

PUBLIC SECTOR RESIDENTIAL AGED CARE SERVICES

[Interim] Facility design guidelines



These guidelines are considered interim guidelines and will be updated with lessons learned from COVID-19 and *The Royal Commission into Aged Care Quality and Safety* in 2021.

Once the guideline is finalised in 2021 it will be reviewed at least every three years to ensure it remains current with developing practice and design.

To receive this publication in an accessible format, email the [Victorian Health and Human Services Building Authority](mailto:vhhsba@dhhs.vic.gov.au) <vhhsba@dhhs.vic.gov.au>

Authorised and published by the Victorian Government, 1 Treasury Place, Melbourne.

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ISBN 978-1-76096-171-8 (pdf/online/MS word)

Available as an industry resource on the [Victorian Health and Human Services Building Authority website](https://www.vhhsba.vic.gov.au/resources) at <<https://www.vhhsba.vic.gov.au/resources>>

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1 Introduction

1.1 Preamble

These design guidelines for public sector residential aged care services (PSRACS) facilities were developed by the Victorian Department of Health and Human Services (the department) following an extensive period of consultation. They were developed in partnership with the department's Health and Wellbeing division and the Victorian Health and Human Services Building Authority (VHHSBA).

These guidelines were informed by a series of co-design workshops, including:

- an aged care residential services model of care workshop facilitated by the department's PSRACS Operations and Development team and conducted with a range of clinicians, policy makers, public as well as not-for-profit and private sector aged care residential services providers and consumer representatives
- an aged care residential services design principles workshop facilitated by the VHHSBA and conducted with a range of researchers, clinicians, policy makers, service providers, lived experience advocates and architects. This workshop responded to the model of care principles identified in the previous workshop
- an aged person's mental health workshop that was also facilitated by the PSRACS Operations and Development team and conducted with a range of clinicians, policy makers, service providers and architects, including the Office of the Chief Psychiatrist.

These guidelines are intended to assist service providers, designers, project managers and end-users engaged in the planning and design of new residential aged care facilities or the refurbishment and/or extension of existing facilities to deliver environments that enable contemporary and innovative models of aged care as well as better meet community expectations.

A completely new building provides the best opportunity for the built form to deliver all the aspirations, principles and objectives set out in this guideline. However, even small interventions in the form of minor works, renovations or extensions to existing facilities can have a significant impact on the quality of care and the quality of the environment for residents and staff. While these smaller works may be able to deliver a single targeted improvement only (and it is not expected that all of the principles will be able to be delivered in all instances), this guideline should be used as the reference base for those works as well.

There is evidence to support a direct correlation between appropriate design of the environment and a reduction in costs associated with the provision of care, particularly for people living with dementia.¹

Service providers seeking to make targeted enhancements to their environment of care should refer to the department's [residential aged care services audit tools](https://www2.health.vic.gov.au/ageing-and-aged-care/residential-aged-care/physical-social-environments) <<https://www2.health.vic.gov.au/ageing-and-aged-care/residential-aged-care/physical-social-environments>>.

These guidelines outlines the specific requirements for the planning and design of residential aged care services facilities.

Project planning and delivery teams should ensure that the design of residential aged care services facilities meet the requirements of the *National Construction Code* and all relevant legislative, regulatory, standards, guidelines and policy documents.

¹ (Efthimia Pantzartzis, 2016)

This document should be read in conjunction with the *Australasian Health Facility Guidelines* (AusHFG) generic requirements and Standard Components described in:

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

1.2 Policy framework

Residential aged care services in Victoria are delivered by a range of providers including not-for-profit, private and public sector organisations.

The Australian Government is the regulator and primary funder of aged care services under the *Aged Care Act 1997* (the Act).

In providing funding to aged care services, the Act seeks to:

- promote a high quality of care and accommodation for the recipients of aged care services that meet the needs of individuals
- protect the health and wellbeing of the recipients of aged care services
- encourage diverse, flexible and responsive aged care services that are appropriate to the needs of care recipients and their carers
- facilitate the independence of, and choice available to, those recipients and carers.

These objectives are reflected in the aged care quality standards against which services are accredited.

The Victorian Government plays a key role in residential aged care through its funding contribution and support for high quality care in Victoria's 178 public sector residential aged care services, which includes specialist aged persons' mental health facilities.

1.3 Purpose

The prime objective of residential aged care facilities is to provide an environment that enhances the quality of life for its residents and suits the characteristics of each individual residential care service provider and the people who live there.

Optimal design of residential aged care services and facilities should:

- accommodate the individual needs of the recipients of aged care services
- facilitate the independence of residents
- facilitate exercise of choice of activity by residents
- support the free movement of residents throughout the environment both indoors and out
- support maximum independence in activities of daily living (nutrition, mobility, personal hygiene, toileting and continence)
- protect the health and wellbeing of the residents of aged care services
- promote the delivery of high-quality care
- support the effective service delivery to meet complex health care needs including high quality, end of life care (e.g. medication, pain management)

- minimise triggers for responsive behaviours associated with unmet needs due to cognitive, verbal, physical and mood changes and support optimal mental health and wellbeing.

2 Models of care and support

2.1 Background

2.1.1 Support for older people or people with a disability requiring residential aged care

In general, people entering residential aged care are older, frailer and have more co-morbidities than was typical in previous decades.² It is also now an expectation that a person be able to age in place, which means that they are not required to move to another facility when their care needs increase.

All areas of the facility should assist and support residents to restore or maintain their independence in a safe environment, to the fullest extent possible for as long as possible and support them to remain in the facility as their needs change.

2.1.2 Supportive environments for people with special needs and/or complex care needs

The service and the facility should support the cultural diversity and health needs of the resident population it is intended to serve.

The *Aged Care Act 1997* (Commonwealth) defines the following people as people with special needs:

- (a) people from Aboriginal and Torres Strait Islander communities
- (b) people from culturally and linguistically diverse backgrounds
- (c) people who live in rural or remote areas
- (d) people who are financially or socially disadvantaged
- (e) veterans
- (f) people who are homeless or at risk of becoming homeless
- (g) care-leavers
- (h) parents separated from their children by forced adoption or removal
- (i) lesbian, gay, bisexual, transgender and intersex people
- (j) people of a kind (if any) specified in the Allocation Principles³.

The design of a facility needs to take account of and respond to the specific needs of the people who will live and work in it so language and literacy, spiritual and cultural practices and family and social connections are just a few of the factors that need to be considered in this context.

In addition to the special needs groups that PSRACS already play an important role in supporting, these services are critical in providing access to appropriate care for people with a range of complex care needs. These may include people:

- with complex physical, clinical and/or mental health care needs
- with acute and/or chronic medical conditions, dementia or other neurological conditions, physical disabilities, mental health conditions, and sensory impairments
- who are refugees (issues of torture and trauma)
- with a history of or risk of homelessness

² (Australian Institute of Health and Welfare, 2019)

³ (Aged Care Act, 1997)

- that have experienced alcohol or other drug related dependence.

2.2 Objectives

The objectives for public sector residential aged care services are to ensure that:

- people with complex care needs have access to services that meet their needs
- person-centred approaches to support are delivered in a way that optimises the resident experience
- services respond effectively to the changing community characteristics, increased complexity of care needs and community expectations
- services keep people as well as possible for as long as possible through best practice approaches that also reduce avoidable and/or inappropriate care in tertiary settings
- services can adapt to the changing funding and policy environment, for example, Commonwealth reforms, other state policy priorities.

2.3 Principles

To achieve these objectives, the following principles have been adopted:

1. A person-centred approach is the foundation of all aspects of the model of care and service delivery.
2. All residents are supported as individuals with each person's context informing all components of their life in the facility.
3. Residents and their families are treated with empathy and compassion. They are empowered in decisions about care and are encouraged and supported to raise concerns when they arise. Their views are valued and respected.
4. Residents are supported to exercise choice in, and are encouraged to, maximise their engagement in activities of daily living.
5. In keeping with 'ageing in place', residents are supported through the ageing process⁴. They are supported in the service as their needs change. External healthcare services are engaged optimally including when health deteriorates. High quality palliative care and end of life care is informed by Advance Care Planning.
6. Residents are supported to maintain connections with their community both within and outside the service.
7. A consistent workforce is mobilised to increase familiarity of staff with particular residents, their history and preferences and to increase familiarity, comfort and trust of the resident and family with carers and other staff.
8. Residents receive evidenced based, goal-oriented care with seamless connections to primary and acute care. Care will include screening and comprehensive assessment of all residents with regular, systematic reviews. Changing care needs are promptly identified and appropriately responded to.
9. Robust governance and clinical governance are in place to deliver a safe environment for residents and staff. This includes effective risk management and credentialing processes that support an organisational culture of ongoing professional development. Learning and knowledge transfer is encouraged, and practice is systematically reviewed and improved.

⁴ (Australian Institute of Health and Welfare, 2002)

10. Robust governance and clinical governance are in place to ensure residents are only subjected to physical and chemical restraints as a last resort, when all alternative strategies have been exhausted and its use complies with all legislative requirements.⁵

⁵ Legislative requirements regarding the use of physical and chemical restraints are contained in the Quality of Care Principles 2014 (Principles) <<https://www.legislation.gov.au/Details/F2020C00096>>. The restraint requirements were first introduced to the Principles effective from 1 July 2019, with amendments strengthening the legislation applicable from 29 November 2019. These amendments place explicit obligations on providers to minimise chemical and physical restraints in residential care settings

3 Operational policies

3.1 General

Operational policies have a significant impact on the size, configuration, nature and cost of the accommodation provided in residential aged care services and should be considered prior to commencing the facility design and throughout all subsequent stages of the design process.

Operational policies should be developed by the project team in consultation with the residential aged care service stakeholders. Change management processes should be instigated to ensure that practices briefed into the design of a proposed new facility are implemented once the facility becomes operational. This is important as it takes a multi-factorial approach involving physical design, organisational policies and staff practices to fulfil the intended function of the facility based on the objectives principles described above.⁶

3.2 Staffing for residential aged care services

Service providers must maintain an appropriate number and mix of staff to meet the care needs of the residents, and to ensure resident safety and supervision. This will include skilled nursing staff where this is indicated by the care needs of the residents.

Staff required to provide holistic care to residents in a residential aged care facility may include:

- residential aged care manager
- medical practitioners
- nurses
- personal care attendants
- other staff and resources such as allied health professionals, clinical nurse specialists, specialist and general medical practitioners, dentists, pharmacists
- environment and catering services personnel
- facility management and maintenance services personnel.

3.3 Hours of operation

The design of the unit or facility should support 24-hour access for residents and their visitors. This includes those close to them who play an active role in their care and support, as well as staff and other professionals required to meet their needs, while also maintaining appropriate security requirements. This may affect the placement of individual facility units relative to others and to the entry and exit points of the overall facility.

3.4 Occupational health and safety

Each facility is responsible for providing and maintaining a safe, supportive and secure environment for residents, staff, contractors and visitors. The environment includes but is not limited to the physical fabric of the facility, its furniture, fittings and equipment, building engineering services and operational systems intended to support the physical infrastructure, as well as machinery, equipment and appliances.

⁶ (R. A. Kane, 2017)

The design should therefore support implementation of all relevant legislation, regulations, policies, standards and guidelines which include, but are not limited to:

- *Occupational Health and Safety Act 2004*
- *Occupational Health and Safety Regulations 2007*
- WorkSafe Victoria health and safety guides
- *Australasian Health Facility Guidelines*, Part C Design for Access, Mobility, OHS and Security.

The [WorkSafe Victoria website](https://www.worksafe.vic.gov.au/occupational-health-and-safety-act-and-regulations) provides links to the relevant legislation and regulations as well as industry specific references <<https://www.worksafe.vic.gov.au/occupational-health-and-safety-act-and-regulations>>.

Whilst there is a need to meet regulatory requirements for occupational health and safety, each residential aged care facility should be designed around the first premise of the space being a resident's home, rather than a staff workplace. Placing the resident at the centre of design and developing safe staff practices around the functional needs of residents fulfils the purpose of the facility and supports a comprehensive approach to the health, safety and wellbeing of all residents and staff.

3.5 Medication management

Careful consideration of systems and processes for medication management must be undertaken when designing facilities in order to meet regulatory requirements that support resident independence and ensure safety and quality in what is a significantly high risk and high impact aspect of resident care⁷. The process of medication management and administration takes up a significant proportion of staff time as residents often require multiple medications to manage complex medical conditions, often complicated with cognitive and behavioural issues.⁸

There are multiple factors involved in managing residents' medication safely, therefore appropriate attention to the needs of residents to maintain independence, choice and control must also meet regulatory requirements and manage risks associated with storage and administration. This includes consideration for adequate storage rooms for medications, appropriate storage in resident rooms and systems that provide point of care administration that promote greater safety and provide efficiencies that free up staff time for engaging in resident wellbeing activities.

3.6 Food services

The act of preparing and eating food is fundamental to daily life and appropriate design can enhance and support resident independence, nutrition and wellbeing.⁹ Service providers must consider food services in the context of their model of care during the pre-design phase of a proposed project. The model of care should articulate what if any role residents will have in food preparation, how they will support food choices for residents, the type of dining experience they will provide etc. The model of care should also be designed by staff to ensure that the meal supply system delivers the appropriate food e.g. modified texture diets, to the correct resident and reduces the risk of choking.¹⁰ Service providers also need to consider whether the option they select will prevent them from changing their food model in the future.

⁷ (Aged Care Quality and Safety Commission)

⁸ (J B Hillen, 2015)

⁹ (A. Palese, 2019)

¹⁰ (Ibrahim, 2017) p.15

Studies show that around half of those in residential aged care are malnourished, with even higher rates for those with dementia¹¹. The use of dietary supplements is often ineffective and costly, with recent evidence showing that improvements in nutrition and quality of life can be achieved through greater resident involvement in food preparation and staff practices that focus on the dining experience for residents¹².

Depending on the location of the residential aged care facility, main meals may be provided pre-prepared from a centralised kitchen on site or elsewhere, or cooked fresh in the unit. Regardless of the overall food services model, each household unit within a residential care facility should be provided with a kitchen that is accessible to residents where staff and residents who are able and wish to do so can assist in preparing and/or plating food.

Further information on the topic of food in residential aged care and its impact on quality of life in residential aged care is available from [The Lantern Project website](https://thelanternproject.com.au/) <https://thelanternproject.com.au/>

3.7 Linen handling

Refer to *Australasian Health Facility Guidelines*, Part D Infection Prevention and Control.

3.8 Waste management

Refer to *Australasian Health Facility Guidelines*, Part D Infection Prevention and Control.

3.9 Infection prevention and control

The criticality of protecting residents, staff and visitors within residential aged care settings through the implementation of effective infection prevention and control mechanisms is highlighted by the current COVID-19 pandemic. Guidance in relation to the best operational, procedural and physical mechanisms is changing as the situation evolves and a greater understanding is gained regarding the course of the disease and the routes of transmission.

The design of the residential aged care facility should respond to previously issued guidance in relation to general infection prevention and control such as the National Health and Medical Research Council's *Prevention and Control of Infection in Residential and Community Aged Care* 2013.

Note: This guideline was recently rescinded to allow the preparation of updated guidance related to the COVID-19 pandemic but provides useful information regarding a general approach.

The Australian Department of Health recently released a new guideline specifically addressing the requirements for prevention and control of COVID-19 in residential aged care facilities.¹³ The Communicable Diseases Network Australia also released a national guideline for the prevention, control and public health management of COVID-19 outbreaks in residential care facilities in Australia.¹⁴

Design of facilities should consider wherever possible a configuration that supports best practice approaches that minimise the transmission of infection. These include:

- the ability to effectively isolate or cohort residents in the event of an outbreak. The provision of all single bedrooms with dedicated ensuites for residents supports this

¹¹ (C. Watterson, 2009)

¹² Hugo, C, Australian Journal of Dementia Care, Vol 7, no 2 April/May 2018; pp23-27

¹³ (Infection Control Expert Group, 2020)

¹⁴ (Communicable Diseases Network Australia, 2020)

- consideration of flows throughout the building to minimise potential cross contamination between clean and dirty activities
- the placement of fixtures such as clinical handwashing stations and dispensers for personal protective equipment (PPE) and hand rubs to support infection control. Careful co-design is required to locate and design these so they are readily accessible to care staff but do not make the residential environment feel institutional or clinical. Dedicated, discreet, lockable storage is required within each resident's bedroom for exclusive use by staff so they have ready access to a supply of consumables they may require when providing care to the resident, particularly during periods of pandemic.

The building design should support the development of staff practices that minimise the risk of infection transmission, rather than focusing on additional workarounds that a poorly designed environment requires to maintain good infection control.

Heating, ventilation and air conditioning (HVAC) systems also play a role in preventing and managing the transmission of airborne infectious diseases. The VHHSBA [technical guideline for HVAC systems](https://www.vhhsba.vic.gov.au/resources/technical-guidelines) in hospital settings is also a useful resource for residential aged care services <<https://www.vhhsba.vic.gov.au/resources/technical-guidelines>>.

Many family members and carers have been prevented from visiting their loved ones during the COVID-19 pandemic as residential aged care facilities were locked down to prevent the vulnerable residents from potentially acquiring the virus. This has caused much distress and diminished the quality of life for some residents. The design team should consider design ideas that enable these important and sustaining visits to continue without the associated risk to the resident's safety, e.g. a bedroom design or purpose designed visitor's room that allows visitors to sit outside in a garden space with appropriate seating and shelter and see and converse with their loved one via an operable window or door.

4 Planning models

4.1 Location

A residential aged care services facility should be convenient to access for the community it is intended to serve. This will enable residents to maintain community, social and family links and supports that are critical to their wellbeing.

Public sector facilities have previously tended to be built on acute or sub-acute hospital campuses, where space allows, or as stand-alone facilities in suburban settings. Co-location with hospital services can provide operational efficiencies, particularly in non-metropolitan areas where the number of residential aged care beds required to meet the need is economically unsustainable as a stand-alone facility. Where an aged care facility is co-located with acute services on a hospital campus, the facility should be sited and orientated so that it has its own street presence and address and retains the desired residential character.

Other factors to consider in selecting a location and site for the construction of an aged care residential facility are co-location with other community facilities or support services that provide opportunities for intergenerational interactions along with either participation or 'spectating' in the activities of daily community life.

4.2 Site selection

The size of the site proposed as the location for a residential aged care services facility will vary depending on:

- availability of land in the desired location
- the number of beds to be accommodated
- whether demand for services is expected to grow and futureproofing is required
- construction type, for example single storey or multi-storey.

The department provides a generic site evaluation spreadsheet that project teams should use when considering the suitability of potential sites. In addition to site area, the evaluation spreadsheet considers factors such as the topography and shape of the site, adjoining uses, access to public transport and road networks, whether required functional relationships can be achieved and planning issues such as zoning and overlays (refer to Appendix 1).

4.3 Facility size

Multiple factors are driving a consolidation of beds in PSRACS in metropolitan areas into larger facilities accommodating between 90 and 150 residents.

These drivers include the opportunities that consolidation creates to:

- provide residents with enhanced care by improving access to a broad range of highly skilled, specialist clinicians and non-clinical staff
- provide purpose-built facilities that support contemporary models of residential aged care, with a particular focus on the needs of residents with complex physical and/or mental health needs or who require end of life or palliative care
- support the needs of residents and their visitors for privacy and dignity and better meet community and resident expectations regarding facility amenity

- develop more flexible services able to respond to changing care needs of the local community
- create the critical mass to support an enhanced range of support services that enable the service to augment the services provided to improve resident and operating outcomes
- support other activities such as research, teaching and staff training to inform development of models of care that better address the needs of older people requiring residential aged care.

The size of a planned residential aged care service will reflect community needs for services, so space and activity requirements will vary from facility to facility. The total number of residents, staff, and visitors the residential aged care service needs to accommodate should be considered in designing spaces and activity areas.

Issues to be considered include:

- maintaining an appropriate 'homelike' scale and character within a facility that accommodates many residents
- the role and capability of the facility
- the care needs of residents (e.g. acuity, dependency and clinical complexity)
- characteristics of the local population catchment (e.g. indigenous consumers, other social and cultural considerations)
- requirements specific to groups with complex care needs
- the extent and type of lifestyle programs to be provided
- whether the facility will be used to operate related programs (e.g. transition care, intergenerational programs)
- where staff need to be positioned in the facility to support residents and what they need nearby to support them to deliver safe, effective person-centred care
- creation of a homelike environment
- the privacy requirements of residents.

5 Design principles

5.1 Design approach

5.1.1 Co-design

Co-design is a participatory approach to design that “enables a wide range of people to make a creative contribution in the formulation and solution of a problem”. The approach is based upon equal collaboration between a wide range of people and in which “users, as ‘experts’ of their own experience, become central to the design process.”¹⁵

Research shows that involving care recipients or those from the perspective of the care recipient in “all aspects of their service, including in service design, planning, delivery, monitoring and evaluation” provides valuable insights into how aspects of design can support or detract from the overall care experience.¹⁶ The voices of residents are a crucial element in fulfilling the role and function of the service and their ongoing and regular involvement will assist in capturing and responding to changing needs and preferences over time. Engaging care recipients, carers and advocates in the collaborative codesign of new or refurbished accommodation for aged residential care services will ensure that critical elements of the care model are not lost in its translation into a built outcome.

5.1.2 Design quality

Design quality is achieved when the full, complex suite of factors that shape residential aged care service delivery and facilities are carefully reviewed and considered utilising a codesign process involving a project team with a broad range of diverse experience and expertise. The broader project team will include those with policy, operational and clinical expertise, those with lived experience as a resident and/or carer, other staff and a team of designers. This requires the department’s stakeholder engagement activities to “shift from traditional methods of ‘inform and consult’ to ‘involve and collaborate’.”¹⁷

The department is committed to the provision of public sector residential aged care services facilities that demonstrate a high level of design quality in line with the objectives set out by the Office of the Victorian Government Architect (OVGA).

These objectives are to encourage high quality buildings and public spaces that:

- are engaging, diverse and inclusive
- are environmentally, economically and socially sustainable
- promote confidence and wellbeing in the community
- are culturally rich and poetic.¹⁸

For larger developments, project teams may consider seeking input into the planning and design of a proposed facility from the OVGA’s Victorian Design Review Panel (VDRP).¹⁹ The VDRP consists of highly experienced built environment professionals and provides independent and authoritative advice to government and statutory bodies across Victoria about the design of significant development proposals.

¹⁵ What is co-design? <<http://designforeurope.eu/what-co-design>>

¹⁶ Aged Care Quality and Safety Commission <<https://www.agedcarequality.gov.au/>>

¹⁷ (Department of Health and Human Services, 2019)

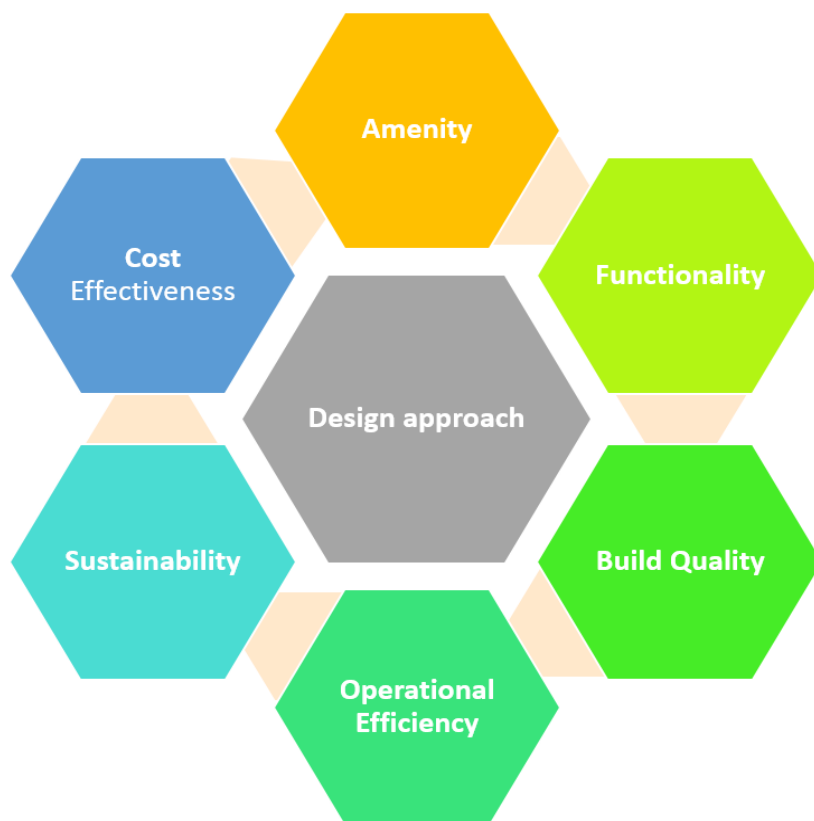
¹⁸ (Office of the Victorian Government Architect, 2014)

¹⁹ Victorian Design Review Panel <<https://www.ovga.vic.gov.au/design-review>>

The department identifies seven key overarching principles as fundamental to the achievement of high-quality design outcomes in its facilities. These are:

- overall design approach
- amenity
- functionality
- build quality
- operational efficiency
- sustainability
- cost effectiveness.

Figure 1: Department of Health and Human Services—design quality indicators



5.1.3 Evidence-based design

Public sector residential aged care facilities typically provide accommodation and care for a higher proportion of people with complex physical and/or mental health care needs than the private sector.

While there is a growing body of research into the impact that the design of residential aged care facilities has on outcomes for residents, there is still limited evidence to support arguments that a specific design solution will absolutely deliver the outcome desired in all instances. Multiple factors interact to produce health, wellbeing and behavioural outcomes, so project teams must critically evaluate any research, post occupancy evaluations and observational studies in operational facilities to develop design solutions that are an appropriate fit for their resident cohort, their model of care and the regulatory and funding context in which they operate.

Useful resources for project teams include:

- *Evidence Based Design Journal: Aged Care*²⁰ which provides a review of existing evidence concerning the design of residential aged care facilities.
- The Center for Health Design's *Health Environments Research and Design* (HERD) journal.

5.1.4 Dementia friendly environments

People with dementia account for 52 per cent of residents in all residential aged care facilities²¹, with public sector residential aged care services accommodating greater numbers of people living with cognitive impairment in addition to a range of other complex physical and mental healthcare needs that are typically not represented in the broader sector. Design principles that support people living with dementia and other cognitive impairments is a fundamental requirement for new residential aged care facilities as these principles can significantly improve a person's function and quality of life. In addition, the consideration of dementia friendly/enabling environments provides a more universal solution that caters to a range of functional needs for all older people in general. A dementia friendly environment also better supports people with sensory impairments, other neurological conditions and functional decline as its principles work to maximise independence and safety using an intuitive, ergonomic design that feels familiar and welcoming.

The Department of Health and Human Services provides a comprehensive online resource that service providers, carers and families who support people with dementia can access for guidance on the creation of dementia-friendly environment. The guide is derived from current research, knowledge and practical experience in the building or renovating of physical environments and providing high-quality, person-centred services. Project teams should refer to the dementia friendly environments toolkit at the commencement of a project.²²

5.2 Principles for creating dementia-friendly environments²³

Key messages:

- For people with dementia, their physical and social environments become more and more difficult with changes in cognitive capability.
- A dementia-friendly environment helps people with dementia reach their full potential and does not cause needless disability.
- Design for people with dementia should be in line with people's social and cultural activities, their needs and capabilities, and organisational policies and procedures.
- Dementia-friendly environments are created around the experience of dementia, a flexible approach to maximise people's freedom and involvement, and minimising regimentation.

The nine principles supporting the creation of dementia-friendly environments set out in the Department's Dementia friendly environments guidance are described below in Table 1.

²⁰ (van Hoof & Marquardt, 2016)

²¹ <https://www.dementia.org.au/files/NATIONAL/documents/The-economic-cost-of-dementia-in-Australia-2016-to-2056.pdf>

²² (Department of Health and Human Services, 2015)

²³ (Designing for people with dementia)

Table 1: Principles for creating dementia-friendly environments²⁴

	Principle	Detail
1	Keep health at the best possible level	Making sense of the world is a huge task for a person with dementia. Poor health can have a harmful impact, creating confusion and discomfort and limiting the use of a person's remaining abilities.
2	Make up for reduced sensory, cognitive and motor ability to support independence	People with dementia find it harder and harder to interpret the environment and over time become more limited in movement and agility. Their environment can enable them to live well, and should provide discrete support. They should be encouraged to be active and keep their skills and abilities for as long as possible.
3	Support continuation of roles and lifestyles	People with dementia have different interests and pastimes. Designing daily life around interests and pastimes gives people pleasure; makes use of their skills and abilities; makes important links with people and places that were/are important in their lives; adds variety and interest; and is stimulating, reducing boredom, anxiety, stress and frustration. The focus is on being alive rather than on being a person with dementia.
4	Support abilities through meaningful daily living	Focus on what a person with dementia can do and encourage them to join in. Daily activities should mean something to the person, not just fill in time.
5	Respect the right to freedom of choice and speech	People with dementia are individuals. They do not all want to do the same things. Respect a person's decisions about their life and support them to do and say what they want, as far as they can.
6	Have valued settings of a home-like environment	Residential facilities are where people live, and people should feel at home. Home environments can take many forms, but they all have certain domestic qualities. A home-like setting reminds people of home, lets them continue the tasks of daily living, uses their existing skills and gives choice and independence with familiarity and comfort. A familiar environment has recognisable features: furnishings and furniture, building layout, room size, view and exterior.
7	Respect privacy, dignity and personal possessions	The need for privacy and respect when bathing and dressing is taken for granted by many. Privacy and dignity may mean being able to spend time in your room or the garden without someone watching you, or being on your own rather than with others. Personal possessions help create a familiar environment and can be a source of joy for people with dementia. They tell us a lot about a person especially if the person is no longer able to do so, and can be a topic of conversation for visitors and family members.
8	Give choice of activity and involvement	People with dementia have different life interests and needs at different stages of the disease. One person may be able or prefer to do something that may be frustrating or stressful for another. The environment should have different indoor and outdoor experiences and options for active and passive involvement.
9	Provide safety and security while supporting independence	Daily living should be about options for people with dementia to join in and pursue their interests without taking needless risks. They should be able to move about and do things without injuring themselves. Obstacles, barriers, poor lighting, glare and hazards should be removed.

²⁴ (Designing for people with dementia)

Professor Richard Fleming and Kirsty Bennett of Dementia Training Australia have also developed a set of principles for the design of dementia enabling environments that are useful for project teams to address in the planning for new or refurbished facilities.²⁵

5.3 Key principles for residential aged care services facilities

The design of residential aged care services facilities involves achieving a carefully considered balance between multiple aspirations and objectives while meeting a range of regulatory and accreditation requirements²⁶. There is therefore no one single layout or generic 'template' for the planning and design of residential aged care services facilities.

The design of each facility must respond to the unique conditions specific to the project, including:

- its physical location and context
- the cultural, social, spiritual and physical support needs of the resident population it is intended to serve
- the operational model proposed to be implemented by the service provider (e.g. provision of meals, staffing profiles and planned services and programs for residents).

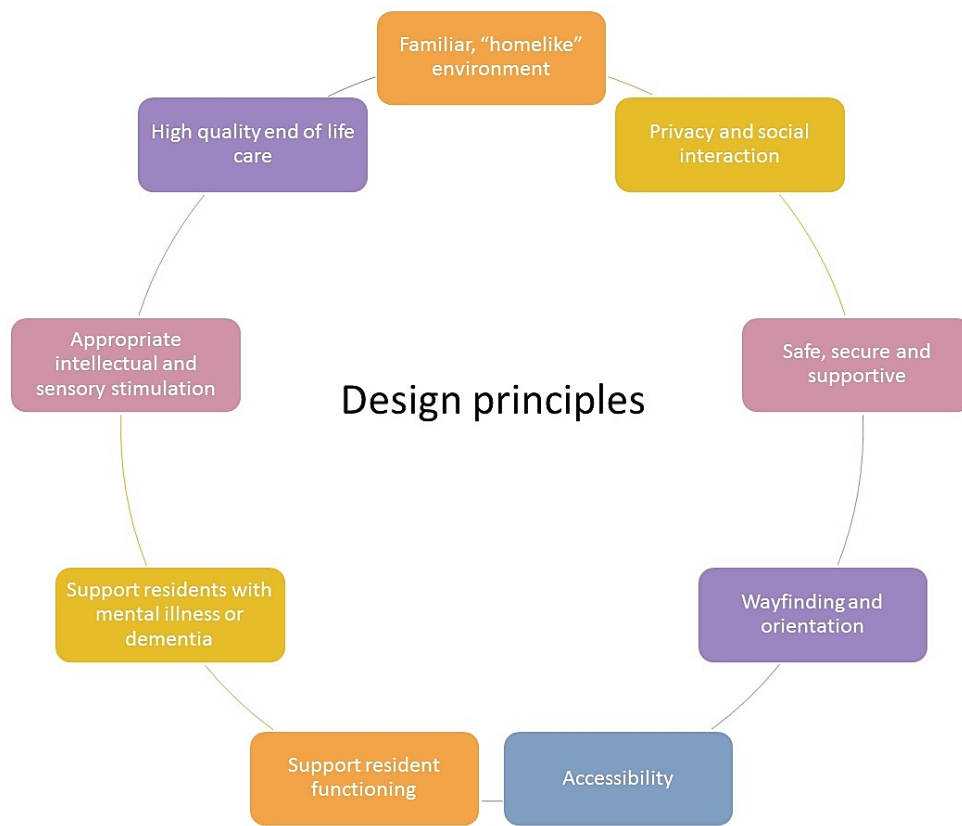
The issues specific to residential aged care facilities and that should be considered within the department's overall design quality framework are:

- provision of a familiar and 'homelike' environment
- supporting resident privacy while providing opportunities for meaningful social interactions
- creating a safe, secure and supportive environment that minimises or eliminates the use of restraint
- wayfinding and orientation
- accessibility
- supporting resident independence and functioning
- supporting residents with mental illness or dementia and other neurological conditions
- providing appropriate intellectual and sensory stimulation
- providing high quality end of life care.

²⁵ <https://www.enablingenvironments.com.au/dementia-enabling-environment-principles.html>

²⁶ <https://www.agedcarequality.gov.au/providers/standards>

Figure 2: Aged care residential facility—design principles



6 Design strategies

6.1 A familiar, 'homelike' environment

Research has shown that providing residential aged care in a clustered, domestic model is associated with:

- reduced hospitalisations and presentations to emergency department
- better alignment with the preferences of residents and their families.

Both factors have delivered improved health and quality of life outcomes at a similar or lower cost than that of services utilising a traditional residential unit.²⁷

The design of a residential aged care facility should endeavour to provide a familiar and 'homelike' environment for the range of residents in the community it is intended to serve. While the detached house is the most common type of dwelling structure in Victoria²⁸, housing choices vary for residents according to the location in which they live (e.g. inner urban, suburban, regional or rural), their personal cultural, social and economic history, and may vary at different points throughout their life.

Residents may have lived in a range of different dwelling types including detached, semi-detached or terraced, single or multiple storey houses, town houses, apartments, villa units or rooming houses. Residents may also have lived alone, lived as part of a multi-generational family or other shared household or lived independently in a property with several other unrelated people.

This range of personal, social and built environment experiences should be considered when designing to provide a 'homelike' environment. Designers must avoid providing a single typology for aged care residential facilities that represents the experience of only one group of people and is potentially alienating for other potential residents.

Consideration of what constitutes a 'homelike' environment should extend beyond the external appearance. Designers and project teams should consider how internal spaces are shaped and organised to replicate the familiar patterns of use common in the environments that people inhabit, e.g. the positioning of private bedrooms relative to shared living spaces, the relationship between indoor and outdoor spaces.

6.2 Supporting resident privacy

Privacy is understood in this guideline as the ability of each resident to control access to themselves and their personal space by others and to select the degree and timing of any interaction they may wish to engage in with others. The ability of residents to express choice and control in everyday life is inherently linked to quality of life.²⁹ While a range of factors impact on each resident's ability to exercise this control, careful zoning and organisation of spaces within the residential aged care facility will greatly assist residents to achieve their desired levels of privacy and social interaction and also underpin the creation of a 'homelike' environment.

Zoning should provide a 'privacy gradient' that presents each resident with opportunities to choose the level of social interaction they desire at various times (refer Figure 3). Zoning to achieve the desired privacy gradient requires the provision of:

²⁷ (Dyer, et al., 2018)

²⁸ (Australian Bureau of Statistics, 2013)

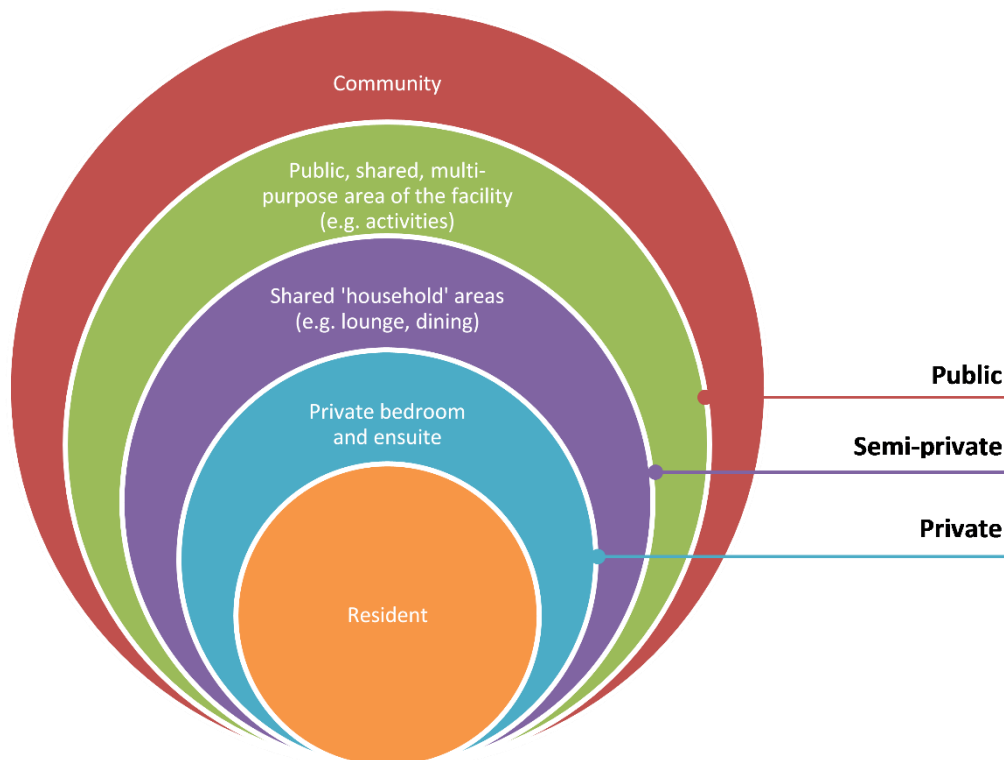
²⁹ Woolford et al 2020 p.1

- **A private area**—a private bedroom and ensuite for each resident.
- **A semi-private area**—a small sitting area associated with each bedroom ‘pod’ as well as a shared dining room and living room associated with each ‘household’. Locating the dining room and living room adjacent to each other will allow them to expand or contract according to need and required use throughout the course of the day. This semi-private, shared residential area should also have access to an external area dedicated to the use of the occupants of this ‘household’.
- **A public, shared, multi-purpose area**—used by all residents of a typical 30-bed unit for scheduled activities throughout the day, for larger family gatherings or performances by visiting groups. Residents must be able to access the multi-purpose area without traversing the private and semi-private spaces of another ‘household’ cluster.
- **Staff areas**—staff work bases/perch points/hot spots distributed throughout the ‘households’ to support the development of different models of care and provide access to resident records etc. closer to the point of care, as well as facilities and amenities for when staff are on a break or participating in meetings, training or other development activities.
- **Back of house**—a separate zone for functions to minimise intrusions into resident private zones
- A welcoming **entry/arrival space** for visitors.

Refer also to:

- AS1428 1-4 Design for access and mobility
- NSW Health Guideline GL2014_018 Wayfinding for Healthcare Facilities.

Figure 3: Aged care residential facility—privacy gradient



6.3 Safe and secure environments

A safe, secure and supportive environment is achieved within a residential aged care facility through the provision of an appropriate mix and number of staff, the implementation of and adherence to robust operational policies (including regular risk assessments and reviews of risk management strategies) and a facility design that achieves an appropriate balance between resident amenity and privacy and their safety.

The facility design should:

- support falls prevention strategies (clinical processes to identify and address potential falls risk factors) as falls are the most common and greatest risk to resident health and wellbeing and the most common reason cited for the use of restraint
- reduce the potential for residents to intentionally self-harm, particularly in areas accommodating residents with a mental illness
- reduce environmental stressors that may agitate residents and trigger responsive behaviours such as verbal and physical aggression
- incorporate design features and technology that supports unobtrusive monitoring of residents so they can move freely and safely within and outside the building as they choose. This also supports compliance with enhanced regulatory requirements around minimising the use of restraint.

The regulatory requirements around the use of restraint have been strengthened and now form a key element in quality of care.³⁰ Building design must support all residents with varying physical and cognitive abilities to independently access their living environment safely and when they choose to do so.

Restricting a resident's free movement within their environment by using locked doors, doors that cannot easily be opened by people with mobility aids and by restriction of access to outdoor areas to only times when staff can assist is considered a form of restraint. The restriction of a resident's capacity to take risks impacts their quality of life. A person-centred model of care supports residents to take risks whilst maximising safety.

A lack of purpose-built facilities has been identified as an impeding factor in affording residents the dignity to take risks and in doing so creates restrictive practices that impact on the resident's independence and quality of life. Thoughtful building design combined with the use of unobtrusive technologies can further enhance the safety of residents exercising the dignity of risk to move freely throughout their environment. Items that support the choice of free movement for all residents regardless of physical ability or cognitive impairment include sensor automated doors, safe and enticing outdoor areas that can be seen and accessed from communal lounge areas, minimal/passive wayfinding options into and out of the living environment and design that supports active staff presence and engagement in the living areas to provide a level of constant passive supervision.

Design strategies to reduce falls include:

- providing lines of sight for staff to resident occupied areas. Services must consider how they will balance the inherent tension between the requirements to support resident privacy and the need for staff to unobtrusively monitor residents. Lines of sight should not be dependent on a panopticon design in which a staff member can see every resident area from a central staff location, but should enable staff to move throughout the facility, perch at different locations and discreetly monitor and engage with residents
- provision of handrails to corridors, ensuites and other areas

³⁰ (Government of Australia, 2014)

- provision of fixtures designed to assist resident independent functioning e.g. vanity basins with inbuilt hand grips
- providing sensor-activated, low-level night lighting to aid residents who may get out of bed at night
- considering the position of the bed in the resident's room so that ambulant residents have a continuous wall or handrail to steady themselves against when seeking to access the ensuite
- use of technological options that alert staff when residents who have a high risk of falls get out of bed or are moving around their room
- careful selection of floor coverings to minimise risk of slips and trips, particularly at the junction between different floor covering materials.

Whilst residential aged care services facilities are not equipped to manage acute episodes or exacerbations of mental illness where residents may self-harm, unobtrusive design strategies that support staff to reduce the potential for at-risk resident cohorts to self-harm (typically in the less observable areas of the unit such as ensuites and bedrooms) include:

- referencing the *Australasian Health Facility Guidelines* HPU 131 Mental Health – Overarching Guideline
- ensuring enclosures to outdoor areas above grade are not able to be scaled.

The overarching principle to provide a familiar and homelike environment is paramount. Any modifications to standard designs, fixtures and fittings that accommodate residents with a greater potential to self-harm due to mental illness must consider the risk context and determine solutions that are proportionate to the risk and in keeping with the provision/ideal of a homelike setting as opposed to an institutional environment.

The design should also minimise environmental stressors that may lead to residents becoming agitated and/or aggressive. This is particularly important in for people with cognitive impairment and a history of mental illness. Design strategies include:

- providing adequate space in shared areas to reduce feelings of being crowded
- providing smaller sitting/quiet spaces within each pod of beds so residents have a choice of spaces and interactions and which staff can use to support residents displaying responsive behaviours
- considering the location of through paths and doors within any functional area to maximise its usable area and minimise any potential annoyance caused by residents or staff walking through and disrupting an activity
- careful consideration of acoustic design to minimise annoyance from impact noise and air borne noise.

6.4 Wayfinding and orientation

Wayfinding to and within the facility should be legible, easily understood and dementia friendly to assist residents, staff, carers and visitors to easily navigate the environment.³¹ There is sound evidence that appropriate design solutions for wayfinding and orientation can support people living with dementia navigate their environment more effectively. This results in residents being able to exercise greater choice and control, improves independence and relies less on staff intervention and redirection of residents that often triggers agitation and other responsive behaviours.

Wayfinding strategies should consider:

- the scale of the environment experienced by residents

³¹ <https://www.enablenvironments.com.au/orientation-and-wayfinding.html>

- legibility of the overall layout
- meeting the needs of residents with sensory impairments
- the number and length of corridors provided
- the selection and placement of the minimum amount necessary of appropriate and easily intelligible signage. Studies suggest that combining written signage with images to identify destinations is an effective wayfinding aid.³² Careful consideration should be given to the placement of signage to ensure it is at a height easily seen by residents, that it contrasts with the surface it is mounted on and there is sufficient clear space around it so it is not obscured by clutter
- clearly signalling the purpose or function of spaces through careful selection of fixtures, fittings, furniture and finishes
- providing a clear circulation system
- providing paths, edges, districts (zones), nodes and landmarks to assist residents
- the role of lighting and sound in encouraging residents to move between different areas
- priming i.e. using “repetitive stimuli to produce a non-cognitive response. Strategies include using short, looping circulation paths, a unique sequence of unobtrusive route identifiers and nodes with clear lines of sight to the next destination.”³³

6.5 Scale

Research indicates that reducing the scale of the environment experienced by residents by clustering beds to form more intelligible ‘households’ of from nine to 24 residents, particularly when accommodating mobile people with dementia, assists with orientation as well as reducing over-stimulation that can occur in large, busy environments.³⁴ The Dementia Training Study Centres recommend configuring units to have a maximum of ten bedrooms per cluster.³⁵

Careful consideration should be given to producing designs that enable this clustering of bedrooms and their associated shared living spaces into smaller, more intelligible zones while at the same time supporting staff supervision, cost-efficient operational models and the potential to share back of house spaces with other adjacent clusters.

The proposed staffing model for the household cluster, including any mandated nurse-resident ratios across shifts will determine the optimal number of rooms per unit and their configuration into smaller ‘pods’ or ‘households’.

6.6 Accessibility

Planning and design teams are to ensure that the design and fit-out of public sector residential aged care facilities are developed in accordance with the principles of human-centred design. The intent is to produce environments that are suitable for use by people with a wide range of abilities. It is closely aligned with the concept of universal design, which is the process of designing products and environments to be used by everyone, to the greatest extent possible, without the need for adaptation or specialised design.³⁶ The approach should go beyond mere conformance with regulations and standards and seek to build environments that are fully inclusive of all people.

³² (van Hoof & Marquardt, 2016); p.8

³³ (van Hoof & Marquardt, 2016); p.8

³⁴ (Nanda, 2012); p.6.

³⁵ (Richard Fleming, The Environmental Audit Tool); p.4

³⁶ (Victorian Department of Health and Human Services, 2016)

The principles of universal design developed by The Center for Universal Design are set out in Table 2.

6.6.1 External

To facilitate safe and easy access to the facility for all residents, carers, staff and visitors the following factors should be considered:

- provide dedicated, level, drop-off spaces and disabled car parking spaces close to the entry to the facility
- provide a covered entry/exit point for people alighting from vehicles in inclement weather. The covered entry should be designed to accommodate a range of vehicles of different sizes and heights (e.g. taxis, buses, emergency patient transport vehicles, fire trucks)
- design for equality of access for people with disabilities and for those using wheelchairs, electric scooters and other mobility equipment e.g. automatic opening doors, no stairs
- separate pedestrian movement from vehicle movement
- provide separate access to the back of house area for service vehicles.

6.6.2 Internal

To enable easy and safe internal access while retaining a domestic feel, the following principles should be considered:

- corridor and passageway widths should accord with the *National Construction Code* requirements for the relevant building classification (in a Class 9c building, generally a minimum clearance of 1500mm between handrails in a public corridor and 1800mm for the full width of the doorway, providing access to a sole occupancy room, although other factors also need to be assessed by a relevant building surveyor)³⁷
- long, straight corridors with multiple bedroom doors opening off them are to be avoided e.g. a corridor length of 21 metres allows for a maximum of ten bedrooms to open off a dual loaded corridor
- provide rest points for residents and carers at regular intervals along corridors (generally no more than 14 metres apart)
- avoid blind spots in corridors, particularly around entrances to bedrooms or corridor junctions to prevent potential injuries due to residents bumping into each other, staff, trolleys or mobile equipment.

Refer also to the:

- *Commonwealth Disability Discrimination Act 1992* (DDA)
- Australian Standard 1428 series (1428.1 to 1428.4)
- [Universal Design Australia](http://universaldesignaustralia.net.au/) <<http://universaldesignaustralia.net.au/>>
- *Australasian Health Facility Guidelines*, Part C Design for Access, Mobility, OHS and Security.

Table 2: Principles of universal design³⁸

Principles of universal design
Equitable use
Flexibility in use
Simple and intuitive use
Perceptible information

³⁷ (Australian Building and Construction Board, 2016); p.167

³⁸ (Victorian Department of Health and Human Services, 2016)

Tolerance for error
Low physical effort
Size and space for approach and use.

6.7 Supporting resident functioning

6.7.1 Supporting residents with sensory impairments

Aged care residential facilities must be designed to accommodate and support residents with sensory impairments. The use of cues and orientation (e.g. by changes or contrasts in colour, changes in material, varying corridor widths or change in direction) is very important for people with sensory impairments and assists in providing a built environment in which they feel comfortable and secure.

6.7.1.1 Vision

The effective design and management of natural and artificial light can have a major influence on the capacity of people with visual impairments to interpret and navigate the environment. Almost 50 per cent of Australians aged 55 or more have one of the four most prevalent types of eye disease.³⁹

It is known that over 52 per cent of residents in PSRACS will have a form of dementia⁴⁰. For people with dementia, a visual impairment as a result of changes in the physical structure of the eye is exacerbated by changes in perception, that is, by how they interpret the information they receive via their eye. For example, a dark pattern in a floor covering may be perceived as a change in floor level or as a hole in the floor, causing distress and potentially limiting mobility or resulting in falls as they attempt to step over it.

Designers should adopt an integrated approach to planning a daylighting system for the facility to ensure that adequate daylight is provided to occupied spaces without undesirable and avoidable negative side effects such as glare which can cause distraction and disorientation.⁴¹

The *Whole Building Design Guideline* makes several recommendations for factors to consider throughout the design process to ensure an optimal outcome is achieved. These recommendations are set out in Table 3.

Table 3: Whole building design guide—recommendations for daylighting system design⁴²

Recommendations of daylighting system design
Increase perimeter daylight zones by extending the perimeter footprint to maximise the usable daylighting area.
Reflect daylight within a space to increase room brightness. A light shelf, if properly designed, has the potential to increase room brightness and decrease window brightness.
Allow daylight penetration high in a space. Windows located high in a wall or in roof monitors and clerestories will result in deeper light penetration and reduce the likelihood of excessive brightness.
Slope ceilings to direct more light into a space. Sloping the ceiling away from the fenestration area will help increase the surface brightness of the ceiling further into a space.
Avoid direct beam daylight on critical visual tasks. Poor visibility and discomfort will result if excessive brightness differences occur in the vicinity of critical visual tasks.

³⁹ (Australian Institute of Health and Welfare, 2005); p.3

⁴⁰ <https://www.dementia.org.au/files/NATIONAL/documents/The-economic-cost-of-dementia-in-Australia-2016-to-2056.pdf>

⁴¹ (Ander, 2014)

⁴² (Ander, 2014)

Filter daylight. The harshness of direct light can be filtered with vegetation, curtains, louvers, or the like, and will help distribute light.

Understand that different building orientations will benefit from different daylighting strategies; for example, light shelves—which are effective on south facades (north facades in the southern hemisphere)—are often ineffective on east or west elevations of buildings.

Other strategies designers can use to assist residents with vision impairments with or without dementia include:

- using contrasting colours to highlight changes in surface plane to assist a resident with vision impairment to differentiate between walls and the floor
- avoiding a neutral colour scheme
- avoiding contrasting colours and patterns in floor finishes which can cause confusion (e.g. the appearance of a step can be given where floor surface materials or colours change)
- avoiding reflective floor finishes
- using contrasting colours to make elements that residents rely on for orientation or to aid mobility stand out from their background (e.g. brightly coloured handrails against a contrasting colour wall)
- using computer or physical models to test the passage of the sun throughout the day and determine whether façade treatments cast shadows on the walls and floor that may be disturbing for residents with a vision impairment and/or dementia.

6.7.1.2 Touch

Changes in surface texture can be used to define a change of function, particularly with flooring and wall materials. However, particular care should be taken with changes in texture of flooring in residential aged care services facilities to prevent potential tripping hazards. Abrasive wall finishes should also be avoided as they may cause discomfort or injury to residents who use the wall to guide or stabilise themselves.

6.7.1.3 Smell

Olfactory function also declines as people age with studies reporting that “more than 75 per cent of people over the age of 80 years have evidence of major olfactory impairment”.⁴³ This loss or reduction in the sense of smell is also accompanied by a loss of ability to discriminate between smells. This reduction or distortion in the sense of smell is reported to result in decreased quality of life, anxiety and depression in the elderly person.⁴⁴

As smell can be a rich source of stimulation, facility designers are encouraged to use smell where appropriate (e.g. a garden or walkway with perfumed plants). However, care should be taken to ensure residents are not overloaded with ‘aromas’.

In internal spaces designers should consider the elimination of unpleasant odours e.g. by providing good ventilation of ensuites and bedrooms.

6.7.1.4 Hearing

People with hearing impairments place a greater emphasis on visual cues that a well-designed lighting strategy will assist with. Careful consideration should be given to acoustic treatment and management of noise to provide acoustic comfort for all occupants as well as assist residents with hearing impairments to isolate sounds from unwanted background noise.

⁴³ (J M Boyce, 2006); p.239

⁴⁴ (J M Boyce, 2006); p.241

Excessive unwarranted noise is a distraction and can reduce both the comfort and ease of communication for all in the facility. Thoughtful acoustic design should be used to aid hearing, ensure privacy and maintain noise levels at a comfortable level.

Common challenges include:

- unwanted noise entering the building from external sources (e.g. heavy traffic)
- too much noise from adjacent spaces
- lack of sound control in the space itself.⁴⁵

Strategies for management of acoustics include:

- locating quiet spaces such as resident bedrooms and quiet living spaces away from any significant external noise source
- using appropriate construction and insulation to walls and roofs and seals to windows and doors
- using sound absorbing materials internally
- using acoustic treatments to contain noises generated by mechanical and electrical equipment such as fans and air conditioners
- providing a range of spaces to enable resident choice of noisy activities or quiet retreat
- providing acoustic separation to residents' bedrooms, consulting and interview rooms
- using sound attenuation in areas such as kitchens, toilets, plant rooms etc.
- considering the installation of an audio loop induction system in communal areas
- avoiding locating resident bedroom doors so that they open directly into a shared space such as a living room or activity space that may be frequently in use and noisy.

6.7.2 Signalling the purpose or function of spaces

Designers and facility operators should select fixtures, fittings, furniture and fittings that residents will associate with the intended function of the spaces being designed. For example, a domestic scale ceiling height, placement of domestic size tables and chairs, suspended lighting over tables and a sideboard display will assist residents to identify a space as a dining room.

In the living room, the ceiling may be a little higher, some furniture clustered around a focal point such as a television or fire place, provision of a book case, smaller nooks with comfortable chairs and task lighting for sitting alone and windows, along with doors opening to an outdoor landscaped space will assist residents to identify this as a living space in which they are welcome to sit and relax.

6.7.3 Circulation systems

Circulation systems should be in the form of short, continuous loops that connect bedrooms and social spaces, with a variety of multi-sensory nodes and large external windows along the way. Where short corridors are necessary, minimise the need for direction changes that require a series of connected, cognitive decisions to be made. Ensure that potential destinations are visible and, where possible, attention is attracted in one direction only. If two directions are required, then avoid dead end corridors.⁴⁶

Refer also to:

- AS1428 1 - 4 Design for access and mobility
- NSW Health guideline GL2014_018 Wayfinding for Healthcare Facilities
- any jurisdictional policies relating to signage.

⁴⁵ (Paradis, 2014)

⁴⁶ (van Hoof & Marquardt, 2016)

6.7.4 Landmarks, regions and nodes

Another strategy to aid wayfinding for residents is to utilise landmarks, regions and nodes. “Landmarks are memorable locations that help to orient the navigator; regions are distinct areas that place him (sic) in one part of the environment; and nodes mark points where wayfinding decisions are made. Since a navigator uses these features to record his (sic) past route-following experiences, a designed space that employs them should be more effectively navigable.”⁴⁷

A landmark in an aged care residential facility could be a threshold space at the entry to each household cluster (for example, a veranda like space with views and/or access to an external garden space). Differences in the design and treatment of these landmark spaces will assist residents in locating their household within the larger facility.

Each household within the facility should be considered as a zone with its own individual colour scheme, treatment of finishes and furnishings.

6.7.5 The role of lighting and sound in encouraging residents to move between different areas

Careful use of sightlines that provide residents with views to light, bright activity areas from which pleasant, familiar sounds such as music or laughter are originating may encourage them to investigate and participate in activities. View lines and corridors that terminate in blank walls will not encourage residents to walk along them and may cause agitation if they lead nowhere.

6.8 Providing appropriate intellectual and sensory stimulation

The department’s *Well for Life Toolkit* aims to support aged care residential services staff to promote physical and mental health and wellbeing among older people. The program focuses on the three elements of:

- physical activity
- nutrition
- emotional wellbeing.

Project planning teams and designers should consider the provision of spaces in residential aged care services facilities, their layout and design to support the implementation of the *Well for Life* program.

Copies of the [Well for Life Toolkit](https://www2.health.vic.gov.au/ageing-and-aged-care/wellbeing-and-participation/healthy-ageing/well-for-life) can be downloaded from the department’s website <<https://www2.health.vic.gov.au/ageing-and-aged-care/wellbeing-and-participation/healthy-ageing/well-for-life>>.

6.9 Supporting residents with dementia

The model of care, competencies of available staff and overall facility size will be some of the factors that determine whether residents who have dementia are accommodated in a dedicated dementia specific unit/‘household’ cluster or as part of a general unit to best meet their complex needs and “obviate the need to apply physical restraint” which should “only occur in extremely limited circumstances”⁴⁸

Resident to resident aggression has been identified as an emergent concern in residential aged care and commonly involves a resident or residents who have a diagnosis of dementia. It is an expression of

⁴⁷ (Lynch, 1960)

⁴⁸ (Ibrahim, 2017); p.20

unmet need by the resident/s.⁴⁹ It is recommended that the physical environment “be designed and used in a way that enables, rather than disables, residents with cognitive impairment.”⁵⁰

The Department of Health and Human Services website provides useful information for those engaged in creating a dementia friendly interior. Design strategies include providing:

- familiar, domestic features (furnishings and furniture, building layout, room size, view and exterior) that remind residents of home, lets them continue to participate in the tasks of daily living, uses their existing skills and provides choice and independence
- areas and features for individual use and personalisation so people control, live in and are at home in their own space (e.g. residential furniture, clocks and calendars)
- flexible design features promoting continuation of personal lifestyles, encouraging remembering and allowing for changes in people’s needs and responses
- spaces and rooms for small groups to promote a sense of an ‘extended family’
- different settings and features for interest and to encourage curiosity (e.g. raised garden beds)
- different environmental cues to highlight the purpose of different spaces and location of items
- discreet safety features to support resident freedom and reduce risk is to acceptable levels.

Refer to the Department of Health and Human Services [website on ageing and aged care](https://www2.health.vic.gov.au/ageing-and-aged-care/dementia-friendly-environments) for further information on factors that contribute to the creation of a dementia friendly environment <<https://www2.health.vic.gov.au/ageing-and-aged-care/dementia-friendly-environments>>.

6.10 Supporting residents with mental illness

The environment provided for residents with a mental illness should be safe and secure yet remain ‘homelike’ and supportive. The design of a public sector residential aged care facility must be guided by contemporary research to promote the perception of freedom and independence while reducing the likelihood of unexplained absences and exit seeking behaviours by residents.

On occasions, the environmental conditions required to support an aged person with mental illness will conflict with departmental policies and standards for safety in design for mental health accommodation. For example, the department typically requires that furniture, fixtures and fittings provided in bedrooms and ensuites intended as accommodation for people with a mental illness be specifically manufactured and marketed as anti-ligature type and installed in accordance with the manufacturers specifications.⁵¹ However, some of these features for example, anti-ligature grab-rails, may impede the independent functioning of older people.

Early in the planning process, the project team comprised of the service provider, the VHHSBA, the department and the consultant team should undertake and document a rigorous assessment of anti-ligature fixtures and fittings available for potential use within consumer areas of older people’s acute mental health inpatient facilities to identify those that best achieve the dual objectives of reducing the risk of self-harm and reducing the risk of falls (for example, an anti-ligature grab-rail in an ensuite may remove the risk of residents with a mental illness attaching a ligature to it but may increase their risk of falls because the strength of their grasp is impeded by the in-fill). Where an anti-ligature product that satisfies both criteria cannot be sourced and the installation of an anti-ligature product is likely to increase the risk of resident falls and associated adverse outcomes, the project team may select a non-anti-ligature product. They should note this as a potential ligature risk within their risk register and ensure that the potential risk is regularly communicated to staff and is routinely monitored and assessed.

⁴⁹ (Ibrahim, 2017); p.172

⁵⁰ (Ibrahim, 2017); p.22

⁵¹ Australasian Health Facility Guidelines HPU 131—Overarching Mental Health Guideline

Project teams should consult the *Australasian Health Facility Guidelines* and liaise with the VHHSBA and the Aged Care program area for advice and guidance on the identification and selection of appropriate products. Any of these special purpose products must be carefully considered and selected by the project team as early in the planning process as possible to enable products that need to be sourced from overseas suppliers to be ordered in time to meet the construction program. Careful selection will ensure the complex, functional requirements of residents are met while also enabling a 'homelike', non-institutional environment to be achieved.

6.11 Providing high quality end of life care

The Victorian Government is committed to improving end of life and palliative care for all Victorians and has released a new end-of-life and palliative care framework. The framework redefines end-of-life care and guides improvements for providers across all sectors, as we redesign our services to be responsive and effective.

The framework sets out a foundation for end of life and palliative care by:

- providing clear expectations about how end-of-life and palliative care will be delivered
- guiding healthcare, human services, social and community sector practices
- identifying actions to ensure end of life and palliative care services are sustainable
- ensuring Victorians are provided with safe and effective end-of-life care.

Refer to the department's [End of life and palliative care framework](https://www2.health.vic.gov.au/hospitals-and-health-services/patient-care/end-of-life-care/palliative-care/end-of-life-and-palliative-care-framework) for further information
<<https://www2.health.vic.gov.au/hospitals-and-health-services/patient-care/end-of-life-care/palliative-care/end-of-life-and-palliative-care-framework>>.

7 Other

7.1 Functional planning

Typical residential aged care services facilities comprise the following functional zones:

- arrival areas (entry / reception)
- living areas – communal
- living areas – private
- living areas – external
- clinical support areas
- staff offices and amenities
- service areas.

The main entry should provide easy access to all areas of the facility without long travel distances. The staff base/ reception is required to be located with direct access / relation to the entrance for assistance and discreet supervision of residents.

To highlight the importance of infection control and to minimise the transmission of illnesses commonly associated with increased morbidity and mortality/harm in the aged care setting, consideration should be given to the promotion of hygiene through either hand washing or sanitising equipment at the main entrance of each facility, in addition to areas within specific units or wings of the building.

The residents' bedrooms and private living areas such as quiet sitting rooms are to be in the quiet area of the building with direct and easy access to communal living areas, support areas and therapy areas.

Staff administration areas and clinical support areas are to be located centrally for efficient support of all areas in the facility.

Staff amenities may be located away from the main central staff hub within a quieter zone in the facility with access to external areas.

Refer to Appendix 3 for the indicative functional relationships diagram.

7.1.1 Arrival areas (entry / reception)

The main entry will provide an easily identifiable, accessible, inviting and 'user friendly' entrance to the facility. There should be safe, undercover drop-off and parking nearby for ease of access for residents, carers and visitors. It should have a main arrival point, reception and a small waiting space. The waiting area should provide a range of seating options for three or four people, hanging space for coats, umbrellas or other items, access to public toilets and a public telephone.

This area should also provide information for people entering the facility. This includes information and equipment that promotes good infection control and prevents the transmission of illnesses commonly associated with increased harm in older people.

The front entry should be readily viewable from the reception, particularly after hours, to enable staff to monitor people entering and exiting. This is particularly relevant where a facility accommodates residents with dementia.

7.1.2 Living areas – communal

Communal lounge rooms and dining rooms need to be near the entry to the unit to provide visitors with easy access to residents. Emerging research highlights promising mental health benefits using greenspace and exposure to greenery in residential aged care facilities. Communal areas should therefore be designed to have direct access and views to an external area.

The communal living zone should encourage social interaction between residents and the community. It should be easily accessible without traversing resident private zones and should have direct access to external spaces and views of community activities.

7.1.3 Living areas – private

The aim of the private living zone is to provide residents with privacy and a quiet space within the facility.

7.1.4 Clinical support areas

The clinical support areas need to be accessible to and controlled by staff only. This area needs to be located central to the overall facility to minimise staff travel time.

7.1.5 Service areas

The sheltered service entry should allow deliveries to the facility to be made without having to pass through the main entrance of the building.

Careful consideration is required to determine how general supplies, food services, linen services, building maintenance services and waste management services are distributed to, stored and collected from the individual units and 'households' or 'pods' efficiently and with minimum disturbance to residents.

7.1.6 Staff areas and staff amenities

The staff administration area enables staff to supervise the facility's main access point and the residents' main living areas, write reports, store residents' care records, undertake photocopying, and participate in meetings and education sessions.

In addition to this administrative hub, staff perch points/touch down areas should be provided throughout each 'household' or 'pod' to enable staff to be more accessible to residents and create a more 'homelike' environment.

Staff amenities will include showers, toilets and either change rooms or secure storage areas for property (for example, handbags, clothes). The number of amenities will be determined by staff numbers. A staff lounge/lounges will be provided for staff breaks and meals, depending on the size, function and location of individual units and/or the facility.

7.1.7 External areas

External areas are a significant component of the environment of the aged care residential facility, providing social and therapeutic enrichment opportunities through views and access to natural and landscaped environments for residents, carers and staff. There is a growing body of evidence highlighting the benefits of well-designed outdoor areas in residential aged care facilities in supporting and enhancing health and wellbeing, in particular, for people living with dementia.⁵² A well-designed and well-considered garden will enable residents to actively participate in gardening, or to simply have their senses stimulated, e.g. sight (changes in seasonal colours), sound (e.g. water features, bird song,

⁵² (Alison Carver, 2020)

rustling branches), touch (feeling sunlight or breezes on the skin, feeling different textures of vegetation), smell (scents rising from herbs and flowers) and taste (fruits and vegetables growing in the garden).

The relationship between the interior of the facility and external areas will vary depending on the facility location and the building configuration. In a single storey facility with ample outdoor space there may be direct access to outdoor areas and courtyards from communal living areas. On more intensely developed sites, access may be to a series of landscaped terraces and balconies.

The design of external areas should allow for safe access and movement for residents, carers and staff, should be fenced or enclosed by structures so that no exit is possible from the facility except in an emergency (without creating an unpleasant institutional appearance), provide rest points along circulation routes and provide privacy for residents from passers-by while enabling residents long views.

External areas, whether at grade or terraces above ground floor level should be designed to provide residents with choices e.g. to sit in shade or in sunlight, to sit with a group of other people or alone, or to be active or passive.

Refer to the following sources for further information on designing external areas for residents of an aged care residential facility:

- [Well for Life Toolkit](https://www2.health.vic.gov.au/ageing-and-aged-care/dementia-friendly-environments/strategies-checklists-tools/outdoors-checklist) <https://www2.health.vic.gov.au/ageing-and-aged-care/dementia-friendly-environments/strategies-checklists-tools/outdoors-checklist>
- [Therapeutic Gardens](https://www.therapeuticgardens.com.au/) <https://www.therapeuticgardens.com.au/>
- [Gardens for the senses – Better Health Channel](https://www.betterhealth.vic.gov.au/health/healthyliving/gardens-for-the-senses) <https://www.betterhealth.vic.gov.au/health/healthyliving/gardens-for-the-senses>

7.2 Environmental considerations

7.2.1 Environmentally sustainable design

Residential aged care services provided through Victorian public health services are required to meet the department's sustainability objectives and report to the department on their environmental performance in terms of energy and water consumption.

Refer to:

- Part E of the *Australasian Health Facility Guidelines*
- Victorian Department of Health's *Guidelines for sustainability in health care capital works*⁵³

7.2.2 Therapeutic environment

Aged care should be delivered in a therapeutic environment that supports optimal resident health and wellbeing. Approaches include:

- improving access to natural light and views
- acoustic treatments to control noise in private living areas as well as in shared residential areas to promote restful sleep and reduce stress
- providing residents with the ability to manage their environment e.g. through control of light, noise and entertainment systems.

⁵³ (Department of Health, 2010)

7.2.3 Natural light and external views

Access to daylight and external views can improve the quality of life for residents who are disabled, frail or cognitively impaired. The building should be orientated to maximise sunlight to internal and external spaces in the facility, in particular bedrooms, lounge and activity areas. It is not possible to provide a northern aspect to every room, so the project team will need to determine which rooms and spaces are 'privileged' in relation to northern light and what techniques will be utilised to compensate for this lack in other rooms and spaces so that they are not inferior in the quality of the experience they provide.

7.2.4 External garden space and landscape

Residents' courtyard/garden spaces enhance the home environment and should be designed to provide areas for socialisation, privacy and therapeutic activities. Features within courtyards and gardens should provide orientation and focal points for residents, staff and visitors.

Where a garden area is immediately adjacent to resident bedrooms, the design should prevent anyone from approaching or congregating outside bedroom windows e.g. through planting or structures, careful location of seating and the alignment of walkways and paths.

In order to create comfortable and dementia friendly garden areas:

- pathways in the garden space should be clear, simple and should lead to a destination
- pathways should be wide enough to enable wheelchair users travelling in opposite directions to pass without risk of a wheel slipping from the edge of the path
- provide clear alternative access points back into the building, particularly important for residents with dementia
- consider providing access to gardens from shared living areas via automatic sliding doors to improve access for residents using mobility aids, paying careful attention to design to ensure doors are not constantly opening and closing and become a source of irritation
- carefully design fencing and landscaping to assist in providing a discreet, secure environment
- provide rest points in a variety of public and private locations, ensuring these do not restrict pedestrian movement
- provide raised garden beds to enable residents to participate in gardening activities, e.g. vegetable plots.

Walking routes are important for residents, providing an opportunity for exercise and engagement with the environment, especially those living with dementia. The following features should be considered:

- circular paths with no dead ends, noting that any curves in paths must be gentle enough that they do not make it difficult to use by residents or carers who utilise a wheelchair for mobility
- provide seating along the wandering route
- use different environmental cues to highlight the purpose of different spaces and location of items.

Plants and trees in the garden area should be carefully selected taking into consideration:

- provision of shade in summer
- familiarity in selection of varieties
- seasonal changes in colour
- practicality of maintenance
- avoiding slip hazards by planting species that drop berries, nuts etc away from paths and ensuring plant selection that minimises the risk of skin tears and eye injury.

- Refer to the department's website for further advice on [creating dementia- friendly outdoor areas](https://www2.health.vic.gov.au/ageing-and-aged-care/dementia-friendly-environments/strategies-checklists-tools/outdoors-checklist) <<https://www2.health.vic.gov.au/ageing-and-aged-care/dementia-friendly-environments/strategies-checklists-tools/outdoors-checklist>>

7.3 Parking

Car parking and vehicle traffic flow on site should be considered to ensure easy access and a safe environment for residents, visitors and staff.

Where possible, heavy vehicle traffic should be separated from regular vehicles and located away from pedestrian walkways.

The number of vehicle parking spaces required should be determined in consultation with a traffic engineer to ensure an adequate number is provided for all users of the facility. Considerations include:

- providing accessible parking and short-term parking for pick up/drop off frail residents and visitors near the entry point
- locating car parking spaces to ensure there is easy, level access to the facility and close proximity to the entry point
- a lockable garage may be required if a designated vehicle such as a minibus is to be stored on site
- car parking areas should be well lit at night to ensure safety
- a bicycle rack should be provided adjacent to the facility for staff members
- turning spaces and parking bays for service vehicles should be designed so they are simple and practical to manoeuvre and facilitate access
- service vehicle parking and turning areas must be situated away from residents' bedroom areas to avoid unnecessary noise and light
- secure car parking should be provided for staff.

For staff parking, also refer to Part C Clause 790 of the *Australasian Health Facility Guidelines*.

7.4 Disaster planning

The planning of the site and the facility should consider:

- access and provision of hardstand for emergency vehicles that require access to the site
- provision of safe, well located emergency evacuation points to ensure evacuees do not impede emergency vehicle access and are not at risk of injury from emergency vehicles.

Appropriate construction detailing and structural provision should be made in accordance with building codes and regulations to protect occupants and to ensure continuity of essential services in areas where there is a history of earthquakes, cyclones, flooding, bushfires or other natural disasters.

All nominated facilities should be capable of continued operation during and after a natural disaster, except in instances where the facility sustains primary impact. Special design consideration is needed to protect the occupants and essential services such as emergency power generation, heating systems, water (if applicable), etc.

All residential aged care facilities are required to have a disaster response plan. The Department of Health and Human Services has a series of resources and information to support residential aged care service providers with their planning and preparedness for natural hazards such as bushfires, heatwaves, floods, storms and earthquakes.

Refer to the department's website for [Emergency preparedness in residential aged care services](https://www2.health.vic.gov.au/ageing-and-aged-care/residential-aged-care/emergency-preparedness) <<https://www2.health.vic.gov.au/ageing-and-aged-care/residential-aged-care/emergency-preparedness>>.

7.5 Infection prevention and control

The design and detailing of the aged care residential facility should support ease of cleaning as well as the implementation of the following policies, standards and guidelines:

- NHMRC, 2013, *Prevention and control of infection in residential and community aged care (2013)*
- *Australasian Health Facility Guidelines*, Part D Infection Prevention and Control.

7.6 Space standards and components

7.6.1 Human engineering

Human engineering covers aspects of design that permit effective, appropriate, safe and dignified use by all people, including those with disabilities. It includes occupational ergonomics, which aims to fit the work practices, furniture, fittings and equipment (FFE) and work environment to the physical and cognitive capabilities of all people.

Refer to:

- Part C of the *Australasian Health Facility Guidelines - Design for Access, Mobility, OHS and Security*

7.6.2 Access and mobility

Refer to:

- Part C of the *Australasian Health Facility Guidelines – Design for Access, Mobility, OHS and Security*

Note 1: BCA Part D3 covering access for people with disabilities in 9c buildings applies to all areas normally used by the public, residents or staff, and references AS1428.1 (Stds Aust 2010) for these areas.

Note 2: The interpretation and implementation of the relevant parts of The Disability Discrimination Act (Commonwealth of Australia 1992) may require expert advice.

7.6.3 Building elements

7.6.3.1 Internal walls

Materials used for internal walls should:

- have a familiar, residential appearance
- be highly impact resistant, particularly at lower levels and have corner protection to prevent damage from movement of beds, wheelchairs, trolleys and other mobile equipment
- have a smooth finished surface to protect residents' skin from grazes
- be water and mould resistant
- have a low-glare finish
- be fire resistant
- have good acoustic performance.

7.6.3.2 Flooring systems and floor finishes

The *Australasian Health Facility Guidelines: Part D—Infection Prevention and Control* states that in clinical settings:

Where there is likely to be direct contact with patients, or with blood or body fluids, floors and walls should be surfaced with smooth, impermeable seamless materials such as vinyl.⁵⁴

Materials used as floor finishes in resident areas of an aged care facility must be carefully assessed and selected by the project planning team to ensure that the product selected meets all needs of the anticipated mix of residents. An appropriate balance must be achieved between often competing requirements for ease of maintenance and the creation of a residential, 'homelike' like environment. Carpet will often be recommended on the basis that it is believed to reduce injuries as a result of falls. The project team should however review best available evidence and use a risk management approach that considers the entire flooring system before selecting a floor finish for use in resident areas.

Floor finishes should:

- have a familiar, residential appearance
- be durable and cost effective (considering initial cost, life expectancy and cleaning/maintenance costs)
- be able to be quickly and easily cleaned to reduce the risk of build-up of pathogens
- have a smooth, even surface and when staff are using wheeled equipment (e.g. moving residents in beds or princess chairs, push pull forces should be such that risks of manual handling injury are reduced as far as is reasonably practicable⁵⁵
- reduce the risk of slips, trips and falls for residents, carers and staff
- not contain any changes in level or 'lip' presenting a falls risk, in addition to overt lines across joins and thresholds that may be perceived as a barrier or gap and pose a falls risk to people with dementia and other neurological conditions or impaired mobility
- meet the requirement of the *National Construction Code*
- be environmentally sustainable in terms of its production and recyclability
- contribute to the provision of a high level of indoor environmental quality (IEQ) to support resident and staff wellbeing.

Refer to:

- Nanda, U. M. (2012). *Achieving EBD Goals Through Flooring Selection and Design*. Concord, CA.: The Center for Health Design.

7.6.3.3 Doors and windows

The selection of doors, windows and their associated hardware, particularly in areas used by residents, should consider thermal performance and ease of operation, as well as their appearance, robustness, maintenance requirements, security screening, ease of replacement in the event of damage, and safety provisions for residents and other building occupants.

Where operable windows are provided to resident areas, these should be either sliding or double hinged. Awning (wind-out) windows should be avoided in multi-storey buildings where they may act as smoke / heat scoops from fires in storeys below.

The sill height to windows in resident areas, such as bedrooms and living rooms should be a maximum of 600 mm above finished floor level (FFL). This will ensure the resident has views to the exterior from a chair or from a hi-low bed.

⁵⁴ (Australian Bureau of Statistics, 2015), p 25

⁵⁵ (Australian Nursing and Midwifery Federation (Victorian Branch), 2013)

All glazing to windows and doors should be selected and installed in accordance with the *National Construction Code* requirements and relevant Standards, including for window restriction and screening to prevent falls.

Refer also to Part C of the *Australasian Health Facility Guidelines - Design for Access, Mobility, OHS and Security*.

7.7 Safety and security

The principles of crime prevention through environmental design (CPTED) should be utilised in the planning and design of aged care residential facilities to ensure a safe environment for all users. The three core strategies are enhancing:

- natural access control
- natural surveillance
- territorial reinforcement.

Security is particularly important within the facility and the surrounding outdoor area where residents with dementia and psychogeriatric conditions are involved and where after-hours and day to day access needs to be controlled. Security should be unobtrusive yet provide an environment which is easily supervised by staff. Features for residents who exhibit exit seeking behaviours should be given special consideration. The facility needs to allow people who wander to move easily between internal and external zones whilst being maintained within a secure perimeter.

Other security issues to be addressed include safety of staff and visitors at night-time as well as the security of their vehicles.

7.8 Finishes

7.8.1 General

The selection of finishes is influenced by both durability and the need to maintain good infection control.

The finishes used in an aged care residential facility should be easy to clean to facilitate infection control and they should be hard wearing, impervious to moisture and resistant to retaining unpleasant odours.

Refer to

- Part C of the *Australasian Health Facility Guidelines - Design for Access, Mobility, OHS and Security*
- Part D of the *Australasian Health Facility Guidelines – Infection Prevention and Control*.

7.8.2 Wall finishes and protection

Abrasive wall finishes should be eliminated.

High-gloss paint should be avoided.

Paints should contain low amounts of volatile organic compounds (VOC).

Walls should be easy to clean.

7.8.3 Floor finishes

The selection of floor coverings should seek to achieve an appropriate balance between:

- creation of a homelike environment
- ease of cleaning, maintenance and replacement

- resistance to retention of unpleasant odours
- providing easy manoeuvrability of wheeled equipment, considering resistance to push / pull and turning forces
- safety (risk of slipping or tripping)
- infection control considerations.

7.8.4 Ceiling finishes

Ceiling finishes should contribute to management of noise within the facility.

7.9 Furniture, fittings and equipment

The selection, procurement and installation of furniture, fittings and equipment is a vital component in the establishment of an environment that supports residents to maintain independent functioning and control.

Factors to consider include:

- selecting items that have a familiar appearance for residents to assist in understanding their use
- surfaces and their ease of cleaning in order to maintain good infection control
- using non-chrome finishes wherever possible
- durability to ensure long life
- stability to assist in the prevention of falls
- enough variation to meet differing needs of residents e.g. chairs of varying heights with arm rests to assist them in rising from the chair
- smooth finishes with no sharp edges on all surfaces and items within the living environment to protect the skin from tears and bruising e.g. handrails, furniture, feature panels, room dividers etc.

Recipients of residential aged care services may also elect to provide some items themselves. The residential aged care service provider needs to consider what items it can reasonably accommodate to enable residents to supply their own personal items to personalise their room while balancing this with the requirement to provide a safe and hygienic environment.

Refer to:

- *Aged Care Act 1997* and *Quality of Care Principles 2014* for information on the furnishings, bedding and other facilities an aged care provider is required to provide for aged care recipients.
- Part F of the *Australasian Health Facility Guidelines - Project Implementation - FF&E* for further information on the process for scheduling furniture, fittings and equipment.
- Australian Standard AS1428 suite for further information on standards related to fixtures, fittings and fitments.

7.9.1 Joinery

Joinery items in the residential aged care facility should have a domestic appearance and be accessible to residents with a wide variety of mobility and sensory impairments e.g. height, clearances under and around them.

Joinery items should be a contrasting colour to the surface on which they are mounted to improve their visibility to residents.

Sharp edges should be avoided.

Refer to:

- Part C of the *Australasian Health Facility Guidelines - Design for Access, Mobility, OHS and Security*
- Part F of the *Australasian Health Facility Guidelines - Project Implementation 0680 - Furniture Fittings and Equipment*.

7.9.2 Furniture

Furniture should be selected to provide maximum comfort for the specific needs of the residents. It should be domestic in appearance and appropriate to the use of the room.

The furniture must be flexible enough to meet the needs related to a person's physical, sensory and cognitive capabilities and be selected for specific purposes rather than for multiple purposes.

All furniture and furnishings need to be washable and hardwearing.

Furniture with sharp edges must be avoided.

7.10 Building service requirements

7.10.1 General

The design and layout of engineering services should ensure that they are located so they are readily accessible to facilities management staff and minimise the requirement for them to access services within the residential areas of the facility.

Planning and selection of building services should consider their sustainability and whole of life costs.

Refer to:

- VHHSBA's *Engineering guidelines for healthcare facilities Volumes 1-6*.

7.10.2 Communication

Communication services to be considered in the planning and design of an aged care residential services facility include:

- centralised, electronic, medication management systems (including potential barcode medication administration systems) accessible to staff and other relevant health practitioners to ensure that up-to-date clinical and medication information for each resident is available at the time of prescribing.⁵⁶
- e-health records that store medical and other information from health and aged care providers.⁵⁷
- telephones (land lines and mobile phones)
- computers
- data communication - facsimile, email and intranets
- nurse call and emergency call systems
- emergency warning intercommunication system (EWIS)
- duress systems (personal alarms and wireless access points)
- entertainment systems (e.g. Pay TV and streaming services)

⁵⁶ (Ibrahim, 2017); pp.16-17. Recommendation 22 of the Ibrahim review proposes that policy makers consider mandating the use of electronic medication management systems for accreditation of residential aged care services. Recommendation 30 proposes that residential aged care service providers and pharmacists should explore barcode medication administration systems along with other measures to reduce the potential for harm due to medication errors.

⁵⁷ (Ibrahim, 2017); p.21. Recommendation 57 is to mandate the "use of a central electronic system, that stores medical records and other information from health and aged care providers" as part of accreditation for residential aged care services. This identified as particularly relevant in residential aged care services that provide respite care in order to "maintain the caring relationship and reduce adverse handover incidents".

- public address system
- closed circuit television (CCTV)
- Wi-Fi access for residents and staff
- intercom systems
- telehealth, teleconferencing and videoconferencing requirements
- systems that unobtrusively monitor resident movement to enhance resident safety and alert staff when required; for example, sensor beams and other wireless monitoring devices.

7.10.3 Mechanical services

The regulation of body temperature involves all systems of the body. As these systems naturally deteriorate with ageing, there is a related decline in thermoregulatory functions. This has a direct impact “on the ability of the elderly to maintain thermal homeostasis, particularly when challenged by ambient thermal extremes. Since the maintenance of a relatively stable, optimal core temperature is one of the body's most important activities, its very survival can be threatened by these disorders.”⁵⁸

As Victoria is prone to extremes of temperature throughout the year, all areas occupied by residents should be provided with mechanical air. This may be supplemented by other means of heating and cooling, but these should not be the primary means of regulating indoor temperatures.

Planning and design of mechanical services should therefore carefully consider the maintenance of the appropriate temperature comfort range for residents. This may vary from the temperature comfort range for staff who will tend to be more active than residents.

The mechanical services designer must consider the provision of zoned, personally controlled mechanical air systems.

Fans and heaters should be avoided as they present a risk of injury and fire.

Refer also to *Australasian Health Facility Guidelines - Part E - Building Services and Environmental Design*.

7.10.4 Hydraulic services

Refer to VHHSBA's *Engineering guidelines for healthcare facilities, Volumes 1-6*

7.10.5 Medical gases

The scope and detailed definition of medical gases should be determined and included in the design brief. Although medical gases are not widely used in aged care facilities some early decisions are required concerning their provision, according to the anticipated requirements of the consumer group proposed to be accommodated. When provided in bedrooms, services should be able to be concealed when not in use in order to maintain the domestic appearance.

As a minimum, a suitable location for medical gas bottle storage should be considered.

7.10.6 Electrical services

The use of light and power point switches that have a larger switch surface and 'soft switch' mechanism with on/off indicators is encouraged for resident areas. These should be provided in a colour that contrasts with the colour of the surface on which they are mounted to enable residents to find them more easily.

⁵⁸ (Blatteis, 2012)

Power outlets should be located to suit accessibility guidelines.

Bedroom lighting should simulate a domestic lighting environment with a secure bedside lamp for reading. A night-light should be incorporated in all bedrooms and ensuites. Use dimmer switches for greater control over lighting levels and enable high levels of illumination for specific tasks as required.

Refer to:

- *National Construction Code* and associated Standards for requirements regarding body protection and other electrical safety provisions in aged care residential facilities
- VHHSBA's *Engineering guidelines for healthcare facilities Volumes 1- 6*
- AS 1428.1-4 Design for access and mobility.

7.10.7 Fire safety

Fire safety services should be provided in accordance with:

- *Building Code of Australia*
- Standards Australia, 1997, AS 1603: Automatic Fire Detection and Alarm Systems
- Department of Health and Human Services' *Fire Risk Management Strategy and Capital Development Guidelines - Series 7: Fire Risk Management Policies and Procedures*.

8 Components of the unit

8.1 Standard components

Standard components (SC) refer to rooms/spaces for which room data sheets, room layouts sheets (drawings) and textual description have been developed. Their availability is indicated by 'Yes' in the SC column of the Schedule of Accommodation.

Refer to Part B Section 90 of the *Australasian Health Facility Guidelines* for the text and for separately itemised Room Data and Room Layout Sheets. www.healthfacilityguidelines.com.au

Non-standard components are unit specific and are described below.

8.2 Non-standard components

8.2.1 Bedroom

8.2.1.1 Description and function

The bedroom is a place for residents to sleep and to have private space for sitting, reading or watching television. It may also be used for social interaction with visitors who may include family, friends or other residents. The design emphasis should therefore be based on a bed-sitting arrangement allowing the resident to personalise the space to meet their own needs.

Bedrooms in a residential aged care facility should be all single bedrooms. This aligns with community expectations, improves infection control, allows for resident privacy and enables greater flexibility in caring for residents with changing dependency levels.

A minimum of two bedrooms within a 30-bed unit should be able to interconnect to accommodate a couple or allow residents who prefer to share a room to select this option. This may also allow space for family members who wish to spend extended time at the bedside of a resident at the end of life. As this option is only available if the adjoining room is vacant, service providers should consider by what other means they can support family members to achieve this.

Bedrooms that can interconnect should be carefully designed and detailed to provide acoustic separation and prevent the ingress of unwanted noise from the adjoining room when not being shared.

Consideration should also be given to the location of the inter-connecting door so it does not restrict effective use of the available space in the rooms or present an OHS risk, how the inter-connecting door can be secured when not required and treatment of the door to conceal it when not required to be open to prevent residents with dementia becoming confused about the location of the exit.

8.2.1.2 Bedroom size and layout

The resident bedroom must be sized to accommodate king single high-low bed, air mattress pump, large, pressure relieving mobile chair (e.g. 'princess chair') chair, visitor chair, bedside table and storage of resident clothing/effects. There should be enough space around the bed for staff to safely support residents who may require a wide variety of equipment in their everyday care.

The standard single bedroom size is nominally 16.5m² although this will vary depending on:

- the type of construction accommodating the facility e.g. single storey light weight construction or a multi-storey concrete framed building using a standard construction grid for flexibility
- bedroom and ensuite configuration e.g. inboard ensuite, outboard ensuite or stacked ensuites

- placement of the door to the bedroom in the case of those with inboard ensuites.

The room should be sized to accommodate those facilities identified in Commonwealth government guidance to approved providers, as well as:

- the size of the bed proposed to be used in the room (king single size is commonly accepted standard)
- storage for resident's clothing and other personal effects
- a chair for the resident to sit in when not in bed
- mobility devices used by the resident
- space for visitors/carers
- storage for consumables used in the care of the resident
- space for safe use by staff of the type of lifting devices proposed to be used in the facility⁵⁹
- clinical, entertainment and communications technology
- medication storage for point of care provision.

Several larger rooms may be provided in specific circumstances (e.g. bariatric residents or overnight stay for family/carers).

8.2.1.3 Location and relationships

The resident bedroom must be in the private zone of the facility and should be provided with:

- access to external views and good natural lighting with the resident able to control sun and light penetration
- proximity to a semi-private lounge/sitting area associated with the bed cluster
- a short, easily navigable walking distance to communal residential areas such as the lounge room, dining and activity areas.

8.2.1.4 Considerations

Bedrooms should be clustered into pods which create greater flexibility in managing residents with a diverse range of care needs. The number of beds per pod will be determined by the proposed staffing model and any mandated nurse to resident ratios.

Ensure adequate space is provided to allow flexibility for alternative furniture layouts and handling of bath-trolleys, mobility aids and other items.

Ensure enough, accessible shelving and storage is provided for personal possessions.

Consider the requirement for concealed medical gases in selected rooms depending on the size of the facility and the level of care it can provide. Bottled gases may also be required.

Include larger bariatric rooms according to the identified need. As a minimum, one bariatric bedroom should be provided per each 30 beds.

Provide overhead lifting tracks rather than mobile hoists to ensure a high standard of workplace safety is provided for staff and a clutter free floor area that reduces trip hazards for residents and visitors.

Provide domestic features to promote a feeling of familiarity and comfort for residents, for example picture rails so they can personalise the room with their own pictures.

⁵⁹ (Worksafe, 2007)

8.2.2 Ensuite

8.2.2.1 Description and function

There should be enough room for two to three persons as well as lifting equipment/mobility aids to manoeuvre and assist the resident with personal care needs.

8.2.2.2 Location and relationships

Each bedroom will have direct access to an ensuite, supporting each resident to maintain their personal hygiene and protect their privacy.

8.2.2.3 Considerations

A layout that enables the toilet to be seen directly from the bed is preferred to assist in continence management, particularly at night, e.g. a nightlight located over the toilet. Providing a toilet that is a contrasting colour to the wall it is mounted against will also assist to orientate residents.

Enough space should be provided for shower chairs, toilet seats, lifting devices, shower trolleys or other items that may be required.

A walk-in graded shower area without steps or doors is required. The floor should generally fall towards the shower.

The ensuite should have good lighting levels. Natural light from a window or skylight is preferable where possible.

Enough cupboard space/shelving and bench top space is required for storage of resident's personal belongings, toiletries, toilet paper and continence aids. Careful consideration is required to ensure the design and height of fixtures and fittings in the ensuite maximises safe independent use by the resident and ease of access to frequently used items.

8.2.3 Quiet sitting room

8.2.3.1 Description and function

A sitting room should be provided for each pod of bedrooms to provide residents with the option to sit outside their bedroom in a quiet space separate from the larger lounge room. They may opt to use this space for quiet reflection on their own or when family/carers visit. Provision of a quiet sitting room also enables staff to support residents who are expressing responsive behaviours separate from the lounge area, particularly for residents who find the lounge over-stimulating.

8.2.3.2 Location and relationships

The quiet sitting room should be located with each pod of bedrooms and be for the exclusive use of residents of that pod. It may have access to a safe and secure external area where space allows.

8.2.3.3 Considerations

The quiet sitting room should be sized to accommodate three to four people. It should provide views to restful garden areas. If it has direct access to an external area, careful consideration should be given to the placement of doors, so the room functionality is not compromised by the passage of people through it.

8.2.4 Lounge

8.2.4.1 Description and function

The lounge room is the central shared living area for each 'household' cluster. It should be sized to accommodate the number of residents per household, allowing adequate space to accommodate residents who may be using mobility aids or those requiring large pressure relieving mobile chairs.

The lounge room and the dining room are the main hub of daily activity within each 'household' within an aged care residential facility, providing for recreational and social interaction. These are communal areas for use by all residents, family and friends.

The lounge area and dining area should be comprised of several smaller sitting areas/dining areas associated with each 'household' rather than a single, large space, depending on the needs of residents and the operational model of the service.

8.2.4.2 Location and relationships

The lounge room should be located central to the pods of bedrooms that comprise a household unit and should be accessible to residents without them having to traverse through other bedroom pods. It should have direct access and views to a resident outdoor area, a landscaped garden area if at grade or a terrace if on an upper level of a building.

The design of the lounge room should provide it with a distinct identity and signal its intended use but be located adjacent to the dining room to enable both spaces to flex up or down to enable occasional larger group activities.

8.2.4.3 Considerations

- The lounge room should be domestic in appearance and allow for residents to select between several different activities e.g. group activities or quiet individual pursuits e.g. watching television, reading, sitting in front of a fireplace.
- As in a house, the lounge area/s needs to be formal to some extent but must also have a flexible layout to allow for various group sizes and activities in which residents and staff are continually moving around.
- The layout must include space to accommodate large mobile tub chairs (e.g. princess chairs), wheelchairs and other mobility aids.
- Visual contact is required from the passageway to the lounge area and to the dining area to encourage residents to enter.
- A lockable cupboard should be provided for secure storage of audio-visual equipment. Shelving should be provided for books, magazines and other recreational material. The inclusion of picture rails will allow for wall hangings and pictures.
- A television may be in the lounge area. However, staff must ensure that it does not dominate the use of the room and thereby discourage interaction.
- Windows should be full height if feasible and maximise the length of an external wall to optimise views and the penetration of natural light.

8.2.5 Dining

8.2.5.1 Description and function

The dining room is one of the main hubs of daily activity within each 'household' within a residential aged care facility, providing for recreational and social interaction. This is a communal area for use by all residents, family and other visitors.

The dining area should be sub-divided into several smaller dining areas associated with each 'household' rather than a single, large space, depending on the needs of residents and the operational model of the service.

8.2.5.2 Location and relationships

The dining room should be located with easy access from private residential areas for residents as well as from the entry for visitors. The dining room is best located adjacent to the lounge room allowing this larger space to scale up or down depending on requirements. The dining room should have direct access and views to the external environment. There should be access to an accessible toilet from the lounge and dining areas.

8.2.5.3 Considerations

- The dining room/s should clearly indicate its use and be reserved for that activity to facilitate orientation for residents with dementia.
- It should be designed so that it is capable of creating smaller groups for eating e.g. smaller tables with seating for two to four people but should have the capacity to be joined to seat up to 10 people (depending on the size of the 'household' it serves).
- It should also include space for small private occasions, such as birthdays.
- In designing the space, the provider needs to consider what proportion of residents will require support in eating as space must be allowed for staff or family members assisting the resident at mealtimes.
- The size of the dining area also needs to reflect the service's food service model and whether the space can adapt to different models if it changes over time.
- In positioning the associated kitchenette, the service needs to consider the role of residents in their food services model and the extent to which they will accommodate/support resident independence. There should be a space for residents of varying abilities who choose to participate in food preparation and plating to do so as this is a fundamental aspect of daily life that contributes to health and wellbeing.
- Direct access to the beverage bay/kitchenette is required from the lounge / dining areas.

8.2.6 Multipurpose activity/therapy space

8.2.6.1 Description and function

Activity spaces are primarily for active programs such as exercise classes or drama, community participation and large group meetings and therapy spaces provide for therapy activities such as physiotherapy, hairdressing and podiatry.

Multi-use activity space is not only for therapeutic purposes, but to encourage socialisation between residents and visitors.

8.2.6.2 Location and relationships

The activities/therapy space should be easily accessed from the communal 'household' living areas as well as the front entry and have direct access to an external space. Access through residents' private living areas must be avoided.

8.2.6.3 Considerations

- Large full height windows with low sills (approximately 300 mm above floor level) are desirable to enable good views to the exterior and maximise natural light.

- Consideration should be given to providing an activity room that has an operable wall, enabling it to be used as a single large space for activities involving all residents at the one time, or subdivided into two smaller spaces to accommodate different, simultaneous activities.
- Secure storage space is required to accommodate items used for different activity and therapy programs.

8.2.7 Laundry

8.2.7.1 Description and function

The laundry should be domestic in style and available for use by able residents and carers.

8.2.7.2 Location and relationships

A laundry should be provided within each 'household' and have direct access to an external clothesline.

8.2.7.3 Considerations

- A front loader washing machine is preferred for easy operation by persons with disabilities. This should be mounted on a podium specifically manufactured for this purpose, so residents do not have to bend down to load and unload the machine.
- A tumble dryer is required with enough venting to prevent condensation build-up.
- A laundry trough and lockable cupboards for secure storage of laundry detergents and other laundry items are required.
- Ironing facilities and benches for folding clothes and to accommodate clothes baskets are required.

Appendix 1: Site selection matrix

Aged Care Residential Services																
Site selection criteria																
				Site 1			Site 2			Site 3			Site 4			
		Address:														
		WEIGHTING (1 to 10)	Raw Score	Weighted Score	Comment	Raw Score	Weighted Score	Comment	Raw Score	Weighted Score	Comment	Raw Score	Weighted Score	Comment		
Area Required		Details														
5,000 - 5,500m2 for assumed 90 bed service, over 3 storeys.		Allows for access to adequate outdoor spaces, setbacks from boundaries, parking, provides potential to expand or co-locate related services in future. Site may need to be larger if impacted by significant easements or other factors that alienate parts of the site.														
Site Particulars																
Ease of Meeting Planning Requirements		Current zoning, planning implications including setbacks and overlays.														
In identified catchment area.		The site is accessible to residents and carers of the catchment it services.														
Community / Political Sensitivity		Any potential sensitivity to proposed use that may impact on the project e.g. next to an industrial estate.														
Consistency with Precinct Planning		Proposed use aligns with broader precinct planning (where applicable).														
Site Characteristics																
Topography of Site		Flat site preferred. Avoid trees, significant vegetation and existing buildings except where these may be incorporated into the proposed facility or are able to be demolished.														
Shape of Site		Shape enables a functional layout of the proposed facility on the site e.g. a regular shape, not too long in one dimension and short in the other or with odd corners.														
Site access		Site is readily accessible from the street and can adequately accommodate space for off-street parking for resident, staff and visitor vehicles.														
Availability of Site Infrastructure		Services infrastructure run past the property or are able to be brought to site.														
Free from easements and overlays		Location of any easements, the type of easement and their impact on effective site utilisation is known. Any planning overlays eg floodway, BAL, heritage, cultural														
Usage History		Any potential for contamination as a result of current and previous uses that may impact on time and cost is known.														
Site Context																
Adjoining uses		Adjoining uses are compatible with the proposed facility/service eg residential character, avoids heavy vehicle traffic, noise, odours.														
Access to Local Public Transport		The site is easily accessible by public transport e.g close to train stations and bus stops that connect to community facilities.														
Access to Major Arterial Road		Ease of access via private vehicle for staff, residents and visitors.														
Proximity to other health / community services		Ease of access for residents who may require other services and for visiting staff / consultants.														
Estimate of Purchase Price																
				0			0			0			0			

Appendix 2: Schedules of accommodation

Recommended schedules of accommodation are included below for residential aged care services with 30 beds and 90 beds.

This assumes an indicative provision of 100 per cent single bedrooms. Numbers include dedicated bedrooms for bariatric and accessible. These allocations may need to be adjusted depending on the requirements of the project.

The ‘Room / Space’ column describes each room or space within the service. Rooms are to be briefed using relevant functional and operational information provided in this guideline.

Note 1: The circulation allowance will vary subject to the building design approach, for example, a higher rate of up to 42 per cent may be required to achieve a ‘courtyard’ model.

Note 2: Can be combined into a change room with showers and staff property. Change room requirements will depend on operational policy relating to staff arriving at work in uniform or changing at work.

ARRIVAL AREAS							
Room/Space	Residential Aged Care (30 Beds)			Residential Aged Care (90 Beds)			Remarks
	Qty.	m2	Sum of Nett Area m2	Qty.	m2	Sum of Nett Area m2	
Entry / Airlock	1	12	12	1	12	12	
Interview Room	1	12	12	1	12	12	
Reception	1	6	6	1	6	6	
Resource Room/Volunteers	1	15	15	1	15	15	
Toilet - Accessible (Public)	1	6	6	1	6	6	
Waiting	1	15	15	1	20	20	
<i>Sub-Total</i>			66			71	
<i>Circulation Factor:</i>			30%			30%	
Gross Departmental Area:			86			92	

LIVING AREAS (COMMUNAL)							
Room/Space	Residential Aged Care (30 Beds)			Residential Aged Care (90 Beds)			Remarks
	Qty.	m2	Sum of Nett Area m2	Qty.	m2	Sum of Nett Area m2	
Bay - Beverage	2	4	8	6	4	24	May be located with Lounges, Multipurpose/Activity/Therapy or Lounges-Quiet.
Dining	2	40	80	6	40	240	Provided at the rate of 2.6m2 per resident.
Hairdresser	1	10	10	1	10	10	
Kitchen	1	30	30	3	30	90	
Lounge	2	45	90	6	45	270	Provided at the rate of 3 m2 per resident. See also Lounges - Quiet in Living Areas-Private.
Multipurpose/Activity/Therapy	1	45	45	3	45	135	Provided at the rate of 1.5m2 per resident.
Pantry	1	8	8	3	8	24	Use depends on food service model. Assumes residents engage in food prep.
Store - Equipment	1	15	15	3	15	45	
Toilet - Accessible	1	6	6	3	6	18	
<i>Sub-Total</i>			292			856	Note 1
<i>Circulation Factor:</i>			38%			38%	
Gross Departmental Area:			403			1,181	

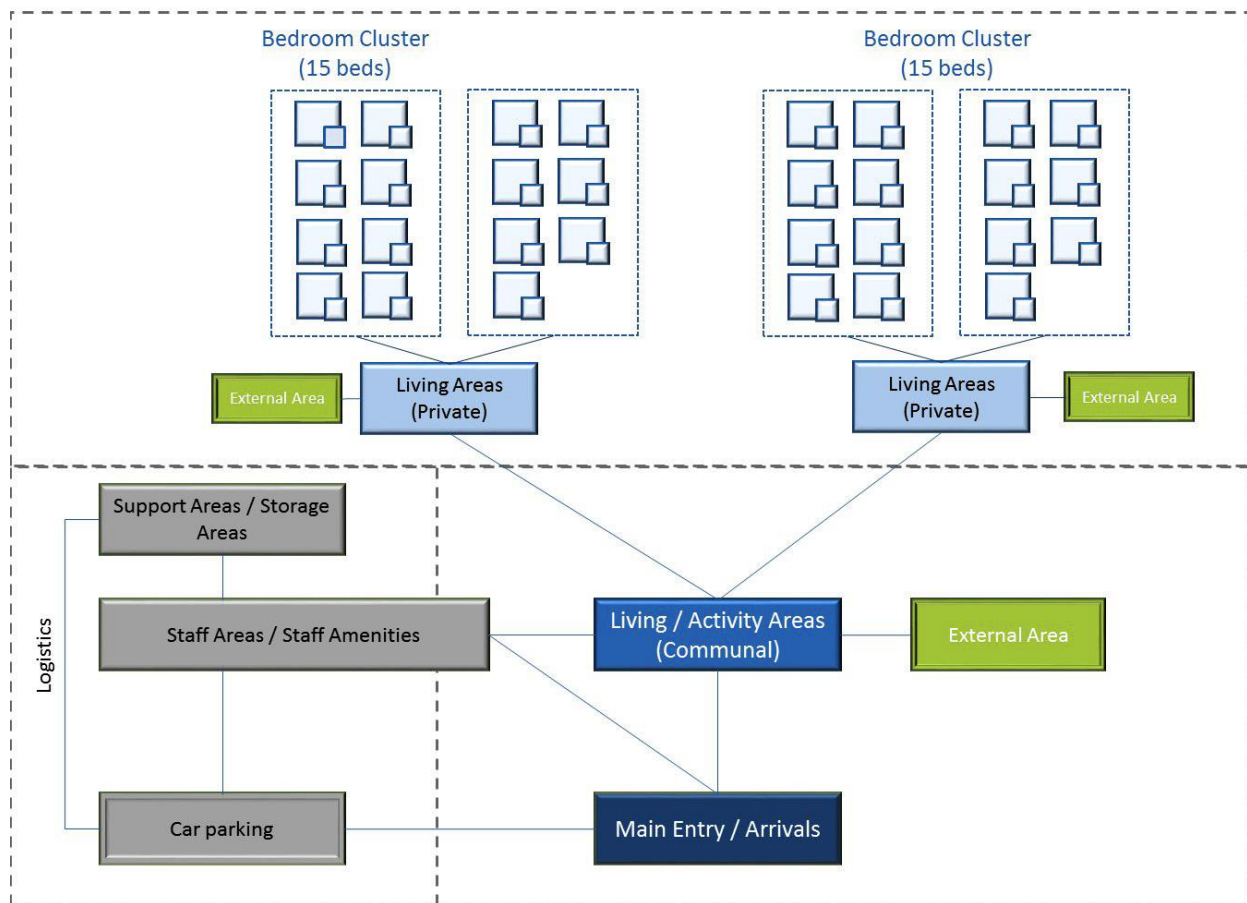
LIVING AREAS (PRIVATE)							
Room/Space	Residential Aged Care (30 Beds)			Residential Aged Care (90 Beds)			Remarks
	Qty.	m2	Sum of Nett Area m2	Qty.	m2	Sum of Nett Area m2	
Ante Room - Bedroom - Single (Special)	2	6	12	6	6	36	Enclosed space to store at hand special equipment or supplies required for frequent use by a resident.
Bathroom - Assisted	1	15	15	3	15	45	
Bedroom - Single	26	17.5	455	78	17.5	1,365	
Bedroom - Single (Special)	4	23	92	12	23	276	
Ensuite	26	6	156	78	6	468	
Ensuite - Accessible	4	7	28	12	7	84	
Lounge - Quiet	2	15	30	6	15	90	Provided at rate of 1m2 per resident to serve smaller pods of bedrooms.
<i>Sub-Total</i>			788			2,364	Note 1
<i>Circulation Factor:</i>			38%			38%	
Gross Departmental Area:			1,087			3,262	

STAFF AREAS AND STAFF AMENITIES							
Staff areas are given as a guide only. This plan is dependent on the staff profile and staff accommodation policy directives.							
Room/Space	Residential Aged Care (30 Beds)			Residential Aged Care (90 Beds)			Remarks
	Qty.	m2	Sum of Nett Area m2	Qty.	m2	Sum of Nett Area m2	
Bay - Property (Staff)	1	4	4	3	4	12	Note 2
Medication Room	1	10	10	3	10	30	
Meeting Room	1	32	32	3	32	96	Sized to accommodate 8 people under social distancing conditions.
Office - 2 Person Shared	2	12	24	6	12	72	
Office - Single Person	2	9	18	6	9	54	
Shower - Staff	2	3	6	6	3	18	Note 2
Staff Room	1	20	20	3	20	60	
Staff Station	2	12	24	6	12	72	
Toilet - Staff	3	3	9	9	3	27	Note 2
Toilet - Staff (Accessible)	1	6	6	3	6	18	
Office - Workstations	5	5	25	15	5	75	May be co-located with staff base as a clinical workroom.
<i>Sub-Total</i>			178			534	
<i>Circulation Factor:</i>			25%			25%	
Gross Departmental Area:			223			668	

STORAGE AREAS							
Room/Space	Residential Aged Care (30 Beds)			Residential Aged Care (90 Beds)			Remarks
	Qty.	m2	Sum of Nett Area m2	Qty.	m2	Sum of Nett Area m2	
Bay - Linen	2	2	4	6	2	12	Distributed throughout bedroom zones for ease of access for staff.
Bay - Wheelchairs	2	3	6	6	3	18	
Store - Equipment	2	20	40	6	20	120	
Store - Resident Property	2	8	16	6	8	48	
Store - General	2	9	18	6	9	54	
<i>Sub-Total</i>			84			252	
<i>Circulation Factor:</i>			38%			38%	
Gross Departmental Area:			116			348	

SUPPORT AREAS							
Room/Space	Residential Aged Care (30 Beds)			Residential Aged Care (90 Beds)			Remarks
	Qty.	m2	Sum of Nett Area m2	Qty.	m2	Sum of Nett Area m2	
Bay - Handwash	8	1	8	24	1	24	Provided at the rate of 1 per 4 beds. Design should consider location to avoid creation of a "hospital corridor" feel.
Cleaner	2	6	12	6	6	36	
Consult Room - Accessible	2	17	34	6	17	102	
Disposal Room	1	12	12	3	12	36	
Interview Room	2	14	28	6	14	84	
Laundry	1	12	12	3	12	36	
Linen - Clean	1	10	10	3	10	30	For receipt and holding of linen deliveries.
Linen - Soiled	1	10	10	3	10	30	For receipt and holding of dirty linen waiting pickup.
Multi-faith room	1	30	30	1	30	30	
Utility - Clean	2	8	16	6	8	48	
Utility - Dirty	2	12	24	6	12	72	
<i>Sub-Total</i>			196			528	
<i>Circulation Factor:</i>			38%			38%	
Gross Departmental Area:			270			729	
TOTAL GROSS DEPARTMENTAL AREA			2,185			6,280	
<i>Travel Allowance (%)</i>							
<i>Plant Allowance (%)</i>							
GROSS BUILDING AREA							

Appendix 3: Functional relationships diagram



Appendix 4: Design principles

The Evidence Based Design Journal Issue 1: *Aged Care—evidence-based strategies for the design of aged-care environments*⁶⁰ recommends six design strategies derived from a systematic review of over 1,190 research publications and 215 articles subsequently identified as most relevant to the design process.

The six recommended design strategies are summarised in the table below.

Table 4: Evidence Based Design Journal Issue 1—Aged Care: evidence based strategies for the design of aged care environments⁶¹.

1. Facilitate orientation

Design principle	Design strategy
A. Layout	Create a simple network of differentiated but visually connected spaces.
B. Corridors	Where short corridors are necessary, minimise the need for direction changes that require a series of connected, cognitive decisions to be made. Ensure that potential destinations are visible and, where possible, attention is attracted in one direction only. If two directions are required, then avoid dead end corridors.
C. Signage	Provide written signage, combined with images, to identify destinations, rather than signs using only symbols, artefacts or colour coding.
D. Familiarity	Spaces intended for daily rituals: eating, socialising etc should be predictable to the resident. Such spaces should remain unchanged and not be in multi-purpose areas that may be designed specifically for changing events, activities etc.
E. Circulation	Circulation systems should be in the form of short, continuous loops that connect bedrooms and social spaces, with a variety of multi-sensory nodes and large external windows along the way.
F. Priming	Use repetitive stimuli to produce a non-cognitive response. Strategies include using short, looping circulation paths, a unique sequence of unobtrusive route identifiers and nodes with clear lines of sight to the next destination.
G. Light and sound	Provide adjustable lighting zones to allow flexibility in lighting levels based on the needs. (Refer to principle 4D for more detailed information) Reduce reverberation time using absorptive materials.

⁶⁰ (O'Brien)

⁶¹ (van Hoof & Marquardt, 2016)

2. Promote independent functioning

Design principle	Design strategy
2.A Autonomy	Provide mobile residents with the ability to move around safely and freely within their unit and, where possible, allow unrestricted access to secure and safe external areas.
2.B Legibility	<p>Provide visual and functional cues that will allow a resident with fluctuating levels of lucidity to understand where they find themselves, as they become intermittently aware, and make decisions accordingly.</p> <p>Avoid complex signage and visual overload from notice boards that demand attention. In addition to signage, cues can be a view— even a glimpse—sound or smell of a potential destination.</p> <p>Allow for ‘pause’ points where residents can observe primary social spaces before entering.</p>
2.C Mobility	design circulation paths as multi-sensory wandering loops that enable residents to meet their need to move, as it occurs.
2.D Physical support	<p>Toileting, bathing and personal care</p> <p>Dressing and sleeping</p> <p>Domestic activities</p>
2.E Sensor technologies	Emerging sensor-based technologies can provide information about a resident’s location and wellbeing, while also automatically operating doors, lifts, lights and air condition based on pre-determined preferences and settings.

3. Provide appropriate intellectual and sensory stimulation

Design principle	Design strategy
3.A Curiosity	Although intellectual curiosity is impaired in people with dementia, emotional curiosity can still be stimulated, potentially by allowing space, light and sound to flow, increase and diminish, from one space to another.
3.B Choice	<p>Provide multi-sensory connections between different spaces and activities, including connections between internal living spaces and different exterior environments. Curtains or blinds can also be employed so residents can control view and light levels in semi-private sitting areas.</p> <p>Provide the opportunity for residents to move towards or away from any given stimulus depending on personal preferences, without becoming completely disconnected from the social group.</p>
3.C Activities	Develop design strategies that support meaningful activities.
3.D Overstimulation	<p>Avoid visual and auditory overstimulation that can lead to distraction and agitation:</p> <p>Reduce reverberation time in high-noise activity areas.</p> <p>Install zoned lighting circuits that can allow for variation in lighting levels.</p> <p>Provide some smaller niche-like spaces that enable residents to achieve a degree of sensory separation while maintaining some visual connection to the larger activity space.</p>
3.E Social media	Provide Wi-Fi access to enable use of social media to facilitate a degree of social connection between residents and the world outside.

4. Provide a secure and safe environment

Design principle	Design strategy
4.A Furniture and fittings	<p>Allow adequate space between items of furniture for ease of movement.</p> <p>Avoid lightweight furniture that may topple if used for support</p> <p>Provide secure handrails and grab bars</p> <p>Avoid sharp or projecting edges.</p>
4.B Floors	<p>Provide contrasting colour or tone between the wall and floor and between furniture items and the floor.</p> <p>Use heavy, anti-slip floor mats</p> <p>Avoid floor patterns</p> <p>Eliminate loose rugs, changes in floor level and uneven finishes that create trip hazards.</p>
4.C Effective unobtrusive safety	<p>Provide good lines of sight for staff</p> <p>Secure perimeter camouflaged</p> <p>Hot water control and safety switches</p> <p>Self-closing auto locking storage of hazardous materials</p> <p>Eye level markings to glazed doors/windows/partitions.</p>
4.D Lighting	<p>Provide the illumination levels and colour temperatures required to meet needs of client group.</p>
4.E Exit seeking	<p>Locate and camouflage doors that are intended for staff only use on side walls of circulation routes. Doors intended for resident use and should be clearly indicated.</p>

5. Provide a homelike and familiar atmosphere

Design principle	Design strategy
5.A Personal home	<p>Provide opportunities for personalisation of individual rooms and limited personalisation of social spaces.</p>
5.B Physical home	<p>Recognisable local materials and textures.</p>
5.C Social home	<p>Provide smaller semi-private sitting areas for family visits.</p>
5.D Scale	<p>Reduce the scale of the environment experienced by residents by clustering beds to form 'households' of from 9 to 24 residents, particularly when accommodating mobile people with dementia.</p>
5.E Dining	<p>Create smaller niche-like areas within a larger dining area by using visual and acoustic barriers.</p> <p>Provide visual connections between the kitchen and dining areas to create connections between the act of preparing food and the act of eating food.</p>

6. Balance between the private and the social

Design principle	Design strategy
6.A Community Connection	Consider ways in which residents can maintain a connection with the broader community, from within the care setting.
6.B Bedrooms	Provide options for shared rooms for couples and private rooms based on local preferences.
6.C Diversity	Provide secondary social spaces that provide residents with the ability to sit apart from but remain visually connected to the main group.
6.D Conflict Management	Provide a variety of activity spaces that support a resident's ability to exercise personal choice and self-control.

The UK Department of Health's HBN 08-02 also establishes a set of design principles for the creation of dementia-friendly health and social care environments.⁶² These are summarised in the table below.

Table 5: HBN 08-02— Design principles for creating dementia-friendly environments

Overarching principles	
Principle 1	Provide a safe environment
Sensory impairments	
Principle 2	Provide optimum levels of stimulation
Principle 3	Provide optimum lighting and contrast
Cognitive impairments	
Principle 4	Provide a non-institutional scale and environment
Principle 5	Support orientation
Principle 6	Support wayfinding and navigation
Principle 7	Provide access to nature and the outdoors
Principle 8	Promote engagement with friends, relatives and staff
Physical impairments	
Principle 9	Provide good visibility and visual access
Principle 10	Promote privacy, dignity and independence
Principle 11	Promote physical and meaningful activities
Principle 12	Support diet, nutrition and hydration

⁶² (Department of Health, 2015); pp.22-23.

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