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the spatial provision guidelines For Elderly And Disability Facilities

MSF
MINISTRY OF
SOCIAL AND FAMILY
DEVELOPMENT

the spatial provision guidelines

For Elderly And Disability Facilities

disclaimer

This publication is intended to be used solely as a guide to improve the design of social community facilities for the elderly and the disabled. The information contained herein should be for general guidance only. It is not intended to establish mandatory design requirements.

Users of this manual are advised to refer to the applicable building codes or other local statutory regulations concerning design or construction standards. To the extent that those standards conflict with any provision contained herein, this manual should not be construed in any way as superseding the applicable design or building regulations.

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preface

This Spatial Provision Guidelines for elderly and disability facilities is the first guidebook by the Ministry of Social and Family Development aimed at improving the quality of care for the elderly and the disabled in Singapore. It is one of many attempts by the Finance and Facilities Division (FFD) to extend its value added services to voluntary welfare organisations under the Many Helping Hands approach of the Ministry of Social and Family Development. Research gathered from Japan and Hong Kong elderly and disability facilities and inputs from the National Council of Social Service and the Singapore Polytechnic have made this possible.

The guidebook aims to provide direction to stakeholders in the building and related industries who want to understand some of the requirements for elderly and disability facilities. It covers design considerations for basic functional areas such as the administration area, activity and dining area, dormitory area, utility zone, medical centre and car park. It attempts to include as much as possible, the space requirements, ergonomics and safety considerations for social community facilities. Photographs and diagrams are added to provide illustrations of the different subject matter.

This guidebook is presented in a practical and easy-to-use manner to identify and apply the spatial norms, design, safety and functional considerations for the design of individual facilities. It is not a recipe book to be followed in strict order from beginning to end. Rather, this guide allows a "pick-and-mix" approach in which appropriate sections may be adapted to individual circumstances.

Spatial provision is continuously developing and evolving in order to better meet the needs of all stakeholders. The Facilities Development and Management Branch hopes that this guidebook will serve as a useful reference to all stakeholders.

We hope that this guidebook will provide you with an insightful introduction to the subject and support you in your decision making process.

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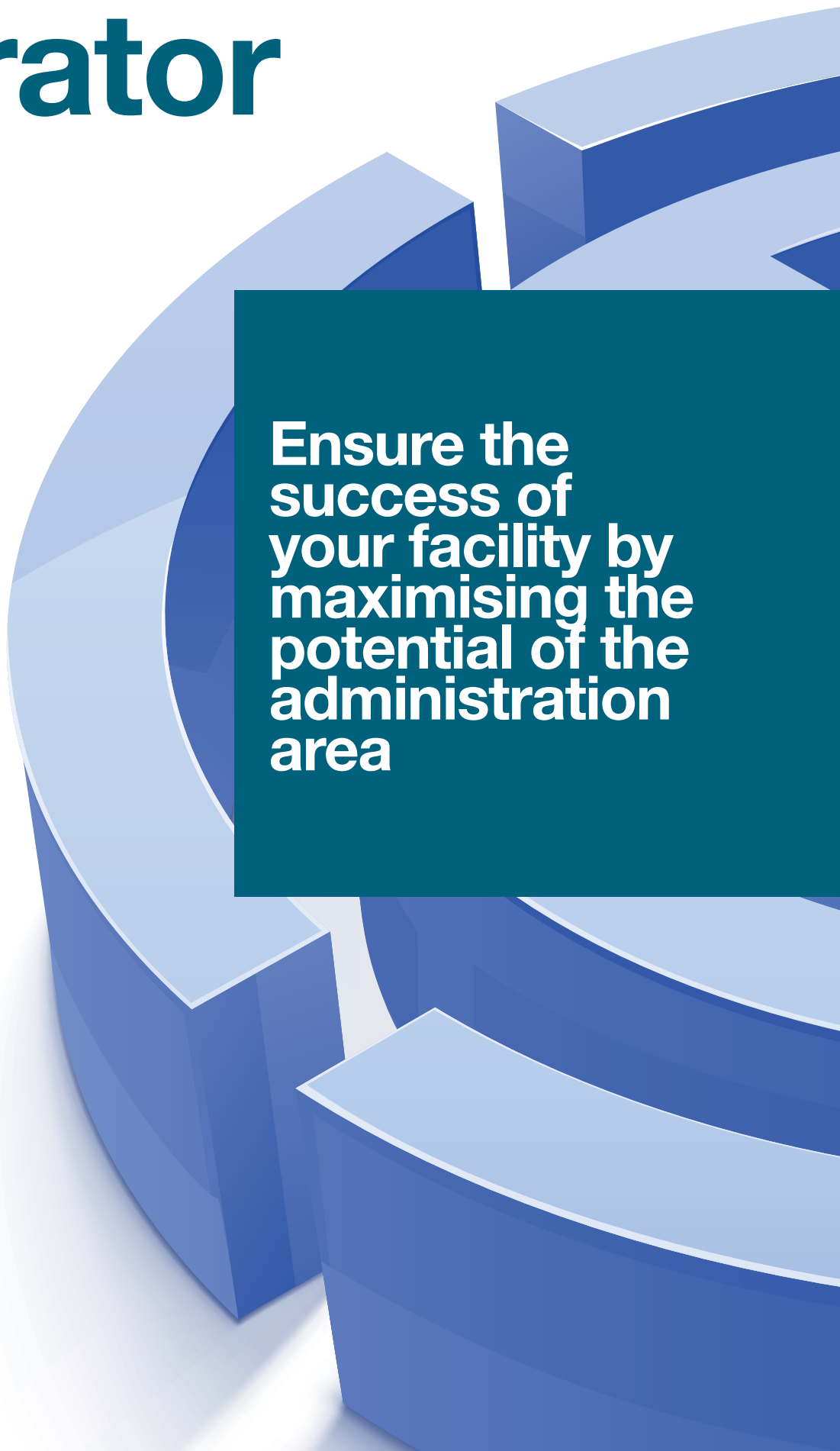
administration area

smooth operator



Ensure the success of your facility by maximising the potential of the administration area

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What's the objective?

The administration area is the heart of any facility and usually provides for a multitude of purposes including the management, maintenance and supervision of the premises. It usually comprises the reception, visitor lounge, administration office, meeting room, interview room and security room.

Why is this area important?

This area is a versatile zone that incorporates a multitude of functions such as receiving visitors and clients, general administration, management and security.

Administration areas enable social service providers to provide necessary resources for staff to perform their tasks, provide suitable settings to interact with clients and hold meetings with internal and external parties.

It is also the first point of contact that visitors will have and should invoke a warm and inviting reception.

ZONING

1) Reception

The reception area is where prospective customers and clients establish a first impression of the facility. A neat and well-decorated reception area will ensure that visitors feel welcome and at ease while waiting to be received.

The design of the reception area should also allow staff to monitor all visitors entering and leaving the facility, with an emphasis on good visibility to ensure safety and security.

How can this be achieved?

A well-designed reception area will make visitors feel welcome. It should be in close proximity to the main entrance and offer a calm, well-organised and pleasant overall impression. If the premises include a vehicle drop-off point, the reception space should be within close proximity to the vehicle drop-off point.

The reception area is also where the receptionist will be carrying out paperwork, answering calls, providing information to visitors and monitoring movement.

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Reception spatial provision:

- *4.0m² per receptionist including reception counter.*
- *1.0m² per visitor.*
- *2.3m² per wheelchair-bound visitor.*

Design Tips:

- *Integrating the reception counter with the administration office helps to save space and reduces the need for extra manpower. This will ensure there is always someone available to welcome guests and direct them to the relevant areas.*
- *Brightly-coloured detailing in the reception area may be considered for a more visitor-friendly experience.*
- *Child-friendly amenities like incorporating a children's play area might help to offer value added services to parents and keep other visitors happy.*

The reception area should be designed to incorporate essential equipment such as a computer, printer, telephone, electrical points, fax machine and security intercom.

What are some requirements?

- Comfortable chairs should be provided to accommodate all body types and age groups. If young children are frequent visitors, chairs that have high resistance to wear and tear, and enable spills to be easily cleaned up, should be considered.
- The reception area should cater sufficient space for guests in wheelchairs to navigate the space with ease.
- The height of the reception counter should ensure that communication between guests and the receptionist is comfortable for all, including those on wheelchairs.
- The reception desk should be designed with storage space for equipment such as computers, printers, telephone, fax machine and security intercom. Top hung cabinets can be installed to create additional storage space.

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- Counter tops with two varying heights should be provided to accommodate regular users (1000mm) and wheelchair users (800mm) with adequate knee space to ensure comfortable accessibility.
- Non-slip floor finishes should be considered for the reception area to ensure safety.

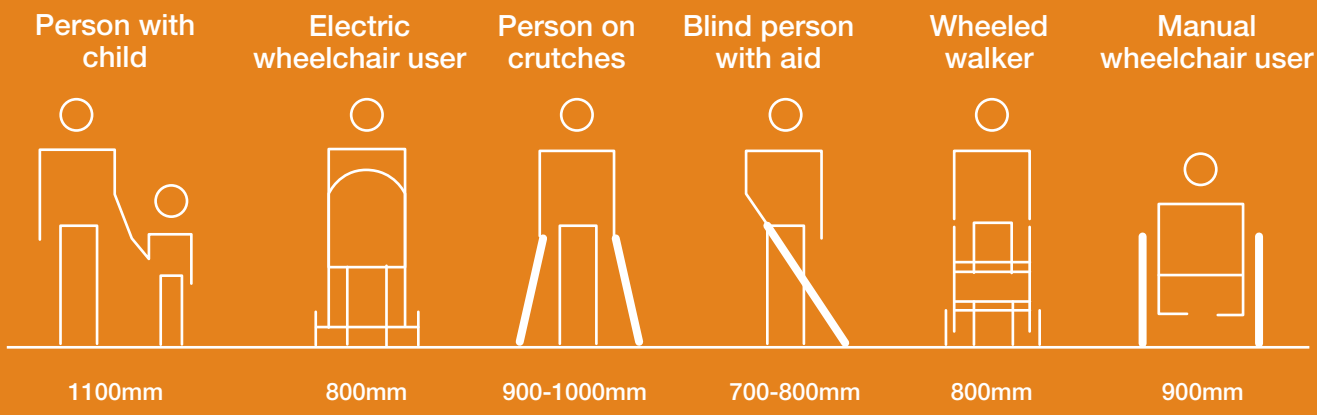
2) Visitor Lounge

The visitor lounge functions as the general waiting area for guests. The overall design of the waiting area should be inviting, comfortable and ensure adequate leg room and access space for different user mobility levels.

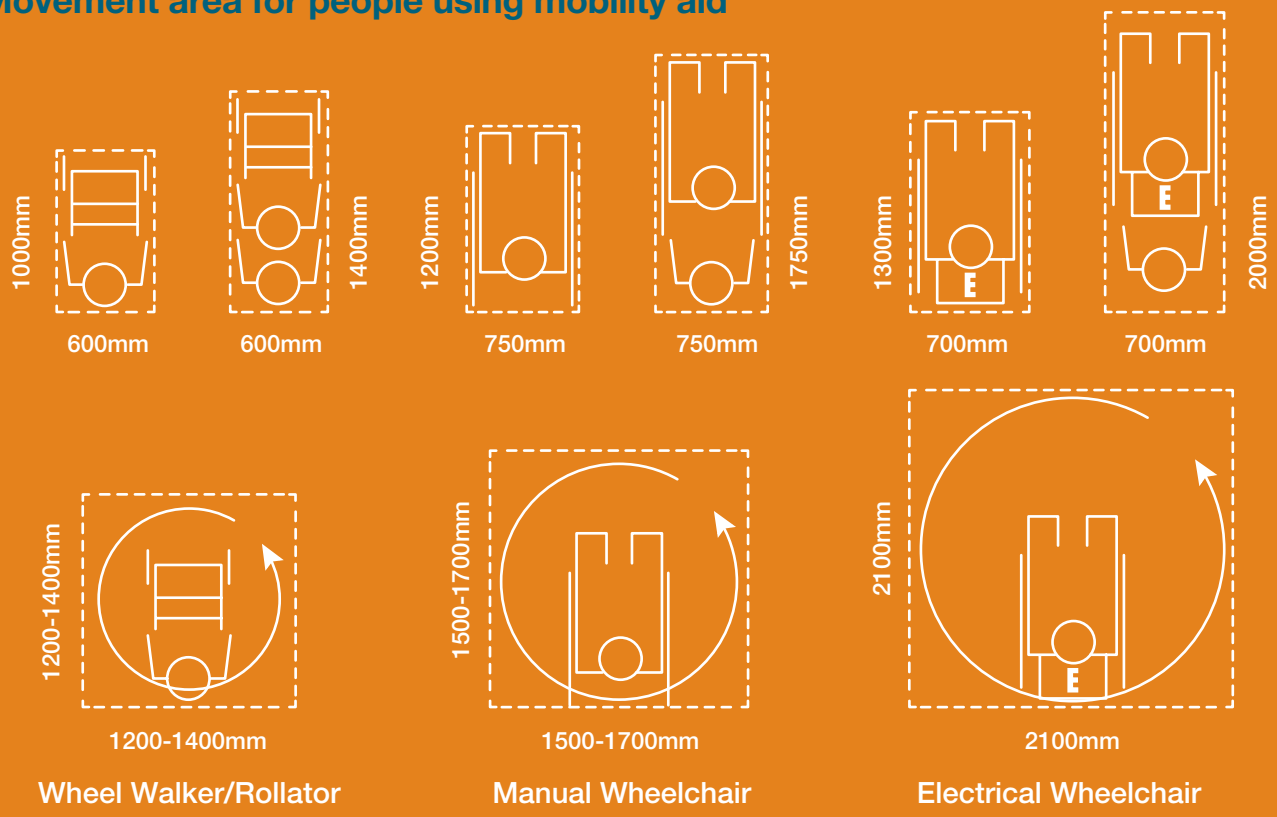
What are some requirements?

- In order to provide a comfortable space, the visitor lounge should provide ample seating to accommodate all body types, age groups and mobility requirements.
- If young children are frequent visitors to the facility, hardy furniture which can resist spills, should be considered.
- The number of seats should be determined according to the usage, traffic flow and size of the room. All seating should be able to withstand heavy-duty usage and be easy to maintain.
- The visitor lounge should always be next to the main reception area so that visitors can be directed to the relevant areas easily. This also allows the receptionist to keep watch of visitors while ensuring safety and security.
- Proper lighting should be installed to achieve a conducive atmosphere, with simple decor to enhance the visitor lounge and provide a comforting ambience.

Space needed by people with different mobility needs



Movement area for people using mobility aid



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3) Administration office

The administration office serves to support staff in performing their duties. With different tasks and activities involved in administration and management, the office space must be designed such that it is highly organised to cater for a multitude of uses.

The office space itself is generally classified into three zones, namely, the work space, meeting area and support zone.

What are some requirements?

Workstation partition

- Open-concept workstations should have partition heights of 1100mm to 1200mm tall.
- Semi open-concept workstations should have partition heights of 1500mm to 1600mm to enable a level of privacy while still ensuring the office space remains open and spacious.
- For private offices, sound proofing should be implemented to ensure privacy.
- The lighting level should be 300 lux. Task lighting can be considered to provide additional lighting if required.

Floor finishes

- Floor finishes should be non-slip materials such as carpet, vinyl or ceramic tiles.

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Administration office spatial provision:

- *4.0m² per Clerical officer workstation.*
- *6.0m² per Manager workstation.*
- *12.0m² per Director workstation.*

Design Tips:

- *The reception area can be incorporated as part of the administration office to maximise space in a small facility.*
- *Coloured or textured surfaces can also help to aid in orientation.*

The work space: Open-concept office

An open-concept office is conducive for activities which require face-to-face communication among staff. Essential provisions such as a telephone point, LAN point and twin gang electrical point should be catered for, depending on the needs and requirements of the facility.

The work space: Semi open-concept office

This work space consists of a semi open-concept cubicle system which is suitable for individuals who need a high level of concentration in their work.

The work space: Private office

Private or enclosed offices are suitable for individuals who need privacy as they oversee matters that require confidentiality.

The room should be equipped with a work desk, cabinets and visitor chairs.

4) Meeting/Interview room

Meeting or interview rooms should be provided for private discussions. It is important that staff have proper meeting facilities to conduct in-house training and other activities.

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Meeting/Interview room spatial provision:

- *2.0m² per person.*
- *2.3m² per wheelchair-bound visitor.*

What are some requirements?

- Meeting rooms should be equipped with seats, a table and adequate space for the intended capacity.
- Adequate space clearance should be catered for wheelchair users.
- Meeting rooms could be equipped with an overhead projector and pull down screen and a writing board.
- Sound proofing should be provided in the meeting rooms if necessary.
- Proper ventilation and air flow is essential in a meeting room.
- The light level should be 300 lux.
- Meeting rooms can double up as interview rooms or as an alternative visitor lounge, if necessary.

5) Security room

The security room is an essential part of the facility's security system and should be located near the main administration office. In case of an emergency, the security guard can notify the supervisor immediately to attend to the matter.

Security guards are to ensure that there are no security breaches. Most facilities require guests to sign in and out upon arrival and departure.

As such, the security room often functions as the first point of contact at these facilities, before the reception.

What are some requirements?

- The security room should preferably be located near the main administration office.
- The room should cater for at least one security officer with sufficient space for a table, chair and the security system.
- Space should be provided for equipment such as CPU, monitor, keyboard, DVD-RW hard disk and various security equipment such as CCTV monitoring system.

Security room spatial provision:

- *4.0m^2 per person.*
- *Recommended room size of minimum 3.0m by 2.0m for one security guard on duty.*

6) Common areas

The common areas include the entrance, drop-off point, support zone, corridors and toilets. These areas receive the most human traffic. Proper planning is required to ensure the common areas are able to cater to all users, including the less mobile and the disabled.

Why are these areas important?

The common areas provide the link to the various areas on the premises. These areas are usually used very often by residents of the facility and receive a continuous flow of human traffic.

For this reason, adequate space is required to ensure the smooth movement of residents and visitors. The size of each area will depend on the volume of human traffic and the size of the premises.

To orientate visitors to enter the facility, sufficient visible directional signages should be provided.

What are some requirements?

- Entrance doors should be automated for easy access. The doors should allow a visual link between the indoors and outside area. For safety reasons, stickers should be applied to clear glass doors to create attention and prevent accidents from happening.
- Changes in levels at the entrance should be avoided to make it easily accessible to all users. If there is a staircase leading to the main entrance, a ramp has to be provided to cater for wheelchair users and the elderly.
- A minimum 600mm wide tactile warning indicators must be put in place at ramps and/or edges of staircases to alert users that there are changes in the levels and/or direction of ramps and staircases.

Common areas spatial provision:

- *The recommended width of a corridor ranges from 1.2m to 1.8m to allow an assisted person or a wheelchair user to pass through comfortably. However, corridor width must be adjusted proportionately according to the projected human traffic volume.*

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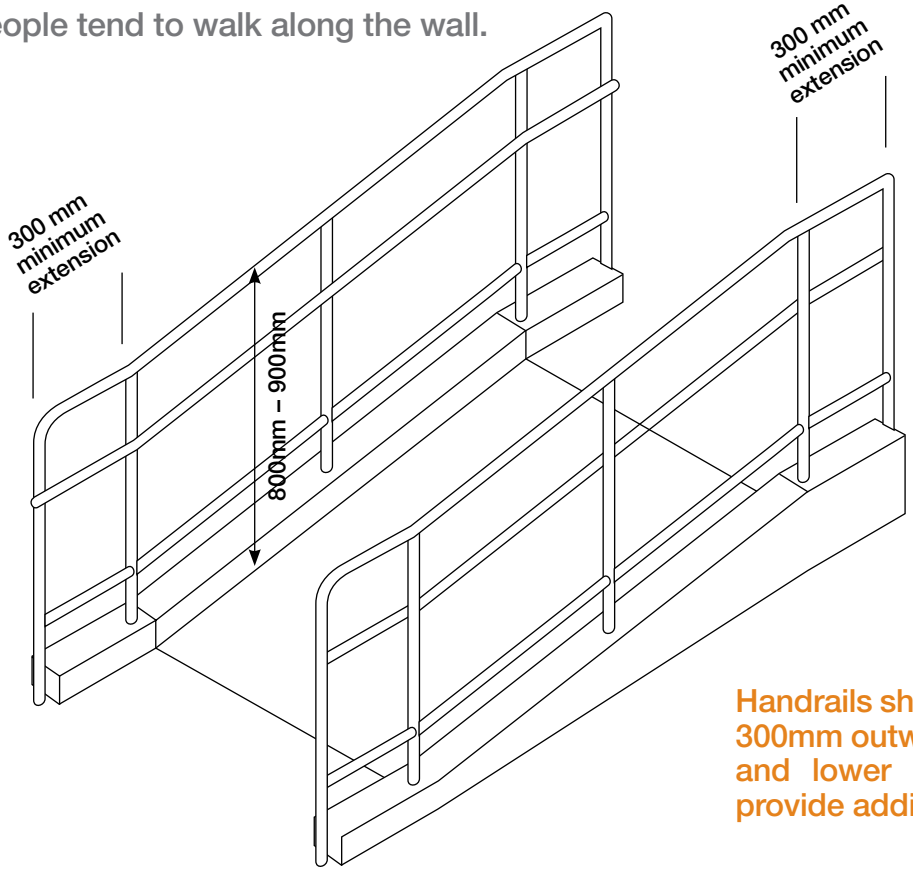
- Adequate lighting must be provided at ramp areas and pathways so that these can be seen and navigated, and to help identify the edges of a ramp and/or steps, and any changes in levels. Ample lighting will help people with visual impairments and the elderly to use the ramps safely.
- Ramps should have a minimum width of 1200mm and the gradient of a ramp should not be steeper than 1:15 to minimise resistance when a wheelchair user is going upslope.
- Proper handrails are recommended for ramps with a rise more than 175mm.
- Handrail returns to wall should be provided along ramps and stairs as people tend to walk along the wall.
- Handrails are to be placed at a height of 800mm to 900mm above floor level and extend a minimum of 300mm outwards beyond the upper and lower ends of the ramp to provide additional support.
- Outdoor ramps and approaches should always be sheltered and have good drainage to prevent water ponding.
- Ramps and landing surfaces should be finished in non-slip materials and should not obstruct motion when using moving aids.
- Non-slip flooring with coloured or textured finishes is highly recommended to aid orientation, resist wear and tear and for easy maintenance.



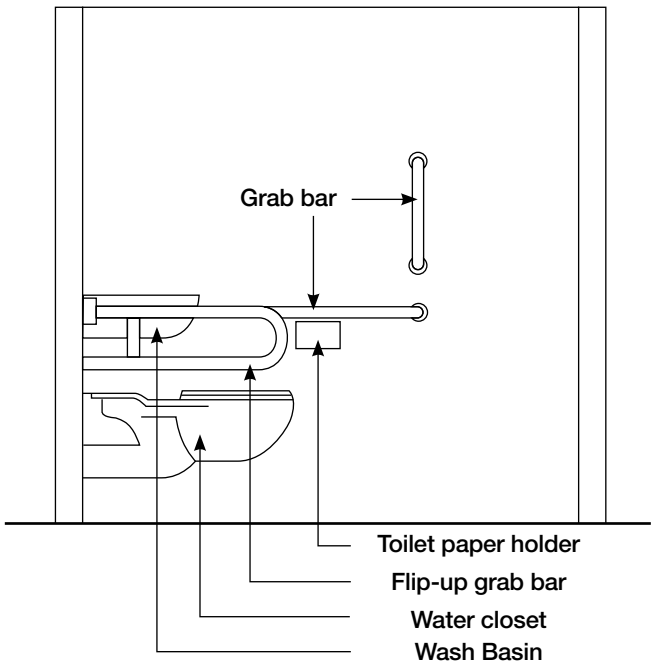
Handrails should extend a minimum 300mm outwards beyond the upper and lower ends of the ramp to provide additional support

7) Public toilets

The toilets must be accessible to all users on every floor. Toilets should be barrier-free so that all users can enjoy the amenities.

What are some requirements?

- Each toilet should have at least one wheelchair accessible WC and one wheelchair accessible wash basin.
- All common area toilets should comply with the BCA's Universal Design Guidelines. The disabled toilet must be equipped with all the basic disabled-friendly features such as grab bars and sensor systems.
- All corridors leading to the toilets should have adequate turning and manoeuvring space for wheelchair users.
- Corridors leading to the wheelchair-friendly toilet should be at least 1200mm wide.
- There should not be any change in the floor level from the area leading to the accessible toilet as well as within the toilet itself.
- Non-slip finishes must be applied in all toilets. Colours and/or textured surfaces can be useful to aid orientation.
- The front apron of a vanity counter is to have a minimum clearance of 750mm width by 720mm height.
- Signs at washroom entrances should be visible, in contrasting colours and preferably with a tactile finish.
- Outward swing doors should not obstruct circulation space and if the space is limited, sliding or bi-fold doors are recommended. Sliding doors are recommended as it does not cause obstruction to circulation space.
- Doors should be able to lock and unlock from the inside easily.



activity hub

Creating a versatile activity and dining area in your facility offers residents with a better lifestyle experience

18.

What's the objective?

The activity and dining areas generally includes four key zones, namely

- multi-purpose hall
- dining hall
- activity/training room
- physiotherapy/occupational therapy room

All these areas should invoke a bright and conducive atmosphere, with adequate lighting and safety features that ensure the wellbeing and safety of all users.

Why is this area important?

This area is a versatile zone to cater for a multitude of functions such as training or activities for residents, everyday meals, concerts or social gatherings. It should be equipped for light exercise and physiotherapy/occupational therapy sessions depending on the needs of the residents or users.

ZONING

1) Multi-purpose hall

The multi-purpose hall can be used for a diverse range of functions, activities, special occasions and social gatherings. As such, the design of the hall must be able to cater for these various functions with an emphasis on safety, good visibility and security for all.

How can this be achieved?

The interior design of the multi-purpose hall should be bright and comfortable to provide a conducive environment for the users. There should be adequate natural cross-ventilation in the multi-purpose hall. The lack of cross-ventilation will result in the activities becoming unbearable for users as the hall will be stuffy and warm.

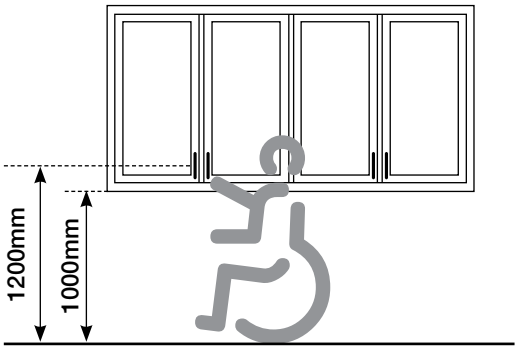
The design of the hall should allow for staff to monitor residents and visitors entering and leaving the hall for safety reasons.

The multi-purpose hall should also cater to wheelchair bound residents, with supportive facilities and adequate space for wheelchair manoeuvring. The size of the multi-purpose hall will depend on the capacity and requirements of the facility.

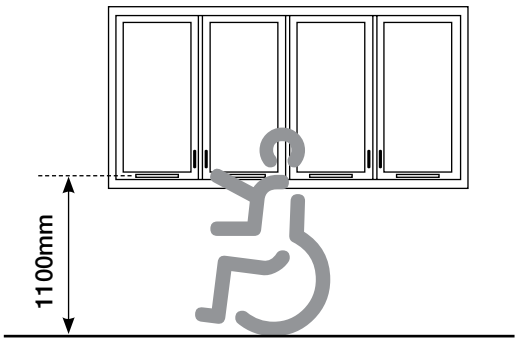
What are some requirements?

- The floor finish should be non-slip, e.g. vinyl, laminates or non-slip homogeneous tiles, to ensure the safety of users.
- Doors and windows when opened fully must not obstruct the use of the space beyond.
- Sliding doors are recommended as these are easier to operate, especially for wheelchair bound residents.

- For casement windows, the crescent locks should be located at 1200mm above the finished floor level to reduce the force needed while opening and closing the casement windows. An additional horizontal handle below the crescent lock at 1100mm above the finished floor level is recommended to provide added support.
- Sliding windows are recommended to allow for sufficient air flow and cross-ventilation.
- Revolving ceiling and/or wall-mounted fans are preferred in a multi-purpose hall to help distribute air evenly in the hall and create a comfortable environment for users.
- Furniture placed in the multi-purpose hall should be movable so that it can be cleared out for big events, if the need arises.
- Storage space can be created by adding wall shelves to the hall. Storage units with a locking device are recommended for storage of items for safety reasons.



Front elevation of casement windows, showing the height of the crescent locks



Front elevation of casement windows, showing the horizontal handles below the crescent locks

Recommended essentials:

Temperature (non-air conditioned spaces)	*Below 28ºC*
Relative humidity	*Less than 85%*
Air velocity	*Range between 0.01m/s² and 0.4m/s².*
Lighting level	*At least 300 lux*
Acoustic level	*65 dBA*

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How to create a better multi-purpose hall?

- In order to make it easy for residents to enter the multi-purpose hall, doors with push-pull mechanisms, u-shaped handles or levers are recommended.
- Semi-automated doors with touch buttons are highly recommended as these are more elderly-friendly. The top level of the touch button should be located not higher than 1000mm above the floor level.
- If a stage is required in the multi-purpose hall, ramps and steps should be provided on both sides of the stage to cater to wheelchair bound users.

Multi-purpose hall spatial provision:

- *2.0m^2 per person.*

Design Tips:

- *Foldable partitions can be incorporated into the space to divide the multi-purpose hall into smaller areas.*
- *The multi-purpose hall can also double up as a dining space.*

Safety Tips:

- *Ramp and staircase surfaces should be covered in non-slip materials and should not impede movement of moving aids.*
- *Adequate lighting must be provided at ramp areas so that the ramp is visible, especially at the edge of the ramp and steps, and any changes in levels. This is essential for users with visual impairments or the elderly so they can use the ramps safely.*

- Ramps should have a minimum width of 1200mm. The gradient of a ramp should be at least 1:15 to facilitate wheelchair users going onto the stage.
- Handrails are recommended for ramp runs with a rise of more than 175mm. Handrails should be provided continuously throughout the entire length of ramps and steps on both sides.
- The height of handrails (measured from the pitch line vertically to the top of the handrails) should be between 800mm and 900mm.
- Adequate lighting should be provided in the multi-purpose hall to create an environment conducive for activities and functions. A dark or dimly lit hall will not provide a good setting for activities and functions and can be hazardous to users.

2) Dining hall

The dining hall is for residents and staff to have their meals and can be doubled up at times for recreational activities or entertainment.

How can this be achieved?

The space should be comfortable, with an emphasis on cleanliness and hygiene, and must be designed such that it is accessible to wheelchair users. The dining area is also used by staff.

What are some requirements?

- The floor should be finished in non-slip materials, such as vinyl, laminates or non-slip homogeneous tiles.
- Walls should be finished in soft, muted shades and all surfaces must be easy to clean so as to maintain a good level of hygiene.

Dining hall spatial provision:

- *2.0m^2 per person.*

Recommended essentials:

Temperature (non-air conditioned spaces)	*Below 28ºC*
Relative humidity	*Less than 85%*
Air velocity	*Range between 0.01m/s^2 and 0.4m/s^2.*
Lighting level	*At least 300 lux*
Acoustic level	*65 dBA*

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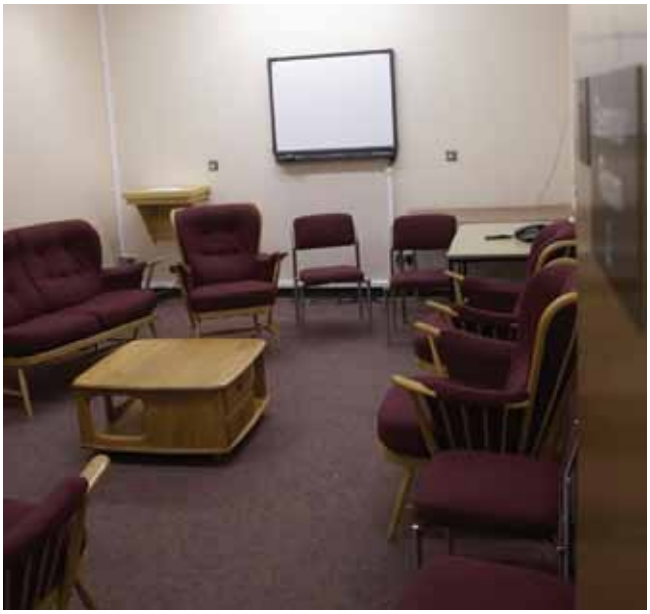

- Dining tables and chairs should be arranged in a manner that provides sufficient turning radius for wheelchair users and for staff to assist disabled residents to have their meals.
- The dining area can be located within a multi-purpose hall too. The dining area can also be used for training or recreational activities for residents.

How to create a better dining hall?

- Serving counters and food shelves should be between 800mm and 1200mm to make it accessible to all users.
- Wash basins should be provided within the dining area, with at least one basin at a height of 800mm to 840mm above the floor level to cater to wheelchair users.
- Art, paintings and display items can be displayed on walls (and must be properly secured) to provide a welcoming and homely appeal.

3) Activity/Training Room

The activity and training room is where residents receive various types of training, e.g. social enterprise training, and engage in other social activities.

How can this be achieved?

The activity and training room should be versatile enough and equipped to enable group activities, training sessions and social activities. Activity rooms should be designed for small group activities such as music, karaoke or mahjong sessions if space permits. The activity and training room can also double up as social enterprise development space.

Activity/Training area spatial provision:

- *1.5m^2 per person.*

Design Tips:

- *The activity/training room may be combined by incorporating foldable partitions or heavy duty curtains to allow flexible and efficient use of space.*

Recommended essentials:

Temperature (non-air conditioned spaces)	*Below 28ºC*
Relative humidity	*Less than 85%*
Air velocity	*Range between 0.01m/s^2 and 0.4m/s^2*
Lighting level	*At least 300 lux*
Acoustic level	*65 dBA*

What are some requirements?

- There should be ample cross-ventilation and constant air flow through the room. When fully opened, doors and windows must not obstruct the use of the space beyond.
- Windows should open to the exterior of the building and be evenly distributed along external walls to allow cross-ventilation and good natural lights.
- Adequate illumination of at least 300 lux should be provided to allow residents with better visibility during events or training exercises.
- Wherever possible, the design should allow the use of natural lighting instead of artificial lighting.

How to create a better activity/training area?

- Sturdy furniture such as tables and chairs should be provided for small group activities and training sessions.
- All flooring finishes must be of non-slip materials.
- Some wall décor can be provided (e.g. paintings, posters) to create a more dynamic environment in the activity/training room.

24.

4) Physiotherapy/Occupational Therapy room

Physiotherapy and Occupational Therapy rooms should have essential equipment for users to exercise their arms, legs and body under the care and supervision of trained therapists. The physiotherapy and occupational therapy areas need not be in separate rooms to allow efficient use of limited space in the facility.

What are some requirements?

- The floor finishes should be in materials such as vinyl or laminated floor boards, which are non-slip and easy to maintain.
- Curtains should be provided for the residents to enjoy the sessions in privacy.
- The therapy room can be used for other purposes such as reading or art and craft sessions.
- There should be a steady stream of natural light during the day, with proper window coverings to shield any glare during the hot hours in the afternoon.

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Physiotherapy/Occupational therapy room spatial provision:

- *2.7m^2 per person.*

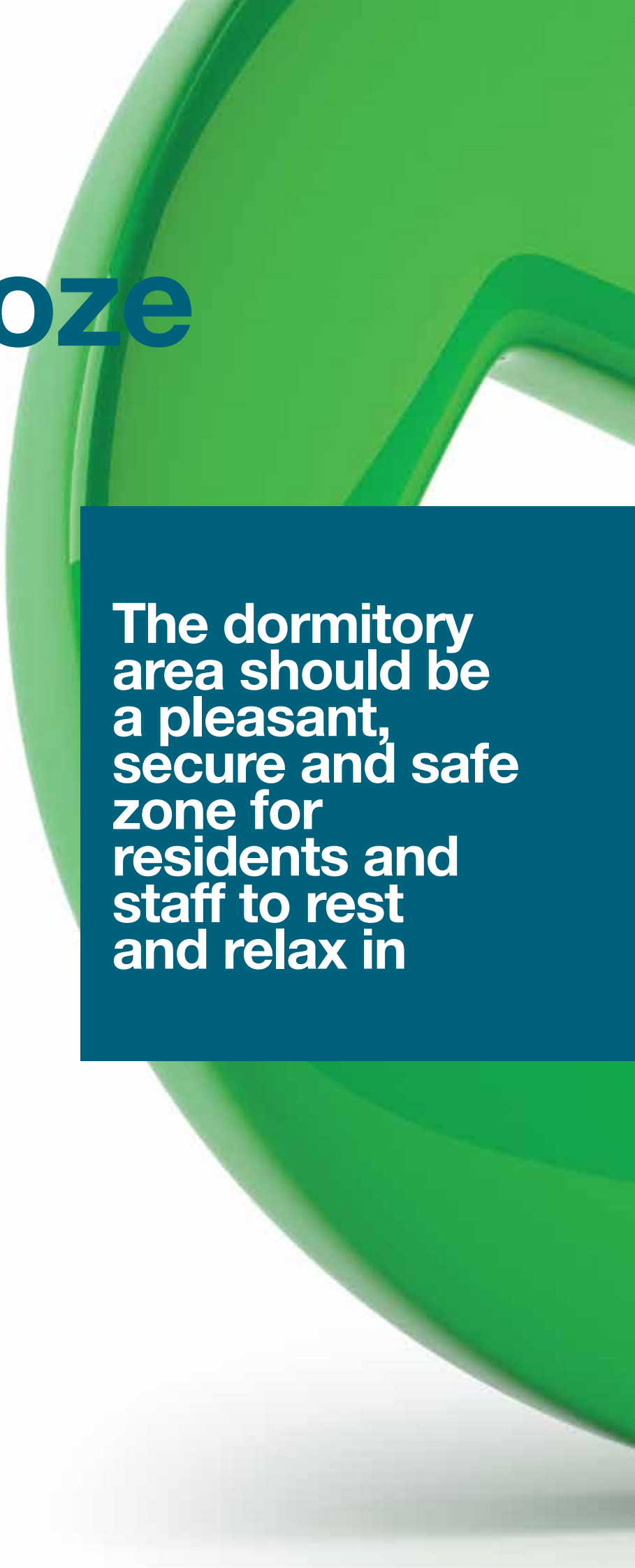
Recommended essentials:

Temperature (non-air conditioned spaces)	*Below 22.5ºC and 25.5ºC*
Relative humidity	*Less than 70%*
Air velocity	*Range between 0.01m/s^2 and 0.25m/s^2*
Lighting level	*At least 300 lux*
Acoustic level	*65 dBA*

- The therapy room may be mechanically ventilated to maintain a comfortable exercise environment all day.
- Equipment must be properly installed and secured to avoid accidents from occurring.
- The capacity of the activity room should not normally exceed 30 percent of the population. If more space is required, it must be substantiated and approved by the relevant supervising agency.
- The space provision and number of rooms depends on the programmes offered at the facility. If users are to take part in group activities all at the same time, then more space may be required.

dormitory area

time to snooze



The dormitory area should be a pleasant, secure and safe zone for residents and staff to rest and relax in

28.

What's the objective?

The dormitory area includes the resident dormitory, resident bathrooms, staff dormitory and staff lounge area. Special emphasis must be placed on creating a comfortable, homely and dignified experience for residents. Staff facilities must also be well catered for in order to provide a restful and good working environment for caregivers.

Why is this area important?

These areas provide the rest and relaxation zones for residents and staff. Rooms should be designed to provide a sense of comfort, familiarity and security for residents and staff.

ZONING

1) Resident dormitory

Dormitories function as the living space for residents and must be comfortable to live in. The dignity, privacy and comfort of the residents are important and must be maintained at all times.

How can this be achieved?

Since the dormitory functions as the resident's personal space, the interior design should reflect a warm and homely environment that they can call home. A variety of interior design features such as wallpaper and different wall colours may be considered to create variety and enhance the ambience of the dormitory. Rooms should be designed to provide a sense of familiarity and comfort, while allowing staff to deliver prompt and quality care.

What are some requirements?

- The dormitory area should offer a conducive environment for rest with adequate space for residents requiring mobility aids or wheelchairs.
- The room should also accommodate equipment to help lift residents from beds. There should be an unobstructed access from both sides of each bed to allow staff to assist residents or respond to any emergency quickly.
- All flooring must be of non-slip materials. Heavy duty vinyl flooring or non-slip ceramic tiles are recommended for use to provide a smooth, barrier-free surface for trolleys and wheelchairs.
- Individual bedrooms should have clearly assigned room numbers and residents' names displayed to allow easy location, familiarization and identification.
- Adequate access space on both sides and at the foot of the bed should be provided to allow staff to attend to and assist residents easily. There should also be sufficient space for specialised equipment to be lined up at both sides and at the foot of the bed.
- Bedrooms must provide adequate privacy for the residents. This will allow them to feel at home and help to preserve their dignity while sharing a room with others.

Recommended essentials:

Temperature (non-air conditioned spaces)	*Below 28ºC*
Relative humidity	*Less than 85%*
Air velocity	*Range between 0.01m/s^2 and 0.4m/s^2*
Lighting level	*At least 150 lux*
Acoustic level	*Less than 65 dBA*

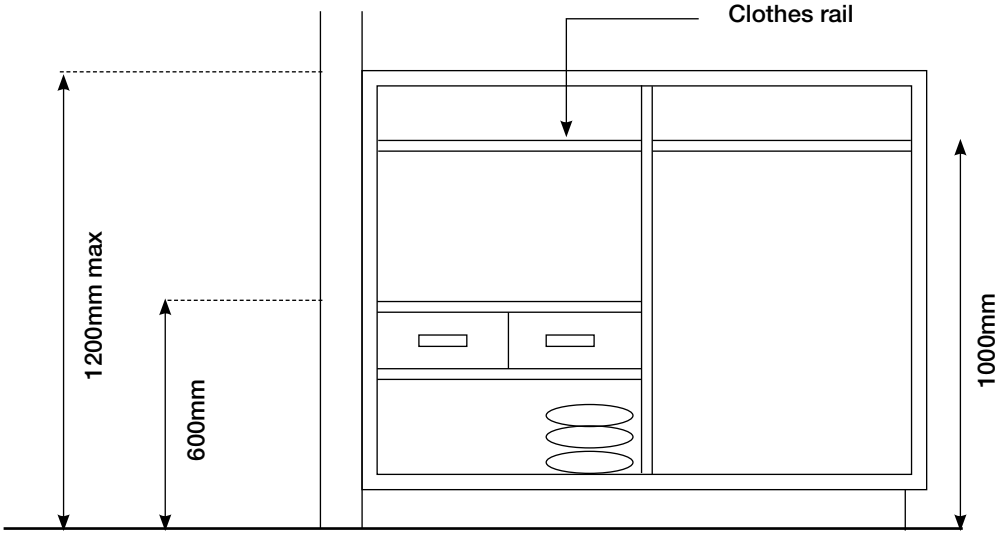
30.

- The bedroom design should give residents reasonable opportunity to personalise their bedroom space. This could include space for furniture such as wardrobes, shelving and display cabinets for them to display and store personal items.
- It is good to provide wardrobe storage for residents to keep their belongings. The lowest drawer inside a wardrobe should not be less than 600mm high and the clothes rail should not be more than 1000mm above the floor.
- Sliding wardrobe doors in a lightweight material are recommended to make it easy for residents to open and close doors without help.
- A call bell may be installed beside each bed for easy communication in case of emergency depending on the needs and requirements of the residents. The call bell must be located within easy reach of each resident, lying down or sitting up in bed.
- Each bed may have a wall-mounted fan which can be adjusted to suit resident's individual requirements.
- Sufficient power points and sockets should be provided.
- Window curtains should be installed to create more privacy. The type of curtains to be installed must be able to block out the afternoon glare.

How to create a better dormitory?

- There should be sufficient cross ventilation in bedrooms to promote a healthy and clean environment for residents.
- Adequate lighting should be provided so that residents with visual impairments can carry out daily tasks in the dormitory.

Recommended wardrobe/drawer height



31.

Dormitory spatial provision:

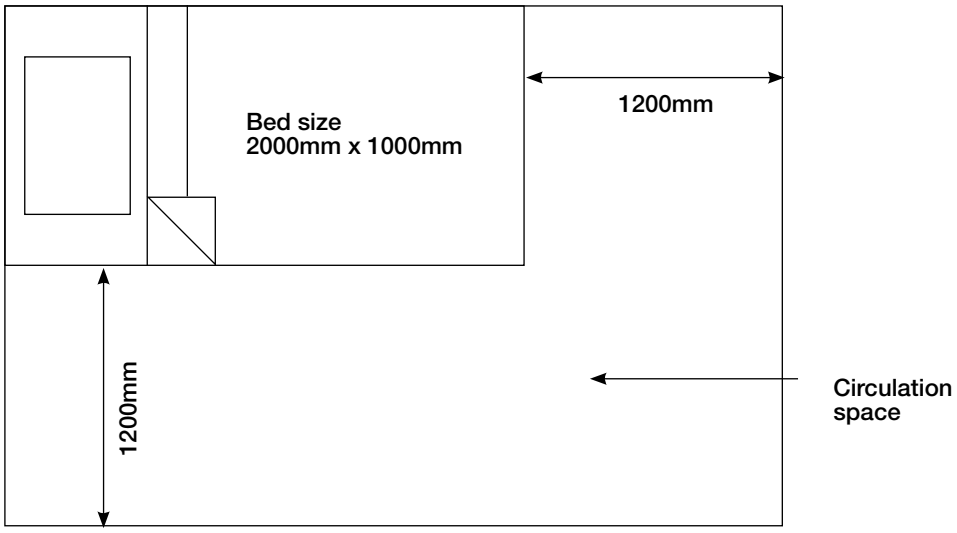
- *6.0m² per person (Elderly facilities)*
- *7.4m² per person (Disability facilities)*

Design Tips

- *Some form of interior design can be provided to enhance the environment for residents.*
- *Diffused lighting may be considered where necessary.*

- Tactile markings are recommended to be installed on individual cupboards to make identification easier for the visually impaired.
- Photographs and other decoration can be displayed along corridors to create a warm and cosy environment.
- A maximum of six to eight beds per dormitory is recommended to allow for a comfortable environment.
- The distance between individual beds must be at least 1200mm so staff can access residents easily especially during an emergency.

Recommended circulation space



32.

2) Dormitory bathroom

The dormitory bathroom area must be barrier-free and designed to promote privacy and independence. The space must be sufficient enough to allow staff to effectively and safely assist less independent residents.

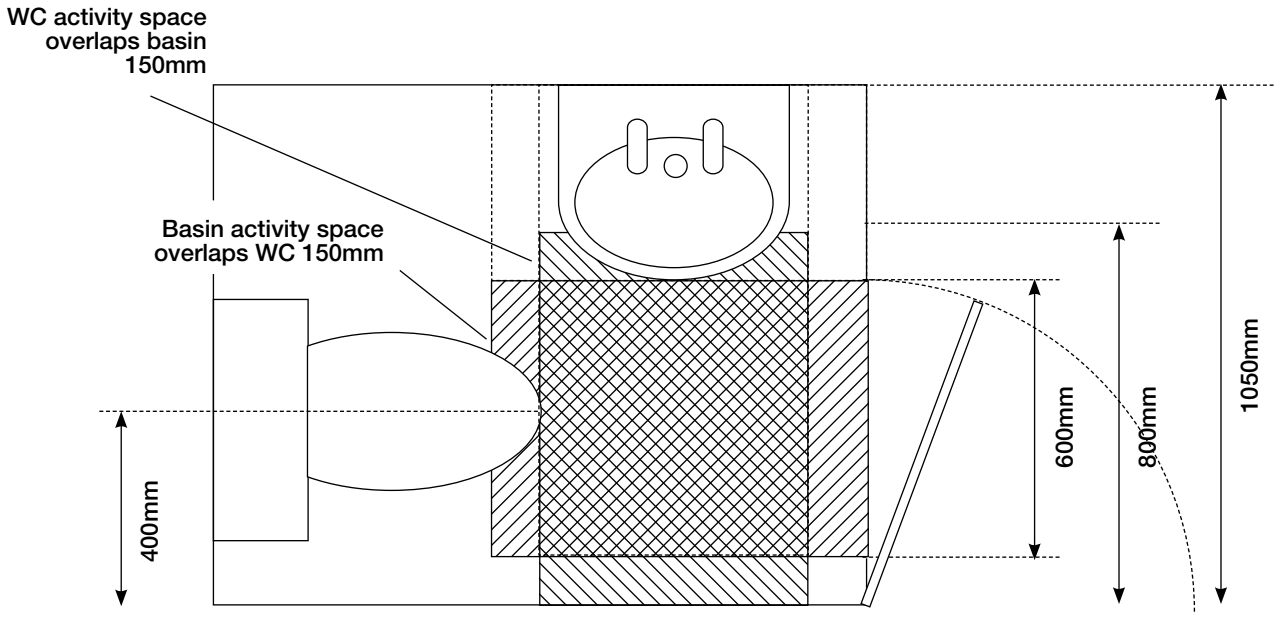
How can this be achieved?

In order to allow for easy access to the bathroom, the entrance must be accessible from within the dormitories. Shared bathrooms should be located near the dormitories so that residents can access to it easily and should serve a maximum of two dormitories only.

All surfaces must be non porous and easy to maintain. The flooring must be non-slip and kept clean and dry at all times.

What are some requirements?

- Sliding or foldable doors are recommended for easy operation of bathroom doors. Alternatively, outward swing doors can be installed.
- Door locks should be designed such that it can be opened with a coin or a simple device during an emergency.
- Bathroom doors, when fully opened, should not block the dormitory entrance or swing into another door in the dormitory.
- Sinks should be positioned so that it is convenient for use by all residents, including those in wheelchairs. Sensor taps should be considered for residents with physical disabilities.



Toilet layout with outward opening door

33.

Design Tips:

- *Night lights can be installed so that residents can easily find the bathroom entrance in the middle of the night.*
- *Heavy-duty foldable curtains can be used if it is suitable for the residents.*

Dormitory toilet spatial provision:

- *3.5m^2 per person.*

- In the shower stall, rain shower heads are recommended.
- Grab bars should be appropriately mounted and able to withstand heavy usage.

How to create a better bathroom?

- Natural ventilation and ample illumination should be provided. Mechanical ventilation should be considered for added air flow in the bathroom.
- All bathrooms should have a shower seat, if necessary, to allow assisted bathing during bath time.
- Sensor system lighting should be installed in the bathroom.
- Bathroom and water closet compartment doors are to provide a clear opening of at least 850 mm width.
- Vertical/horizontal grab bars of at least 600mm long should be installed on the inside of an outward swinging door. This should be located not more than 130mm from the hinged-side of the door; and fixed at a height between 900mm and 1100mm.
- Vertical/horizontal grab bars should be at least 140mm long on the outside near the latch side of the door and placed at a height between 900mm and 1100mm.

34.

3) Staff dormitory

The staff dormitory is a private space for staff to rest and sleep. It should be designed to allow the staff to feel comfortable and safe.

How can this be achieved?

Male and female in-house staff should have separate dormitories. It should be equipped with beds, dressing tables and lockable cabinets for storing their personal belongings.

What are some requirements?

- Double-decker bunk beds are recommended for use to maximise space usage. For convenience, toilet and shower facilities should be accessible directly from within the staff dormitories.
- Flooring must be non-slip to ensure staff safety.
- Ample illumination and cross ventilation must be provided to ensure staff are comfortable and secure.
- Full height wardrobes should be provided for staff to store and keep their personal belongings.

Staff Dormitory spatial provision:

- *6.0m² per person per staff inclusive of a standard bed size of 2.0m by 1.0m, 0.5m on each side for adequate walkway and personal space.*

Staff Lounge spatial provision:

- *4.0m² per person.*

4) Staff lounge

The staff lounge area serves as a multi-functional leisure zone for on-duty staff to rest or relax. This area can also double up as training space when required.

How can this be achieved?

Since the room will function as a "living room" for staff, it should be organised and planned to cater to the multifunctional requirements. There should be designated storage and display space so that the room stays clutter-free and well-organised.

What are some requirements?

- There should be a steady stream of natural light and ample cross-ventilation to keep the room fresh and offer a hygienic and relaxed atmosphere.
- Window curtains should be installed to ensure privacy and shield the room from any afternoon glare.
- The staff lounge will also function as a space for social interaction amongst staff to get to know each other better. Television for entertainment and a telephone to keep in touch with their families or for emergency use can be provided.

service excellence

A practical and efficient utility zone will make a world of difference to the overall service experience at your facility

38.

What's the objective?

The objective of the utility zone is to facilitate the preparation of daily meals, store foodstuff and provide laundry services.

Why is this area important?

The utility zone comprises the kitchen, food storage room and laundry area. If not planned properly, it can impede the smooth operations of the facility.

1) The kitchen

The kitchen is where the cooks and kitchen helpers prepare daily meals for the residents and staff.

The space allocated for the kitchen should take into account the number of staff preparing meals at any one time and the number of residents in the facility.

How can this be achieved?

The layout of the kitchen should include separate areas for cooked and uncooked food preparation. All regulatory requirements on hygiene and safe food preparation must be complied with strictly.

If the kitchen is also used for training purposes, a larger space for free movement and safety of the trainees must be provided.

39.

Deign Tips:

- *If training for residents is held in the kitchen, special provisions must be in place to facilitate the training sessions.*
- *Kitchen cabinets should have magnetic door closures with fixed D-shaped or grooved handles that are flushed with the door to reduce the risk of the handles catching onto clothing or the exposed, protruding levers injuring people*
- *Easy-to-pull drawers with stop closure should be installed to prevent drawers from being completely pulled out and dropping onto the floor.*
- *Kitchen counters should not exceed 800mm above floor level.*
- *A recess of 230mm high with at least 150mm deep should be provided at the base of each kitchen cabinet.*

What are some requirements?

- The kitchen should be located on the ground level with sheltered access for transportation of food to the dining hall.
- It should be accessible from the delivery area for prompt delivery and storage of foodstuff.
- The wet and dry store should be located next to the kitchen.
- There should be halal and non-halal areas demarcated by a high wall partition in the kitchen.
- Ramps should be installed at the kitchen entrance to allow trolley movement.
- Kitchen cabinetry and counters should be made of high quality stainless steel and should be cleaned thoroughly before and after food preparation.
- The kitchen floor should be laid with non-slip tiles for safety and ease of cleaning.
- An exhaust system should be installed to keep the kitchen well ventilated.
- Wall-mounted fans should be installed away from the stove area to improve air circulation.
- Gas and water pipes should be fully exposed and colour-coded for ease of identification.
- Netting should be installed at kitchen windows to prevent birds from flying in.
- All kitchen equipment must be purchased from reliable sources to ensure the safety and durability of the equipment.

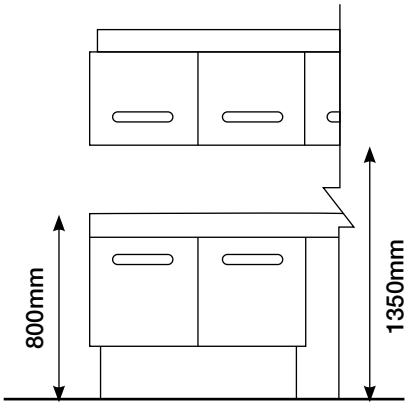
40.

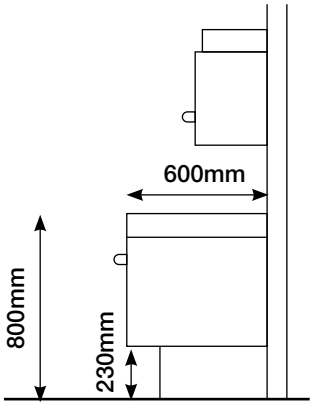
Kitchen spatial provision:

- *1.0m² per kitchen staff with a minimum areas of 16.0m² (excluding kitchen equipment space).*

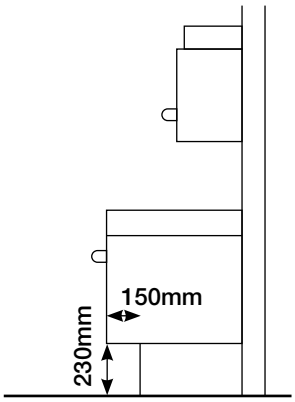
Design Tips:

- *The kitchen area can be used as a training ground for social enterprise initiatives.*
- *A white board can be provided for use during training sessions.*
- *Secure or top-hung cabinets can be provided to store sharp equipment such as kitchen knives.*

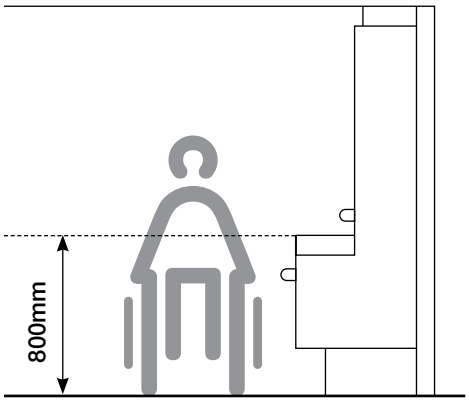




Front and side elevation of a kitchen tabletop showing the height



Side elevation of a cabinet showing the toe space at the base



Front elevation of a full-height kitchen cabinet with a counter

2) Food storage area

The food storage area is usually made up of a walk-in chiller or refrigerated unit to store perishables. Sufficient space should be provided for the condenser unit outside the store.

What are some requirements?

- A ramp should be provided at the entrance of the walk-in chiller for easy transfer of foodstuff on trolleys to the chiller.
- The chiller temperature should be pre-set by the supplier to keep the foodstuff fresh and safe for consumption.
- The layout and design of the food storage room should take into consideration the potential condensation around the chiller. Proper insulation, water proofing and adequate ceiling clearance should be provided.

- A wall fan with sufficient headroom clearance should be provided for proper ventilation.
- Proper lighting is required for better visibility.

Food storage area spatial provision:

- *0.3m^2 per person with a minimum area of 16.0m^2.*

Design Tips:

- *If a chiller is provided, sufficient insulation should be included to prevent condensation around the chiller room.*
- *Vertical heavy duty plastic slats can be provided to keep the chilled air within the refrigeration room.*

42.

3) Laundry area

The laundry area should be equipped with heavy duty washing machines, ironing boards, tumble dryers, extractors, open shelves and work tables.

What are some requirements?

- The laundry area should be located away from the dormitories to avoid noise disturbance.
- The floor should be finishes with non-slip materials and kept clean, dry and tidy at all times.
- If the laundry is outsourced, its size can be reduced to an area for soiled laundry and linen with another area to store clean linen.
- The space provision should be enough for at least two industrial sized washing machines and dryers. The floor should be able to withstand the heavy loads.
- The workflow should cover collection of soiled linen, actual washing, drying, sorting, storage and delivery. A sorting and folding table for clean laundry should be provided. The sorting and folding table can be used for ironing.
- The recommended table size is 1000mm by 1800mm with a height of approximately 750mm.

- For hygiene purposes, there should be a separate area for cleaning and sanitising of laundry equipment.
- The laundry area can have top hung cupboards for storage of clothes and basic necessities.

How to create a better laundry area?

- The laundry area should have a general storage area for linen, detergent and cleaning equipment.

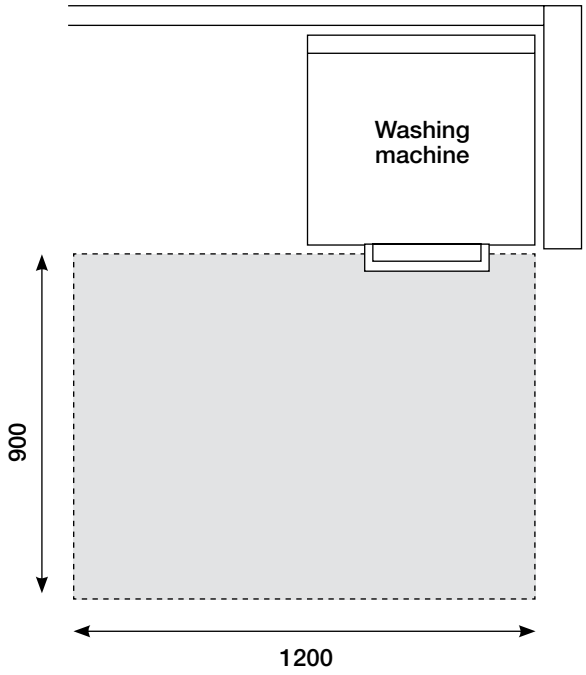
Laundry area spatial provision:

- *0.2m² per person with a minimum area of 20.0m² excluding washing machine space.*
- *8.0m² per washing machine/dryer including space in front of the machine for loading and unloading of laundry.*

Storeroom spatial provision:

- *0.2m² per person with minimum area of 8.0m².*

- The linen storage room should be located next to the laundry area.
- Areas for soiled and dirty laundry should be separated to avoid contamination and the spread of infection.



Plan view of a laundry room with minimum clear space

4) General storeroom

What are some requirements?

- Storerooms should be located on every floor for easy access.
- The floor finishes should be in non-slip materials for safety reasons.
- The area should be kept clean and tidy at all times.
- Natural ventilation should be provided with windows or other openings.
- The storeroom can have shelves and top hung cabinets for storage of clothes, cleaning equipment and other basic necessities.

How to create a better storeroom?

- The general store area should be located on every level to provide adequate storage space on each floor.

medical centre

health matters

An efficiently designed medical centre is the starting point of specialist health care and support services to residents in a care facility

46.

What's the objective?

The medical centre offers basic health, specialist treatment and support services for residents. This includes a consultation room, a sick bay, an isolation room and a dispensary.

Why is this area important?

The medical centre provides treatment, care and support services to residents and improves the quality of life and overall well-being of the residents.

ZONING

1) Consultation room

The consultation room is for medical professionals to assess and treat residents who require in-house medical attention.

What are some requirements?

- The consultation room should be furnished with a desk and a consultation chair. The room should be comfortable so that patients feel at ease. Space for a medical examination bench should be provided.
- A sink should be installed for healthcare staff to wash their hands.
- Flooring should be of non-slip materials.
- The consultation room should be air conditioned to minimise the growth of bacteria. The temperature must always be monitored with an air conditioner temperature gauge.
- Sufficient power sockets and task lighting should be provided.

How to create a better consultation room?

- There should be no change in levels from the access corridor to the consultation room, otherwise a slope of a suitable gradient should be provided.
- The surfaces should be finished with non-slip materials and should not obstruct the use of moving aids.
- Access to the consultation room should be sheltered to allow for easy admission in any weather conditions.
- The consultation room should provide storage space for medical records.

Recommended essentials:

Temperature (air conditioned spaces)	*Range between 22°C and 25.5°C*
Relative humidity	*Less than 70%*
Air velocity	*Range between 0.01m/s^2 and 0.25m/s^2*
Lighting level	*At least 250 lux*
Bacteria count	*Less than 500cfu/m^3*

47.

Consultation room spatial provision:

- *20.0m² per room.*

Design Tips:

- *Screens could be installed for privacy of patients during examinations.*

48.

2) Sick bay

The purpose of a sick bay is to house patients for medical attention and observation on a temporary basis.

What are some requirements?

- The sick bay should be attached to the nurse's station for constant observation and supervision. It should have all the essential equipment for infection control.
- The sick bay should include a disabled toilet with shower facilities.
- One wash basin with hot and cold water supply should be provided within the sick bay.
- Bacteria count should be below 500cfu/m^3.
- Screens should be installed between beds for privacy.
- The sick bay should have ample natural ventilation.

How to create a better sick bay?

- There should be no change in levels from the access corridor of the consultation room to the sick bay.
- Access to the sick bay or isolation room must be swift and unobstructed.
- The sick bay should be cleaned daily.
- Furniture should be movable so that it can be thoroughly disinfected to maintain excellent hygiene standards.

Sick bay spatial provision:

- *4.7m^2 per person with a maximum area of 28.0m^2.*

Design Tips:

- *If there is a change in level, a slope of a suitable gradient should be provided.*

Recommended essentials:

Temperature (air conditioned areas)	*Range between 22ºC and 25.5ºC*
Relative humidity	*Less than 70%*
Air velocity	*Range between 0.01m/s^2 and 0.25m/s^2*
Lighting level	*250 lux*
Acoustic level	*65 dBA*
Bacteria count	*Less than 500cfu/m^3*

- Wall fans and ceiling fans can allow better air flow and cross-ventilation.

3) Isolation room

The purpose of an isolation room is to house residents who might have a contagious medical condition and require constant attention by medical trained staff.

What are some requirements?

- The isolation room should be near the nurse station to facilitate close monitoring of patients.
- The isolation room should have an attached disabled toilet with shower facilities.
- Screens should be installed within the isolation room. In the case of space constraints, the isolation room can be part of the sick bay but must be able to be separated by partitions or a curtain, with sufficient distance to ensure that patients with suspected contagious conditions are quarantined appropriately.
- Sufficient power sockets should be provided.

Isolation room spatial provision:

- *11.0m^2 per room for single beds.*

Design Tips:

- *All flooring must be non-slip and cleaned daily.*
- *Furniture and fittings should be made of non porous finishes for easy cleaning.*

Recommended essentials:

Temperature (air conditioned areas)	*Range between 22ºC and 25.5ºC*
Relative humidity	*Less than 70%*
Air velocity	*Range between 0.01m/s^2 and 0.25m/s^2*
Lighting level	*At least 250 lux*
Acoustic level	*Less than 65 dBA*
Bacteria count	*Less than 500cfu/m^3*

How to create a better isolation room?

- There should be space near the wash basins for displaying proper hygiene.
- Furniture should not obstruct the proper cleaning and disinfecting of all surfaces.

4) The dispensary

The dispensary provides storage for medical supplies and equipment for proper care and treatment of patients. These must be stored in a readily accessible location.

The dispensary must be secured at all times to prevent unauthorised entry or theft.

It must be properly supervised at all times to prevent unauthorised administration of drugs or accidents from happening.

What are some requirements?

- Storage cabinets should be adjustable and easily maintained.
- All medication should be stored in lockable storage cabinets for safety and security.
- A refrigerator must be provided for heat-sensitive medication.
- The dispensary should be well-ventilated and kept cool at all times.

How to create a better dispensary?

- There should be clearly marked signage for easy identification by residents.
- Service counters should not be higher than 800mm.
- Access corridors to the dispensary should never be obstructed to allow access for all residents, especially those in wheelchairs.

51.

Dispensary spatial provision:

- *16.0m² per room.*

Recommended essentials:

Temperature (air conditioned areas)	*Range between 22ºC and 25.5ºC*
Relative humidity	*Less than 70%*
Air velocity	*Range between 0.01m/s² and 0.25m/s²*
Lighting level	*250 lux*
Acoustic level	*Less than 65 dBA*
Bacteria count	*Less than 500cfu/m³*

car park matters

A well-designed car park offers a convenient and safe parking area and can affect the overall visitor experience at your facility

54.

What's the objective?

The design, planning and layout of a car park should enable easy access for the elderly, disabled and everyday visitors to enter and exit a facility safely.

No one likes to feel unsettled or uncomfortable about parking their car in an unfamiliar place as this adds stress and unnecessary worry for the user. A safe and easy to access car park can make a huge difference in the quality of the facility.

How can this be achieved?

The location of the car park and general layout requires proper planning and thoughtful design. This should take into account principles of natural surveillance, visual clearance, natural lighting requirements, safety and security, ventilation and direct access by visitors to specific destinations.

Disabled parking lots near or next to the entrance access lobby should be provided for people with limited mobility.

What are the requirements?

- Tactile warnings with contrasting colours should be provided to indicate the entrance to the car park and other hazardous spots at doors, ramps and changes in direction levels.
- A car park should always be brightly lit for maximum visibility for drivers and visitors.
- Lighting such as high mast lighting at open car parks should be provided for safety and security. The outdoor light fittings should be weatherproof.
- Large, clear and easy-to-read signage should be provided in all parts of the car park.
- Car park sections and individual lots should be numbered properly to allow users to locate their cars easily.
- Road surfaces should be level and free from pot holes and other hindrances that can potentially cause falls and other accidents.
- Changes in levels from the road surface to other spaces should be avoided as much as possible.
- A ramp should always be provided where there is a vertical rise greater than 150mm. This will assist wheelchair users to manoeuvre the rise easily.
- Kerb ramps should have a minimum width of 1200mm to allow for ease of wheelchair movement. All kerb ramps should have flared sides where pedestrians normally walk across. The gradient of the kerb ramp and its flared sides should not be steeper than 1:15.
- Where there is no change in level at the access lobby, bollards with a minimum clear spacing of 900mm should be installed to demarcate the pedestrian zone and allow wheelchair accessibility.

Surface car park

A well-designed car park should be designed to ensure the provision of an appropriate number of car park lots in relation to the demand likely to be generated and the nature of the facility.

There should always be an emphasis on creating easy access to the main building and adequate parking lots for the disabled.

Basement car park

Tactile warnings in contrasting colours for the floor finish should be provided to indicate the entrance to the car park and other hazardous spots at doors, ramps and to indicate changes in direction.

Adequate lighting is necessary in the car park so that drivers can manoeuvre the car park safely.

Where there is no change in levels at the access lobby, bollards with a minimum clear spacing of 900mm should be installed to demarcate the pedestrian zone.

Pedestrian walkway

Slip-resistant floor finishes should be applied at pedestrian walkways to ensure safety for all users.

Ample lighting should be provided for safety and security. All outdoor light fittings should be weatherproof. The minimum lighting for accessible parking lots should be in accordance with SS531.

What are the benefits of a good car park?

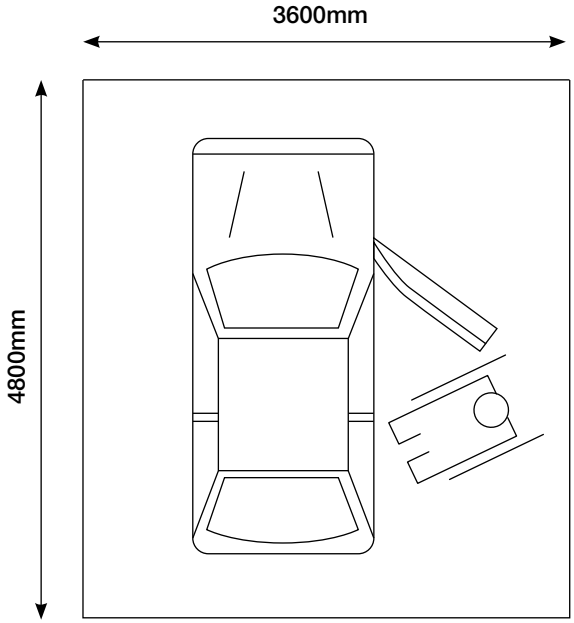
1) No one likes being inconvenienced. Proper planning will provide a safer visit and a hassle-free experience.
2) Better safety and security within the car park offer visitors peace of mind.
3) A well-designed, properly illuminated car park will incur less crime related maintenance.
4) Improved visitor confidence and better satisfaction levels.

Car Park spatial provision:

- *3.6m^2 by 4.8m^2 per disabled car park lot for easy manoeuvrability.*

56.

Car Park layout plan



Design Tips:

At least one parking lot should be reserved for the physically disabled and comply with the following requirements:

i) dimensions of at least 4.8m by 3.6m in accordance to Building and Construction Authority's Code on Barrier-free accessibility in buildings.

ii) have a firm and level surface without aeration slabs

iii) clearly marked signage in white on a blue background

iv) be sheltered wherever possible

v) the parking lots for drivers with disabilities should be located on the same side as the building so that they need not cross any road unnecessarily to reach the building.

vi) family-friendly car park lots should be considered.