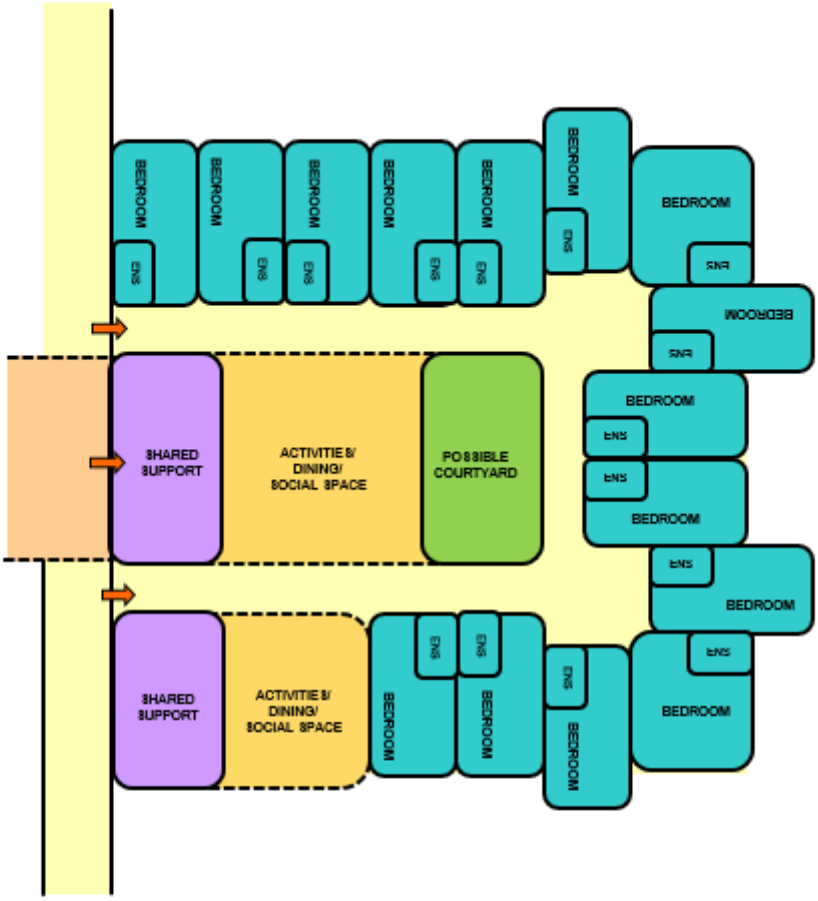
This spatial layout works well when introducing multiple wings that can serve each independently as a “Cluster” or “Pod”. Grouping these wings can create a common core that provides shared space for common facilities and administration such as bathing rooms, staff conference, dirty utility rooms and other shared services. This model maximizes natural light to all rooms including the common living spaces.

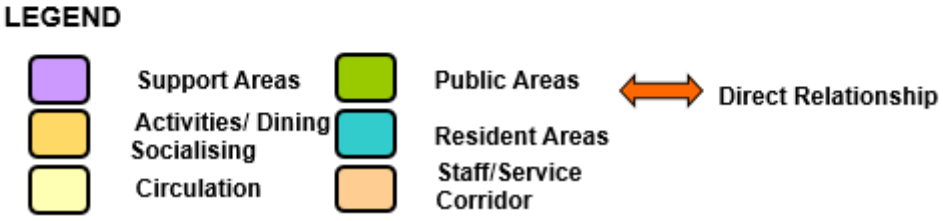




SQUARE MODEL

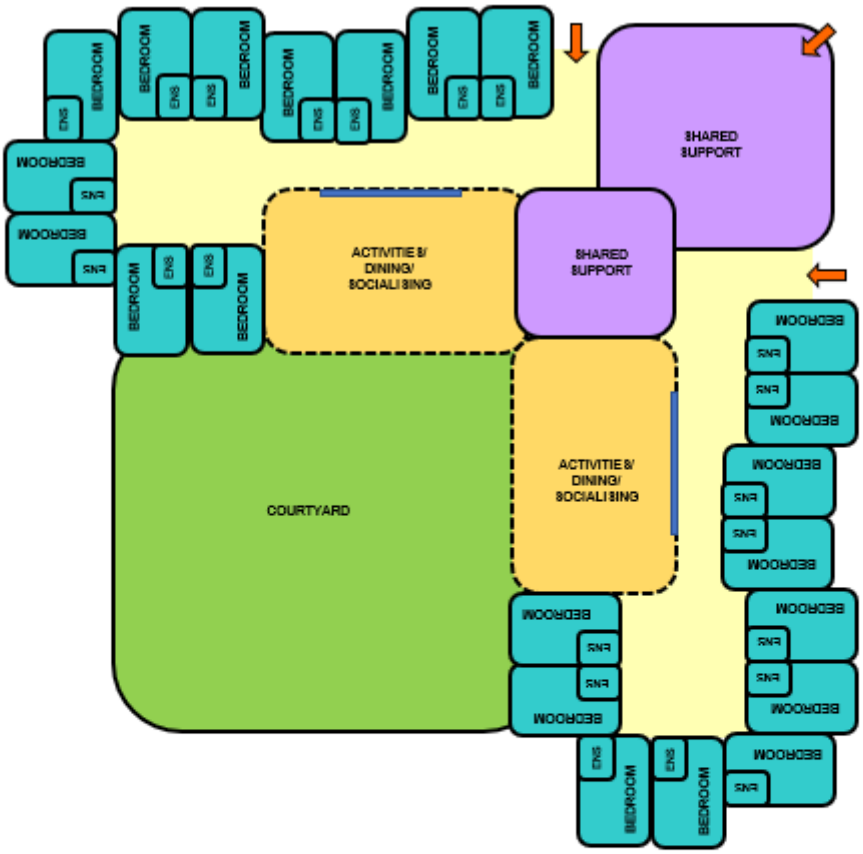
In this model, the rooms are wrapped around central spaces forming square “Clusters” or “Pods”. Visually, each such cluster will feel like a Home for its residents. The overall composition of the facility can express these Homes independently but linked for access to any common services. Another benefit of this model is very easy wayfinding as all rooms are visible from the central core of the Cluster. The disadvantage of this model is limited windows to the central areas. However this can be mitigated by the use of skylights or internal courtyards.

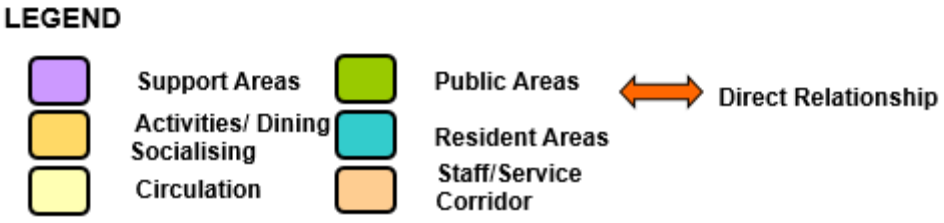




"L" MODEL

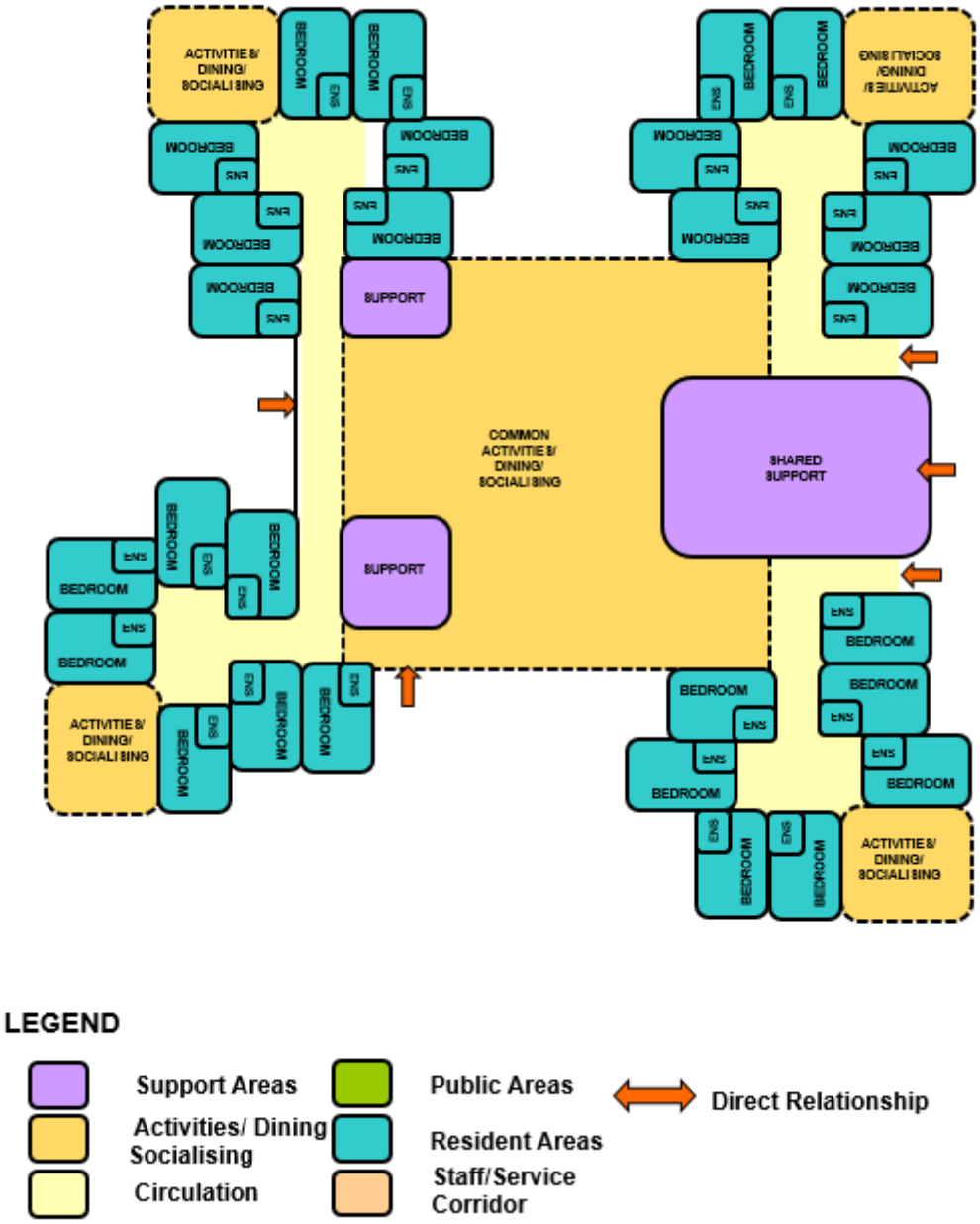
This model suits larger projects beyond 100 residents. The "L" shaped wings offer a private outdoor courtyard shared only by the two wings and feels private. Each wing of this model is independent but with some support services shared with the other wing. If the area is limited, it is possible to centralise the common activity, dining and socialising spaces instead of having one per wing.





QUADRANT MODEL

This model suits situations where very small groupings of the resident bedrooms is preferred, to give the impression of living in a family home with a few bedrooms. The larger common activity, dining and socialising areas can still be shared for efficiency and interaction with other residents. This model is especially useful in maintaining the integration of the seniors within the local community fabric while living in a residence that to some extent resembles a single family home, linked to other family homes.



Building Service Requirements

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

Information and Communication Technology

- Unit design should address the following Information Technology/ Communications issues:
- Electronic Health Records (EHR) which may form part of the Health Information System (HIS)
- Hand-held tablets and other smart devices
- Picture Archiving Communication System (PACS)
- Paging and personal telephones replacing some aspects of call systems
- Data entry including investigation requests
- Bar coding for supplies and records
- Data and communication outlets, servers and communication room requirements
- Optional availability of Wi-Fi for staff, patients and waiting visitors

Staff Call

The Unit must provide an electronic call system next to each inpatient bed to allow for patients to alert staff in a discreet manner at all times. Additionally, call systems must be installed in all treatment areas, therapy areas and staff areas.

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

Patient Entertainment Systems

Patients may be provided with the following entertainment/ communications systems according to the Operational Policy of the facility:

- Television
- Telephone
- Radio
- Internet (through Wi-Fi)

Pneumatic Tube Systems

The Inpatient Unit and Nursery areas may include a pneumatic tube station, as determined by the facility Operational Policy. If provided the station should be located in close proximity to the Staff Station or under direct staff supervision.

Heating, Ventilation and Air-conditioning

The Unit should be air-conditioned with adjustable temperature and humidity in all Therapy Areas, Bedrooms, Consult and Interview/Meeting Rooms for patient and staff comfort.

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

Hydraulics

Warm water shall be supplied to all areas accessed by patients within the Unit. This requirement includes all staff handbasins and sinks located within patient accessible areas. Sinks in Staff Areas shall be provided with hot and cold water services.

For further information and details refer to Part E – Engineering Services in these Guidelines.

Medical Gases

The minimum provision of Medical Gases in the LTCU will be as follows:

- For all patients up to HDU level:
  - Oxygen, Suction and Air

- For patients at HDU level:
  - Refer to HDU Standard Components and allow for ventilation facilities

Infection Control

Hand Basins

Handwashing facilities shall be provided in Therapy areas, Gymnasiums, Consult/Examination Rooms and located conveniently to patient Bedrooms. Handbasins suitable for scrubbing procedures shall be provided for each Procedure and Treatment Room, as specified by the Standard Components. Where a handbasin is provided, there shall also be liquid soap, disposable paper towels and waste bins provided.

Handwashing facilities shall not impact on minimum clear corridor widths. At least one Handwashing Bay is to be conveniently accessible to the Staff Station. Handbasins are to comply with Standard Components - Bay - Handwashing and Part D - Infection Control in these Guidelines.

Antiseptic Hand Rub

Antiseptic Hand Rubs should be located so they are readily available for use at points of care, at the end of patient examination couches and in high traffic areas.

The placement of Antiseptic Hand Rubs should be consistent and reliable throughout facilities. Antiseptic Hand Rubs are to comply with Part D - Infection Control, in these Guidelines.

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

Refer also to Part D of these Guidelines.

3 Components of the Unit

Standard Components

Standard Components are typical rooms in a health facility, each represented by a Room Data Sheet (RDS) and Room Layout Sheet (RLS). Sometimes, there are more than one configuration possible and therefore, more than one room layout sheet can be found in the Standard Components for a room with same function. They may differ in room size and/or the requirement of FF&FE items.

The Room Data Sheets are presented in a written format, describing the minimum briefing requirements of each room type divided into the following categories:

- Room Primary Information; includes briefed areas, occupancy, room description, relationships and special room requirements
- Building Fabric and Finishes; describes fabric and finishes for the room's ceiling, floor, walls, doors and glazing requirements
- Furniture and Fittings; lists all the fittings and furniture typically located in the room; Furniture and Fittings are identified with a group number indicating who is responsible for providing the item according to a widely accepted description as follows:

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

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

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

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

Standard Components have considered the required design parameters described in these Guidelines. Each FPU should be designed with compliance to Standard Components - Room Data Sheets and Room Layout Sheets, nominated in the Schedules of Accommodation in Appendices of this FPU.

Non-Standard Rooms

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

Bay - Pneumatic Tube

The Bay - Pneumatic Tube should be located at the Staff Station/s under the direct supervision of staff for urgent arrivals. The location should not be accessible by external staff or visitors.

Requirements include:

- The bay should not impede access within staff station areas
- Racks should be provided for pneumatic tube canisters
- Wall protection should be installed to prevent wall damage from canisters

Occupational Therapy Room/s

The Occupational Therapy Rooms are large rooms or workshops for a range of activities including table based, arts, crafts and woodworking. The Occupational Therapy rooms may be located adjacent to rehabilitation therapy areas, with ready access to waiting and amenities areas.

Fittings and Equipment required in this area may include:

- Benches with inset sink, wheelchair accessible
- Shelving for storage of equipment or tools
- Tables, adjustable height
- Chairs, adjustable height
- Hand-washing basin with liquid soap and paper towel fittings
- Pin board and whiteboard for displays
- Sufficient power outlets for equipment or tools to be used in activity areas

Sitting Alcove

The sitting alcove is a small recess along the corridor for the patient to rest quietly and for staff to conduct informal discussions. The Sitting Alcove should consider and include the following:

- Seating suitable with bariatric capacity
- Readily accessible Nurse Call system
- Suitably reinforced heavy-duty grab rail
- Appropriate depth to ensure Sitting Alcove does not encroach on corridor space

4 Schedule of Accommodation

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

Within the SOA, room sizes are indicated for typical units and are organised into the functional zones. Not all rooms identified are mandatory therefore, optional rooms are indicated in the Remarks. These guidelines do not dictate the size of the facilities, therefore, the SOA provided represents a limited sample based on assumed unit sizes. The actual size of the facilities is determined by Service Planning or Feasibility Studies. Quantities of rooms need to be proportionally adjusted to suit the desired unit size and service needs.

The Schedule of Accommodation are developed for particular levels of services known as Role Delineation Level (RDL) and numbered from 1 to 6. Refer to the full **Role Delineation Framework** (**Part A - Appendix 6**) in these guidelines for a full description of RDL's.

The table below shows typical Units within a Hospital from RDL3 to 6.

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

Nursing Home with 25 beds

ROOM/ SPACE	Standard Component Room Codes									RDLs 3 - 6 Qty x m²			Remarks
Unit Size												**25 Beds**	
Entrance/ Reception													
Entry Lobby/Airlock	airle-10-i											10	Required for a stand-alone Unit
Reception/ Clerical	recl-10-i											10	
Waiting (Male/ Female)	wait-10-i											10	Separate Male and Female
Meeting Room - Small	meet-9-i similar											12	Interviews with family
Toilet - Public	wcpu-3-i											3	Separate Male and Female
Toilet - Accessible	wcac-i											6	
Consult/ Exam Room	cons-i											14	Required for a stand-alone Unit
Patient/ Activities/ Therapy Areas													
1 Bed Room - Standard	1br-st-18-i											18	Mix and number depend on service demand. Standard up to but not including HDU level
1 Bed Room - Large	1br-lg-28-i											28	May be used for special needs patients
2 Bed Room	2br-st-28-i											28	Mix and number depend on service demand
1 Bed Room -HDU	1br-icu-25-i											25	Optional
Ensuite - Standard	ens-st-k or ens-st-c-i											5	Directly accessible from each 1 Bed & 2 Bed rooms
1 Bed Room - Isolation - Negative Pressure	1br-isn-18-i											18	Class N rooms are mandatory according to the ratios nominated in this FPU. Minimum size is 18m2. Any isolation room may be combined with the mandatory Bariatric room to form and Isolation Bariatric room at 28m2 (1br-isn-28-k).
Anteroom	anrm-i											6	
Ensuite - Super	ens-sp-i											6	For 1 Bed Room - Large. Special fittings required for bariatrics
Reporting Station	sstn-5-i											5	Reporting stations should be at a ratio of 1 per 2 HDU beds
ADL Kitchen	adlk-enc-i											12	Optional
ADL Bathroom	adlb-i											12	Optional

ROOM/ SPACE	Standard Component Room Codes									RDLs 3 - 6 Qty x m²			Remarks
Unit Size												**25 Beds**	
Dining / Activities Room	dinr-i similar											50	Based on 2m2 per patient
Pantry/ Servery	ptry-i similar											15	With serving counter
Gymnasium/ Multi-purpose Room	gyah-45-i											45	Optional, Size to suit service
Laundry - Patient	laun-pt-i											6	Depending on Service Plan and Patient types. Not required for HDU level patients
Lounge - Activities	lnac-30-i similar											50	Depending on Service Plan and Patient types. Not required for HDU level patients
Multi-function Activities Room	mac-20-i											20	Quiet activities
Occupational Therapy Room	NS											20	Optional
Sitting Alcove	NS											2	Optional, locate along Corridors
Toilet - Patient	wcpt-i											4	Optional; locate adjacent to communal areas
Bathroom - Assisted	bath-i											16	
Treatment Room	trmt-14-i											14	Optional, Provide according to service demand
Support Areas													
Bay - Beverage, Enclosed	bbev-enc-i											5	
Bay - Handwashing, Type B	bhws-b-i											1	1 per 4 beds; 1 at entry, 1 near staff station; Refer to Part D
Bay - PPE	bppe-i											1.5	In addition to those required for isolation rooms. Refer to Part D - Infection Control
Bay - Linen	blin-i											2	Quantity and location to suit each facility
Bay - Meal Trolley	bmeq-4-i similar											4	Optional; depends on catering/ operational policies
Bay - Mobile Equipment	bmeq-4-i or bmeqe-4-k											4	Quantity, size dependent on equipment to be stored; opened or enclosed bay
Bay - Resuscitation Trolley	bres-i											1.5	
Bay - Pneumatic Tube	NS											1	Optional, Locate at Staff Station or under staff supervision
Clean Utility	clur-12-i similar											12	May be Interconnected with Medication Room
Medication Room	medr-10-i											10	May be Interconnected with Clean Utility

ROOM/ SPACE	Standard Component Room Codes									RDLs 3 - 6 Qty x m²			Remarks
Unit Size												**25 Beds**	
Clean Utility / Medication	clum-14-i											14	Optional if Clean Utility and Medication Room provided.
Dirty Utility	dtur-14-i											14	2 may be required to minimise travel distances
Disposal Room	disp-8-i											8	
Store - Equipment	steq-20-i											20	Size dependent on equipment to be stored
Store - General	stgn-14-i similar											10	Size as per service demand and operational policies
Store – Patient Property	stpp-i											8	
Cleaner's Room	clrm-6-i											6	Includes storage for dry goods
Staff Areas													
Staff Station	sstn-14-i											14	May include ward clerk; size dependant on qty of staff
Office - Clinical / Handover	off-cln-i											15	May be collocated with Staff Station
Office - Single Person	off-s9-i											9	Unit Manager and clinical personnel as needed
Office – 2 Person, Shared	off-2p-i											12	Medical, Nursing, Allied Health, as needed
Store – Photocopy/Stationery	stps-8-i											8	
Store – Files	stfs-10-i											10	May be combined with Photocopy/ stationery
Meeting Room - Medium / Large	meet-l-15-i similar											20	Meetings, Tutorials; shared between 2 units
Staff Lounge (Male/ Female)	srm-15-i											15	Includes food preparation area
Property Bay - Staff	prop-3-i similar											2	Separated for male and female. Number of lockers depends on staff complement per shift
Toilet - Staff	wcst-i											3	Separate Male and Female
Sub Total												**1248**	
Circulation %												**35**	
Total Area												**1684.8**	

Please note the following:

Areas noted in Schedules of Accommodation take precedence over all other areas noted in the Standard Components.

Rooms indicated in the schedule reflect the typical arrangement.

All the areas shown in the SOA follow the No-Gap system described elsewhere in these Guidelines.

Exact requirements for room quantities and sizes shall reflect Key Planning Units (KPU) identified in the Clinical Service PIan and the Operational Policies of the Unit.

Room sizes indicated should be viewed as a minimum requirement; variations are acceptable to reflect the needs of individual Unit.

Offices are to be provided according to the number of approved full-time positions within the Unit.

Class N Isolation rooms are not subject to Clinical Services Plan or demand. They are mandatory and must be provided in accordance with this FPU.

5 Further Reading

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

- FDA (US Food & Drug Administration) Food Establishment Plan Review Guideline, 2000

  http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/IndustryandRegulatoryAssistanceandTrainingResources/ucm101639.htm

- Food and Medicine Regulation, Food Standards Australia and New Zealand, refer to website:

  http://www.foodstandards.gov.au/industry/food-medicine-regulation/Pages/default.aspx

- International Health Facility Guidelines (iHFG) www.healthdesign.com.au/ihfg
- Ministry of Health UAE, Unified Healthcare Professional Qualification Requirements, 2017, refer to website: https://www.haad.ae/haad/tabid/927/Default.aspx
- Nutrient Needs of the Hospital Population: National Catering and Nutrition Specification for Food and Fluid Provision in Hospitals in Scotland (2008)

  http://www.gov.scot/Resource/Doc/229423/0062185.pdf

- The Facility Guidelines Institute (US), Guidelines for Design and Construction of Hospitals, 2018. Refer to website www.fgiguidelines.org
- That's Progress - Advancements in Hospital Foodservice, 2009, Maura Keller, Today's Dietitian, Vol. 11 No. 8 P. 28, refer to http://www.todaysdietitian.com/newarchives/072709p28.shtml
- The Building Regulation & Facilities for the Disabled United Arab Emirates Code

  https://www.moid.gov.ae/EPublications/The%20Building%20Regulation%20Facilities%20For%20the%20Disabled-en.pdf