Design Guidelines for Aged Care Facilities

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For: NSW Health
Acknowledgments

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Section 1

Introduction

Who should use these guidelines and when?
These guidelines are written for people and organisations planning to develop or modify residential aged care facilities. They are intended as a tool to commence planning and to guide decisions about different design aspects keeping the safety (with a focus on minimising the risk of residents falling), independence, dignity and enjoyment of the residents uppermost in mind.

These guidelines should be used by the following groups associated with aged care facilities:
- approved providers
- senior management
- architects
- regulators
- councils
- universities offering relevant courses
- boards of directors
- Directors of Nursing
- hostel managers
- peak bodies.

Purpose
These guidelines have been developed to pull together existing information that informs designers, developers, architects and others embarking on either refurbishing existing residential aged care facilities, building new ones or undergoing post-occupancy inspections. These guidelines intend, in part, to facilitate that process and provide direction that enhances the living experiences of the residents and the working conditions for the staff.

Furthermore, these guidelines could facilitate the briefing of architects and designers, thereby saving both time and money.

How to use these guidelines
These guidelines outline key design considerations for aged care facilities and direct the reader to resources where further details can be found. Readers are linked to relevant legislation, policies and guidelines throughout the document and are provided with a summary of design considerations for each area of the facility.

Readers can go directly to the Section that best meets their needs:

Section 1
  Introduction
  Background

Section 2
  Benefits of Good design
  Principles of Good design
Development and review of these Guidelines

These guidelines have been developed in consultation with members from a Working Party representing a number of key national and state organisations that are stakeholders in residential aged care facilities.

In the commitment to ensure the currency of this resource, and as part of the annual review users are invited to provide feedback by following the link on this webpage.

Background

Australia’s ageing population

The proportion of people aged over 65 years is projected to double by the year 2051. Currently in New South Wales almost 13% of the population is aged over 65 years, with that proportion expected to be just under 25% by the year 2051 (Moller, 2003 revised edition).

In Australia, 2002, injuries accounted for 5.9% of all deaths (AIHW, 2004a). Nationwide, inpatient health system costs due to injury are $4.1 billion per annum, around 8.3% of total recurrent health expenditure (AIHW, 2004b). In NSW, the total cost of direct morbidity following injuries is estimated to be around $1.16 billion per year (IRMRC, 2003).

For those hospitalised in NSW following a fall (1998/9-2002/3), just over 56% were people aged 65 years and over. For people aged 65 years and over, falls
represented 70.4% of all injury causes for this age group (NSW Health 2005: Chief Health Officer’s Report).

The risk of falls
Falls are a major problem in residential aged care. Residents in aged care facilities experience three times the rate of falls than older people living in the community (Rubenstein et al., 1996 as cited in Shanley).

Most studies of falls by residents in aged care facilities have reported that between 30 and 50% of residents experience a fall each year (NARI, 2004). Butler (1996) reported that one in every 25 residents sustains a hip fracture annually. Furthermore, falls are a strong predictor of older people living in the community being admitted to residential care (NARI, 2004).

The consequences of falls
Falls result in a multitude of deleterious effects for the person including:

- Injuries – which can be severe – even life threatening
- Financial costs – to the individual and the community. By 2051 the total health costs due to falls are projected to be $1,375 million per annum (Moller, 2003 revised edition)
- Loss of confidence and mobility and a general reduction in activity, independence and quality of life
- Stress and anxiety of the injured resident and their family,
- Stress of staff or caregiver stress (Butler, 1998)
- Resultant injury and treatment can lead to increased confusion for people living with dementia (Fleming et al., 2003).

The role of the environment
The risk factors for falls are considered to be a mix of intrinsic (related to the person) and extrinsic (related to the environment or external factors). By modifying the environment to reduce the risk of falls the reduction in risk remains over time and applies to all residents in the facility.

Few studies have been done to assess the impact in terms of residents’ falls of environmental modifications alone. However, results of two randomised controlled trials, have shown that environmental modification in conjunction with other strategies have been effective (NARI, 2004 citing Becker et al. 2003 and Jensen et al 2002)

Investing in developing a safe environment makes good economic sense, given the risk of falls among this population and the number of residents it will affect over time, as well as reducing the risk of injury to staff and visitors.
Section 2

Benefits & Principles of Good Design

This section includes:

► Benefits of good design
► Principles of Good Design
  ► Assigning priorities
  ► Special considerations
  ► Good design process - consultation

Also refer to: Design considerations – assigning priorities; Design considerations - special considerations

**Benefits of Good Design**

Good design is vital so that residents feel at ease in their home and carers are able to work in a safe environment. There are many benefits to designing for safety – with short and long-term gains to be realised.

1. **Benefits for residents**
   Careful design and risk assessment can help reduce the incidence of falls and other causes of injuries in older people living in an aged care facility. An injury can have devastating effects on an older person, impacting not only their immediate physical health but very often their long-term health and sense of wellbeing. For some older people due to their physical frailty they are unable to make a full recovery. Preventing the occurrence of a fall prevents the need for additional care and resources that a fall requires and enables older people to maintain their confidence in their mobility.

   A safe, secure and comfortable environment in their own home provides for a better quality of life for the residents and enables visitors to feel at ease when they visit relatives and friends living in an aged care facility.

2. **Staff safety**
   Everyone has the right to a safe working environment. Safer design to eliminate or minimise slipping and tripping hazards, sprains and strains and stress on the body will provide a safer work environment for staff of aged care facilities and should help reduce injury incidents.

3. **Compliance with Acts and Regulations**
   Australian Standards mentioned in the Building Code of Australia (BCA) and in the relevant Acts and Regulations **must** be met when designing aged care facilities. While other Australian Standards / design features (not within the BCA) are voluntary, following recommended practice can assist with accreditation. (Refer also to ‘Relationship with other codes, acts and regulations’.)

   An aged care facility, besides being home to its residents, is also a place of work and with that comes the employers’ legislated responsibility to provide a safe workplace environment. Under the NSW OHS Act 2000 and OHS Regulation 2001, employers must also ensure that people other than employees, e.g. people who are visiting residents as well as the residents themselves, ‘are not exposed to risks to their
health and safety arising from the employers work systems or environments' (WorkCover NSW, 2004).

It is the employer’s legislated responsibility to conduct risk assessments of the workplace, to consult with staff and to eliminate (or if unable to eliminate, then to control) risks.

4. **Cost effectiveness**
   It can make good economic sense to commit to good design of aged care facilities for the following reasons:
   - Costs can be reduced if hazards are removed or eliminated at the point of design or renovation rather than having to address the hazard at a later stage following an incident. It is much easier to design out hazards rather than remove or modify once it is already in place.
   - The risk of residents falling can be reduced - avoiding many weeks of increased cost and resources needed to care for the residents who have fallen. Furthermore, there are clear individual and community gains by avoiding the cost of the treatment and management of the fall.
   - A well designed workplace reduces the potential for staff injuries and the associated costs of those injuries.
   - A well designed workplace can be uplifting for staff and help to maintain staff levels and reduce costly staff turnover.
   - A well designed residence promotes feelings of well being within the community in general.

5. **Good management practice**
   One of the best reasons for establishing a safe environment is that it improves service delivery. Workers, volunteers and residents who are secure, safe, healthy and supported tend to be more content with their job or home and function more harmoniously together.

6. **Aids in gaining accreditation**
   Commitment to good design can help an aged care facility to meet the requirements of accreditation. Accreditation standards that relate to the environment include: (as outlined in Accreditation Standards from The Aged Care Standards and Accreditation Agency [http://www.accreditation.aust.com/accreditation/standards.html](http://www.accreditation.aust.com/accreditation/standards.html)) Standards: 4.4 (Living environment), 4.5 (Occupational health and safety), 4.6 (Fire, security and other emergencies), 4.7 (Infection control) and 4.8 (Catering, cleaning and laundry services).

**Principles of Good Design**

The following design principles should guide any development within residential aged care facilities. Good design ensures that an environment:
- Complies with the necessary standards and legislation.
- Supports the safety and security of residents, staff and visitors. Security measures are unobtrusive to residents and visitors but a deterrent to unwanted visitors.
- Is homely for the residents, and pleasant to work in for staff and for families to visit. It creates a sense of belonging and familiarity and promotes residents’ being able to ‘personalise’ their living spaces.
• Supports residents' independence and facilitates provision of assistance when required – unobtrusive support services that enable residents to maintain their independence and dignity while remaining within a 'homely' environment.
• Supports the appropriate level of care required by the clients e.g. those with dementia or challenging behaviours and those with disabilities, as well as any special cultural needs.
• Achieves a balance between residents’ functional abilities and a manageable work environment for staff.
• Enables future alterations to be conducted with minimal cost.
• Meets the changing needs of the residents in the foreseeable future.
• Enables residents to maintain their connection with their local community.
• Is sympathetic to the local community and natural environment including attention to visual appeal and being sympathetic to the local buildings.
• Is energy efficient such as maximising natural light, warmth and fresh air flow and provides adequately for storm water run-off.

Assigning priorities

When resources for environmental design or modification are limited, naturally priorities need to be identified. This need not be what is eliminated but assigning what comes first (in time) and what can follow later. Below are some of the criteria that can assist in the assigning of priorities for creating a safe environment.

1. Know what poses the greatest risk (refer also to The role of the environment)

There are two main ways to identify what poses the greatest risk to safety. One way is identifying common risks. The second is to understand risks specific to an organisation – by undertaking a risk assessment. This process serves to identify the hazards and then assign a risk rating to them – which answers the basic questions of how likely is an injury to occur and, if it did – how severe would it be.

To do this, information from a number of sources is required including: incident reports of falls or other injuries, consultation with staff, residents and visitors and being familiar with current literature on the major hazards and effective design solutions.

For staff the most common hazards are (in descending order):
• manual handling,
• slips, trips and falls and
• aggressive or resistive residents.

The majority of manual handling incidents occur in the residents' rooms, toilet and the corridor (WorkCover Corporation, South Australia, 2001).

For residents common environmental hazards that can lead to a fall include:
• poor lighting
• wet or slippery falls
• obstructed or cluttered pathways (NARI, 2004:pp62).
2. Consider the cost and cost benefit
Obviously, it will be important to know how much things cost, but it is also important to know how much will be gained by investing in a safer design. Some relatively inexpensive inclusions (such as a hand rail on both sides of a corridor, adequate lighting and adequate storage spaces) may prevent many falls – whereas more expensive inclusions may not have the same impact.

3. Consider the sustainability
Some changes may last for decades while others are relatively temporary. Ask questions such as:
- For how long will the risk be reduced or eliminated?
- How will the abilities / needs of our residents change over time?
- How will the abilities / needs of the visitors change over time?
- Will there be an increased proportion of older people living with a disability?
- How will the staffing levels, physical abilities change over time?

Good Design Process – Consultation
It makes good design sense to consult with the intended users of aged care facilities. This consultation includes not only the staff (a legislated responsibility if undergoing changes to an existing facility) but also residents and their families / visitors, ergonomic specialists and occupational therapists. Seeing the facility through the eyes of the resident and incorporating lessons learnt from experts can help steer designers to developing an aged care facility that meets the needs of the residents and offers a safe working environment.

Readers are referred to Table 5.2.1 of WorkCover Victoria (1999) Designing workplaces for safer handling of patients / residents to guide consultation with staff throughout the different stages of the design process.

Under NSW OHS legislation (OHS Act, 2000 sections 13-19), employers must consult with staff in relation to changes to the workplace that could affect workers’ occupational health and safety.
Section 3

Special Groups

This section includes:

► Consideration of Special Groups
► Specific Design Considerations
  ► Indoors
  ► Outdoors
  ► General issues
  ► Furniture fittings & equipment
  ► Checklists
  ► Case studies

Design of aged care facilities needs to take into account the needs of particular groups of residents. For example there are design elements that relate specifically to: aggressive residents, residents with dementia and residents with disabilities.

**Aggressive residents**

Design considerations for aggressive residents include:

- Adequate space and sufficient room for the placement of chairs to enable residents to maintain their personal space; installation of duress alarms in key areas;
- Provision of space for residents to withdraw to quieter areas;
- Security - single entry point at night; with ability to identify visitors prior to opening the door; well lit walkways and access points to car parks and gardens;
- Consideration of low plants to inhibit 'hiding' opportunities.


**Dementia facilities**

It has been suggested that in designing facilities for residents with dementia, it is useful to take the perspective of dementia being a disability and to then tackle elements of the disability in the design of facilities (NSW Health, 2003 /Fleming, R., Forbes, I. Bennett, K. Adapting the ward for people with dementia , and Marshall, 1998). The following principles were developed from that perspective:

- Be safe and secure – provide unobtrusive safety devices such as use of natural light, provision of level unobstructed pathways; provision of automatic sensors to switch off kettles, water; provision of hot water set at appropriate temperature.
- Be small – groups of 8-14 people or larger groups in smaller clusters to create a sense of being in a smaller group; an L-shaped and H-shaped unit where kitchen, dining and activity rooms were located together were designs shown to be associated with less disorientation in people with dementia (Fleming et al., 2003:96).
- Be simple and provide good ‘visual access’ – promote natural surveillance by design of gardens and pathways.
• Reduce unwanted stimulation – smaller groups lessen the likelihood of unwanted stimuli – avoid use of mirrors that could confuse residents; residents’ bedrooms should be quiet and away from areas emitting unwanted sound and light (e.g. television viewing rooms).
• Highlight helpful stimuli – use simple cues, for example downlighting on a toilet to highlight its presence; contrast residents’ doors with walls to make them easily identified
• Provide for planned wandering – control access to areas not safe for residents by careful placement of plants; pathways; visible endpoints (e.g. an outdoor eating area)
• Be familiar – where able use cues that people would have been familiar with from their younger years (e.g. tiles in bathrooms; taps that residents can operate)
• Provide different spaces for different functions – provide a variety of settings to allow for mixing with the other residents; supportive of visitors and provision of privacy when required.
• Provide links with the community – provide private spaces where residents can entertain guests; provide activities for visitors to participate in if desired.
• Be homely – avoid institutionalised décor; create the possibility to maintain daily living activities within residents’ own small environment.

Audit tool
Designers and planners are referred to the audit tool NSW Health, 2003/ Fleming, R., Forbes, I., Bennett, K: Adapting the ward for people with dementia: 67-83, to assess the extent their environment supports a person with dementia.

Rural hospitals
Many rural hospitals are faced with the issue of housing an increasing number of older people who enter the hospital because of an acute illness or injury and then remain in an extended stay in hospital while waiting for more appropriate accommodation. NSW Health has developed a section in Adapting the ward for people with dementia: 105-118 that specifically addresses some design solutions for smaller rural acute facilities.

Specific Design Considerations - facilities catering for people with dementia

General orientation and Location of key rooms
• Provide universal cues
• Have toilet visible from bed
• Consider movement activated lighting to provide light to direct to bathroom
• Avoid dead-ends with corridors
• Draw attention to resident doors and away from staff doors
• Support discrete supervision
• Consider noise control – lessen potential points leading to frustration
• Lockable areas for dangerous items, medication, cleaning equipment, instant boiling water
• Design in safety for planned wandering
• Design in ability to withdraw if behaviour adversely affects other residents
• Control unnecessary visual and audio cues

Source:
Queensland Health (1999) pp 134-147
Outdoors
- Clear, even pathway through pleasant gardens
- Make navigation choices simple
- Incorporate the use of non-toxic plants
- Simplify multi-tasks
- Provide quiet areas for counselling staff, visitors and residents


Other distractions
- Pets / animals may be therapeutic – provide for potential aviary in garden


Users of wheelchairs and walking aids
Our aging population, thus more people living longer with mobility limitations and thus the increasing number of mobility aids, including wheelchairs, motorized scooters and walking aids will need to be considered in the design of an aged care facility. Factors that need to be considered include:
- easy access throughout the residents’ areas for wheelchairs and other walking aids
- storage of such devices when not in use, particularly around bedrooms, bathrooms, living and dining areas and treatment rooms
- provision for easy recharging of these devices.
Section 4

Specific Design Considerations

The following tables highlight key design considerations for indoors and outdoor areas, general issues and furnishings, fittings and equipment in aged care facilities. These design considerations give an indication of design issues to consider, references are retained to provide readers with direct links should they need to seek further information on a particular design element.

The overall design of a facility and sections of it should take into account the intended users (and their abilities/disabilities and conditions). Design elements in an area intended for high care residents are not necessarily those suited for areas where residents are more independent. Allocation of space for example will vary depending upon the anticipated abilities of residents and the type (if any) of lifting devices or mobility devices used.

Indoors

This includes a summary of design considerations for the following areas

- General layout
- Transition areas
- Bedrooms
- Ensuite and assisted toilets
- Washbasins
- Assisted bathrooms considerations
- Lounge
- Dining rooms
- Kitchen areas
- Kitchenette
- Equipment storage
- Work areas and treatment rooms
- Utility rooms
- Laundry
- Corridors
- Doorways
- Activity areas

General layout

- Ensure bedrooms, lounge, dining and bathrooms are proximate to each other.
- Main common areas should have easy flow to outdoor areas
- Travel distances for both staff (supervision of residents) and residents (distance can determine the amount of assistance required) should be considered. (Source: Comments from Working Party)
- Shorter travel distances can:
  - facilitate independence, and
  - reduce a reliance upon staff for assistance with mobilising. (Source: Comments from Working Party)

Source:
Queensland Health (1999): pp 42 & 46
Transition areas

- Ensure where different areas meet provide simple cues to differentiate the areas (private spaces to public spaces, therapeutic areas to living areas etc) consider “spatial design, finishes, colour, decoration, furnishings and artwork”.

Source:
Queensland Health (1999): pp 18

- Building design issues to consider when purchasing mobile equipment include:
  - floor area covered by the equipment
  - additional area needed for the occupant (their arms & legs)
  - space needed for the person operating the equipment
  - sufficient space for the equipment to fit in and through the areas it needs to travel (bathrooms, bedrooms, doorways)
  - any special floor surface needed to either protect the floor or to facilitate the movement of the equipment.

Source:
WorkCover Victoria (1999)

Bedrooms

- Large enough so that:
  - beds can be moved from the room easily or stretchers brought in
  - there is sufficient space for easy manipulation of mechanical lifters
  - a bedroom could cater for a mobile shower / bath
- Consider the location of privacy curtains around beds in shared rooms so that staff and resident movement are not restricted and so cleaning of floors can be conducted with ease.
- Consider the installation (or the provision for the installation – in terms of placement of services and extra support in the ceiling space) of overhead tracks for overhead lifting devices in facilities intended for high care.
- Consider anticipated functionality of the residents, staffing assistance, mobility equipment, storage and promotion of ‘homeliness’.

Source:
Touhy-Main (1997)
WorkCover Victoria (1999): pp 19

- Views to the outside – avoiding use of horizontal bars that block outlook
- Provide opportunity to personalise areas
- Visual and acoustic separation from bedroom, toilets and communal / public spaces

Source:

Dining rooms (aged care and rehabilitation facilities)

- Sufficient space to allow for people in wheelchairs, motorised scooters and users of walking aids to move freely – careful consideration of type of tables (e.g. pedestal rather than four-legged)
- Allow for easy storage of mobility devices; allow for manoeuvring around tables and chairs
- Consider use of pedestal tables (to accommodate people in wheelchairs)

Source:
WorkCover Victoria (1999): pp 28

Note: pedestal tables work well for wheel chairs but can be unsafe when leant on.
Comment form Working Group
- Instantaneous boiling water systems need to be kept in areas with restricted access as required

Source:
Kitchen areas
- Determine type of food delivery – this determines requirements for kitchen design. e.g. whether food is received pre cooked and frozen; made fresh or a combination.
- Slip resistant floors
- In Kitchenettes: Provision for refrigerator, microwave and dishwasher and be wheelchair user friendly and user friendly for other disabilities e.g. arthritic hands

Source:
Queensland Health (1999): pp 92

Equipment storage
- Flexible heights and widths for easy storage and access
Source:
Touhy-Main (1997)
- Proximate to areas where residents and staff can access (close to bedrooms / toilets
- Provide for wheelchair, motorised scooter & other mobility aids in the bedroom and out of circulation space
- Consider location of equipment that also needs recharging.
Source:
WorkCover Victoria (1999): pp 29
- Provision of storage of mobility aids in lounge, dining, activity areas
- Ensure storage of chemicals and hazardous substances (e.g. for cleaning) and medications meet the required level of security and conditions (ambient temperature and humidity)
Source:
Queensland Health (1999):pp 52

Work areas treatment rooms
- Treatment and therapy rooms should not be directly exposed to residents’ general use spaces.
Source:
Queensland Health (1999): pp16
- Provide space for a small fridge, preferably at bench height.
- Provide storage space for treatment trolleys.
Source:
Comment from Working Group

Utility rooms
- Suitable storage racks
- Suitable utensil washer
- Appropriate disposal measures
Source:
Queensland Health (1999):pp 104

Laundry
- Determine type of laundry provision for the facility
- Keep clean and soiled lined separate
Source:
Queensland Health (1999):pp 98-103
- Consult the NSW infection control guidelines
Source:
NSW Health: Infection Control Policy (PD2005-247)
Corridors
- Sufficient width to allow for passage of residents in beds, trolleys, wheelchairs, other mobility devices and with staff assisting them
- Provision of storage of mobility devices
- Provision of recessed hand basins; Provision of ‘swing space’ for beds and trolleys
- Provision of handrails on either side of corridor
- Consider layout to allow for a ‘natural indoor walking circuit’
Source:
WorkCover Victoria (1999): pp 28-29; 31
- Ensure service corridors are uninteresting / uninviting to both residents and visitors
Source:
Queensland Health (1999):pp 52

Doorways
- Wide enough so that beds / stretchers and mechanical lifters can be passed through easily.
Source:
Touhy-Main (1997)
- Lever handles should facilitate staffing and residents manipulation of the doors
- Ensure weight of door is not excessive for residents with varying abilities
- Consider door height to suit anticipated needs (e.g. greater space required if beds with poles or frames are anticipated)
- Avoid door closers (these can work against both staff and residents).
- Door width when fully opened should meet the BCA Standards for specific areas
- Sliding doors have stops to protect fingers on full opening
- Where possible, doors should not swing out into circulation areas
Source:
WorkCover Victoria (1999): pp 16-17
- Paint doors to ‘unsafe areas’ in the same colour as the wall paint.
Source:
Queensland Health (1999): pp 49
- It is vital that all doorways / access points meet the necessary fire and safety requirements
Source:
Comment from the Working Party

Activity areas
- Allow for fixtures required to deliver care
- Locate support rooms as close as is practical to their related activities
Source:

Outdoors
This includes a summary of design considerations for the following areas:
- Outdoors
- Access
- Paths
- Stairs / steps
- Gardens
- Resting areas
- Car parks & driveways
External building

Access
- Main entry should be accessed by following the most logical and direct path
- Easy access to local community – provision of pathways and public transport
- Provision of covered walkways to move from carparks to main pedestrian entrance
- Clear facility for visitor parking
- Ensure safe access, particularly at night, for staff

Source:

Paths
- Consider accommodation of motorised scooters and wheelchairs
- Well lit
- Provision of clear and logical linkage with the different facility sections
- Avoid 90 degree corners in paths
- Have no irregularities (tripping hazards)
- Provide handrails at appropriate sites

Source:
Queensland Health (1999) pp 22; 34

Stairs/Steps
Avoid the use of steps

Gardens
- Provide a mix of private and communal areas
- Provision of natural shade without diminishing natural surveillance
- Consider raised planter boxes in some areas to be tended by residents in wheelchairs, motorised scooters
- Plants should encourage residents’ senses (sight and smell);
- Avoid trees and bushes that drop fruits / leaves that could create a slipping hazard;
- Avoid paths pooling water – could create a slip hazard.
- Clearly define safe and unsafe areas with use of appropriate barriers (e.g. fences and gates).
- Provide clear, comfortable transition areas between indoor and outdoor areas

Source:

Resting areas
- Type of seating – angle, height, stability meet the varied needs of the residents and their visitors

Source:
Comment from the Working Group
- Ensure provision of adequate resting areas along pathways

Car parks & driveways
- Well lit with easy access from carpark to main entrance
- Allow for safe vehicular turning
- Clear signage
- Carparks away from quiet spaces (bedrooms and outdoor communal areas)
- Provision for emergency vehicle access and turning
- Road crossings to be clearly marked and recognisable

**Source:**

**External buildings**
- Ensure design and colour are sympathetic to the local community and natural environment
- If using colours that may be subject to fashions – limit their use to temporary items (e.g. paint)
- Use materials more typical of homes than of institutions
- Ensure building is adequately protected from subterranean infestations.

**Source:**
Queensland Health (1999): pp 40

**General Issues**
This includes a summary of design considerations for the following issues:

- **General issues**
  - **Flooring**
  - **Lighting**
  - **Signage**
  - **Staff call systems**
  - **Security**
  - **Emergency egress**
  - **Fire protection**
  - **Ventilation**
  - **Windows / glazing**
  - **Communication systems**
  - **Electrical fittings**
  - **Electrical services**
  - **Lifts**
  - **Hydraulic systems**

**Flooring**
- Slip resistant surfaces/ materials, finishes, coverings
- Direct-stick carpet squares facilitate cleaning and movement of mobile equipment in lounge, dining and bedrooms;
- Sealing of cement prior to laying carpet minimises odours

**Source:**
WorkCover Victoria (1999)

- Take into consideration:
  - cleaning and maintenance; manoeuvrability of equipment;
  - slipping and tripping hazards;
  - spread of flame and production of smoke;
  - fatigue on feet (for staff).
- Take particular care where different floor surfaces meet – to avoid potential slipping or tripping hazard.

**Source:**
WorkCover Victoria (1999): pp 18-19 (Table lists type of flooring for each room)

- Avoid strong patterns or changing colours that could be misconceived as a change in level, thereby creating a potential trip hazard.
Source:
Queensland Health (1999): pp 49

Lighting
- Maximise natural light, using windows and skylights;
- Avoid single point bright lights especially in corridors;
- Provide for shading when required;
- Ensure residents, staff and visitors can adjust lighting levels to suit their needs;
- Ensure lighting is of domestic quality in resident use and private areas

Source:
Queensland Health (1999): pp 54
- Minimum 200 lux general room lighting
- Ensure residents of varying abilities can manipulate switches
- Provide dimmable bedroom lighting

Source:
Queensland Health (1999): pp 108; 110
- Avoid facing skylights directly towards the sun, if in a northern aspect, and the opposite for southern aspects.

Source:
Comment from Working Group

Signage
- Limit signage to minimise a clinical / institutional setting use alternate cues (e.g. colours, finish, décor etc)
- Ensure signage is adequate to direct residents, visitors and service delivery to correct entrance and building (if multi-building complex)
- Suit differing abilities (e.g. sight impaired) and language (where applicable use universal signage)
- Easy to identify residents’ private rooms.

Source:
Queensland Health (1999): 18; 66
(Refer also to NSW Health (2004) NSW Health Facility Guidelines)

Staff call systems
- Place staff call systems within reach of residents (particularly in toilet and bathroom areas) – consider a balance between accidental pushing and accessibility.

Source:
WorkCover Victoria (1999): pp 19

Security
- Consider electronic surveillance to inhibit intruders
- Ensure keys for storage of sensitive information medications and valuables are not placed on master key
- Archived records need to be stored in secure areas free from likely infestations or corruption from water damage
- Control access to unsafe areas

Source:
Queensland Health (1999): 44.

1 For further details on planning for security, infection control and disasters refer to NSW Health Facility Guidelines, 2004.
Emergency egress

- Ensure fire exit doors open to paved or other areas that facilitate the use of wheeled equipment

- Consider use of fire doors that stay open when triggered by smoke alarms


Fire protection / detection

- Signals and alarms in all living, sleeping areas
- Information can be easily shared from one site to another to facilitate evacuation
- Easy access for manual set-off but free from accidental release
- Meet necessary state fire safety requirements:
  1. external fire hydrants;
  2. sufficient system to cope with extent of full building involvement,
  3. fire hose reel on each level of building, easy location and operation of appropriate fire extinguishes,
  4. properly maintained access points free from obstruction.

Source: Queensland Health (1999): pp 124-128

Ventilation, heating, cooling

- Ensure windows can be opened with ease and have insect screens
- Ensure windows are in positions conducive for people in wheelchairs to enjoy the outlook
- Avoid wind tunnel effects
- Avoid reliance on artificial ventilation except where needed (utility areas, kitchens)
- Consider energy efficient air conditioning systems in: bedrooms, administrative areas, resident and staff support areas, kitchen and utility rooms
- Ensure residents can control their own bedroom air conditioning without impacting the rest of the system
- Consider ducted systems with access for maintenance in plantrooms (staff access area only)
- Ensure filtered fresh air is circulated
- If cooling towers are used, ensure Legionella controls meet requirements

Source: Queensland Health (1999):56; 68; 72
- Windows should be designed so that residents are unable to fall through open windows and so that unwanted intruders are not able to climb through them.

Source: Comment from the Working Group

Windows / glazing

- All glazing in the ‘human impact zone’ must comply with relevant Australian Standards

Source: Queensland Health (1999): pp 143

Communication systems Telephone, television and computer access in bedrooms, lounge, nurses station
- Common problems include:
− inability to determine severity of situation,
− inability to hear the system if in toilet or bathrooms;
− inability to relay messages to determine how many people are needed to assist.

- Consider paging systems that can be integrated with the fire detection system
- Avoid placing staff call buttons behind toilet systems – out of reach of residents; consider placing them near to the grabrails – but not too close to result in accidental callings

Source:
WorkCover Victoria (1999): pp 19

- Installation of telecommunications should address:
  - staff call buttons
  - staff-to-staff communication
  - late night diversion if appropriate
  - inter- and intranet support
  - facsimile
  - television (free to air/ pay per view and inhouse video)
  - radio
  - security systems
  - fault monitoring
  - backup system.

- Emergency call buttons to be accessible from a fallen position

Source:
Queensland Health (1999): pp 114 – 118

**Electrical fittings** (vacuum, air conditioning)
- Consider type of equipment to be used; frequency of use; clearance side and height; effect on resident access; elimination of trip hazards

Source:
WorkCover Victoria (1999): pp 19

- Consider provision of individual temperature control in private rooms;

Queensland Health (1999): pp 70

- Ensure valves, switches enable easy access to conduct repairs and maintenance.

Queensland Health (1999): pp 50

**Electrical services**
- Switchboards in easy access to staff only for each fire compartment area
- Consider potential need for standby generator
- Consider appropriate protection from surge and lightening strikes

Source:

**Lifts**
- Adequate space to enable residents’ beds, medical equipment and staff on either side where applicable (this impacts height and width of lift)
- Position of controls; door opening sensors and holding times; levels between lift and flooring and the width of the gap – impact on walking sticks and wheels).

Source:
WorkCover Victoria (1999): pp 19

**Hydraulic systems**
- Provision of backflow protection to prevent contamination
- Careful placement of hose cocks for irrigation
Aerators not to be used in resident access areas (laminar flow or similar)  
Where possible ensure pipework is not positioned above bedrooms  
Ensure hydraulic system will last the lifetime of the building.  
Hot water to residents not to exceed 45°C.  

Source:  
Queensland Health (1999): pp 78-80

For further details on planning for security, infection control and disasters refer to NSW Health Facility Guidelines, 2004.

Furniture fittings and equipment
This includes a summary of design considerations for the following issues:
▶ Furniture fittings & equipment
  ▶ Furniture & fittings
  ▶ Mobile equipment
  ▶ Electrical outlets
  ▶ Grab rails

Furniture and fittings
• Careful use of mobile & fixed furniture — although some mobile furniture creates options for layout within the room;  
• Avoid equipment with protrusions that could injure either residents or staff  
• Curtains should be homely in appearance and be made of fire retardant materials  
Source:  
Queensland Health (1999): pp 52; 64

Mobile equipment
• Larger wheeled equipment reported to be easier to move on carpet  
Source:  
WorkCover Victoria (1999)  
• Refer to design issues to consider when purchasing mobile equipment  
Source:  
WorkCover Victoria (1999): pp 9

Electrical outlets
• Sufficient number of outlets so that power cords are not across floor and walkways, creating a tripping hazard.  
Source:  
WorkCover Victoria (1999)

Grab rails
• Meet AS 1428 – Design for access and mobility;  
• Avoid sharp edges that could catch on clothing or frail skin.  
• Consider use of retractable grab rails in bathrooms and toilets  
Source:  
WorkCover Victoria (1999): pp 19

Checklist for furniture fittings and fixtures
Readers are referred to:
• A checklist developed by WorkCover Victoria (1998) *Pre-purchase criteria to use in the selection of equipment & furniture – Health and aged care.*

• Implications for design to consider when purchasing equipment refer to WorkCover Victoria (1999) Designing workplaces for safer handling of patients / residents: 9
Section 5

Relevant regulations, policies, and standards

Acts & Regulations
New and refurbished aged care facilities may be subject to the following acts and regulations:

- Commonwealth Disability Discrimination Act 1992
- Commonwealth Aged Care Act (1997)
- Relevant food services regulations
- Retirement Villages Act (under review)
- NSW Environmental Planning and Assessment Act 1979

Commonwealth Aged Care Act 1997

- “Promote a high quality of care and accommodation and protect the health and wellbeing of residents;
- Help residents enjoy the same rights as all other people in Australia;
- Ensure that care is accessible and affordable for all residents;
- Plan effectively for the delivery of aged care services and ensure that aged care services and funding are targeted towards people and areas with the greatest needs;
- Encourage services that are diverse, flexible and responsive to individual needs;
- Provide funding that takes account of the quality, type and level of care;
- Provide respite for families and others who care for older people; and
- Promote ‘ageing in place’ through the linking of care and support services to the places where older people prefer to live.”

Building Code of Australia
All new buildings and some upgrades must comply with the latest Building Code of Australia (BCA) and requirements of local council. These requirements however are the minimum standards and consequently many aged care facilities, although meeting the BCA requirements fall short of providing not only a safe environment that minimises the known falls risks but also an enjoyable environment in which to live, work and visit.

Consequently some design aspects presented in these guidelines although they exceed the requirements in the BCA and relevant Standards enhance the built environment so that residents’, staff’s, and visitors’ health, safety and enjoyment are supported.
Research
Research conducted in Victoria found that adherence to both the Building Code of Australia and relevant standards did not meet all the design considerations necessary to minimise injury to staff and residents (WorkCover Victoria, 1999). The research found the following design considerations were lacking:

- Storage of patient handling equipment was inconveniently located and inadequate; lack of provision for storage of residents’ personal effects (particularly the temporary storage of residents’ furniture etc after the resident dies).
- Doorways were insufficient for beds to pass through easily.
- Bedrooms had insufficient room for effective use of mechanical lifters.
- Toilets had nurse call buttons that were out of residents’ reach and insufficient space to allow for staff to assist and/or the use of mechanical lifter or other walking aids.

Australian Standards
Compliance with Australian Standards is only mandatory if specifically cross-referenced by the BCA ‘or other statutory legislation’. The NSW Health Facility Guidelines (2004:27) have identified numerous Australian Standards relevant to the design of health facilities that could well apply to aged care facilities also. The list included:

- AS1158.3 & series - Road Lighting.
- AS 1288 Glass in buildings - Selection and installation.
- AS 1367 Multiple Outlet Distribution Systems - Sound and Vision.
- AS 1765 Code of Practice for Artificial Lighting for Clinical Observation.
- AS 2107 Acoustics - Recommended Design Sound Levels and Reverberation Times for Building Interiors.
- AS 2120 Rules for Suction Systems for Medical Use in Hospitals.
- AS 2293 Emergency and Evacuation Lighting in Building Part 1 Design and Installation Part 2 Inspection and Maintenance
- AS 2500 Guide to the Safe Use of Electricity in Patient Areas.
- AS 2896 Medical Gas Systems - Installation and Testing of Non-Flammable Medical Gas Pipeline Systems.
- AS 3000 SAA Wiring Rules.
- AS 3003 Electrical Installations - Patient Treatment Areas of Hospitals and Medical and Dental Practices.
- AS 3009 Electrical Installations - Emergency Power Supplies in Hospitals.
• AS4145.2-1993/Amat 1- 1996 Locksets - Mechanical Locksets for doors in buildings.
• AS 4146 Laundry Standard
• AS4332 The Storage and Handling of Gas in Cylinders.
• AS4485.1 & 2 Security for Healthcare Facilities
• AS Flooring – slip resistance.

Readers are referred to the Australian Standard website for further detail: www.standards.com.au

**Certification & accreditation**

**Certification**

Certification is not mandatory and it does not guarantee accreditation but a facility cannot be accredited unless it is also certified. In general terms, certification applies to the building design while accreditation primarily refers to practices (See below for Accreditation Standard that applies to the physical environment of the facility).

Certification is required only for aged care facilities that are receiving Commonwealth aged care subsidies.

**Relevant standards for accreditation**

Approved residential aged care providers must comply with the Accreditation Standards under the Aged Care Act (1997). In all there are 44 separate processes to satisfy 44 expected outcomes. *Standard 4: Physical Environment and Safe Systems* is the Standard that relates most to the physical design of the facility. It considers:

- **Regulatory compliance** – management systems are expected to be in place to identify and ensure compliance with all relevant legislation, regulatory requirements, professional standards and guidelines about physical environment and safe systems.
- **Living environment** – the focus is on ensuring systems are in place to actively provide a safe and comfortable environment consistent with the needs of the resident.
- **Occupational Health and Safety** – provision of a safe work environment, identification of hazards – the emphasis is on the OHS Act, and while it includes hazard identification, it concerns the work environment.

**Other policies and guides**

**Ageing in Place**

This guide, developed for residential and aged care providers, presents the ‘Ageing in Place’ philosophy which states that “Ageing in place relates to the provision of responsive and flexible care in line with each individual’s changing care needs in a familiar and appropriate environment” (Australian Government Department of Health and Ageing, 2002:pp4).

**State Environment Planning Policy - Seniors Living**

Much of the housing for older people and people with a disability in NSW is approved under SEPP-Seniors Living. This Policy replaced SEPP 5 in March 2004 and is under review in 2005.

The aims of the Policy are to encourage the provision of housing that will:
1. Increase the supply and diversity of residences that meet the needs of seniors or people with a disability, and
2. Make efficient use of existing infrastructure and services, and
3. Be of good design.

SEPP - Seniors Living meets the special housing needs of seniors or people with a disability by providing opportunities for the development of a well designed range of housing types including:

- infill self-care housing and serviced self care housing that is well-located in existing areas that allow seniors to:
  - stay in the area they know with good access to transport, local facilities and activities
  - ‘age in place’, because the housing is capable of being modified for varying levels of disability
- assisted living of two kinds:
  - hostels (i.e. independent living with low level support [not personal care or nursing care] provided on-site, such as meals and housekeeping)
  - residential care facilities which provide a high level of care.
- large scale developments on the urban fringe
- affordable housing options
  - vertical villages require that in return for an increased density 10 % of dwellings within the development are dedicated as affordable places for rent
  - hostels are also likely to be provide an affordable rental option given the smaller sized dwellings and shared facilities.

NSW Health Facilities Guidelines

According to the NSW Health Facilities Guidelines, Residential Aged Care Facilities (when included in NSW Health Care Facilities) are to comply with the NSW Health Facilities Guidelines. The Health Facilities Guidelines were developed to:

- “Establish acceptable standards for the design of Health Care Facilities;
- Achieve affordable solutions for the planning and design of Health Care Facilities;
- Maintain public confidence in the standard of Health Care Facilities;
- Provide general guidance to designers seeking information on the special needs of typical Health Care Facilities;
- Promote the design of Health Care Facilities with due regard for the safety, privacy and dignity of patients, staff and visitors;
- Eliminate design features that result in unacceptable practices;
- Update Guidelines to meet current clinical practice and standards;
- Eliminate duplication between various Guidelines
- Minimise recurrent costs and encourage operational efficiencies”.


These guidelines (Design Guidelines for Aged Care Facilities) were developed to complement the NSW Health Facilities Guidelines. Where there is conflicting information from other sources, the NSW Health Facilities Guidelines prevail.

Issues addressed in the NSW Health Facilities Guidelines include:

- Health facility briefing and planning – includes standard components and specific unit section
- Access, mobility, OHS and security
- Infection control
• Building services and environmental design
• Project implementation
• Generic room data sheets and layout sheets are also included.

NSW Health Management Policy to Prevent Fall Injury Among Older People

The NSW Health’s *Management Policy to Reduce Fall Injury Among Older People (2003)* presents a state wide collaborative framework to address the magnitude of fall-related injury involving older people in NSW. The policy includes a focus on the reduction of fall injury among older people in the community, in supported care/residential aged care and in acute care settings.

**BASIX / energy efficiency measures**

For Working Group:
- Is this applicable for aged care facilities?
- What are the legislated responsibilities to develop energy efficient aged care facilities?

BASIX (the Building Sustainability Index) is a new NSW planning requirement that applies to the building of new homes to improve energy and water efficiencies. BASIX ensures each dwelling design meets the NSW Government’s targets of:
- 40% reduction in water consumption and
- 25% reduction in greenhouse gas emissions, compared with the average home.

The greenhouse target will be increased to 40% from July 2006.

For more detailed information on BASIX refer to:
http://www.basix.nsw.gov.au/information/about.jsp
Section 6
Further Reading

Legislation
Commonwealth Disability Discrimination Act 1992
Environmental Planning and Assessment Act 1979.

Codes, Standards and Accreditation
Australian Standard - all relevant Standards refer to Standards Australia website
  (http://www.standards.org.au/)

website on http://bca.sai-global.com/

The Aged Care Standards and Accreditation Agency
http://www.accreditation.aust.com/accreditation/standards.html

Relevant policy and guidelines
State Environmental Planning Policy Seniors Living under review.
  or http://www.dipnr.nsw.gov.au/housing

Queensland Health (1999): Design Guidelines for Queensland Aged Care Facilities

Worksafe Victoria Health and Aged Care: Design 4 Health
to:

  WorkCover Victoria: Designing workplaces for safer handling of patients / residents
e.pdf

NSW Health Facility Guidelines NSW Health October, 2004 Revision B
ted.pdf

Ageing In Place: A Guide for Providers of Residential Aged Care (Australian


Relevant papers & reports


Guidance notes - WorkCover NSW: Preventing trips, slips and falls – guidance notes


Checklists


**Room Data Sheets**

**Selection of equipment**


**Disclaimer**
Users of this website are reminded that some of the resources referred to are not NSW resources. It is the responsibility of the developers / designers to ensure that their aged care facility meets the current requisite national and state building codes and standards.
Section 7

References


**DIPNR** (Department of Infrastructure, Planning, and Natural Resources) (2004) State Environment Planning Policy (SEPP) - Seniors Living


http://wwwIRMRC.unsw.edu.au/Publications/centrereports.asp


