Appendices

Case studies

Draft National Aged Care Principles and Guidelines: Consolidated guidelines

Gardens that Care: Planning Outdoor Environments for People with Dementia, 2010 (Alzheimer's Australia SA)

Case studies

This appendix includes case studies for:

- De Hogeweyk (Netherlands)
- Korongee (Tasmania)
- Carpe Diem (Norway)
- Village Landais (France)
- New Direction Bellmere (Queensland)

Other examples of dementia accommodation can also be found at the following links:

- Casa Cabrini, Western Australia
- Green Care Farms
- HammondCare Daw Park, South Australia
- Community Home Canberra (Kambera House)
- Uniting Care Amala (Gordon, ACT) and Mirinjani (Weston, ACT)
- Belong, Chester (UK)
- Harmonia Village, Kent (UK)
- Healthia Residential Care Home, South Australia
- The Hawthorndale (New Zealand)
- The CARE Village (New Zealand)

The case studies are provided as examples of contemporary approaches to Dementia Village design. Proponents should undertake their own analysis of national and international exemplars, including with regard to detailed functional design and Model of Care requirements.

De Hogeweyk, Netherlands

Location	Heemraadweg 1, Weesp, 1382GV, The Netherlands
Scale	Accommodation for 150–249 residents living with dementia, within a larger campus of between 250–499 residents. Each house is home to 6–7 people
Site size	3.7 acre site
Year completed	2009
Managed by	Vivium Caregroup
Designers	Dutch architects Molenaar & Bol & VanDillen (now Buro Kade Architects)
Weblink	hogeweyk.dementiavillage.com

De Hogeweyk was a precedent setter when it opened in the Netherlands in 2009. Previous dementia care villages adopted a service model that prioritised the service provider's organisational efficiency in treating disease, disability, and loss. This approach limits people's autonomy, responsibility and individuality within the care setting. The outcome of previous service models for the built environment is that they were built as institutions: large, hospital like settings.

The village developed a person-centred service model, premised on the belief that "people have the right to have fun and a meaningful life." This is reflected in the built environment with a village-like setting in a safe familiar environment complete with shops, cafes and hair salons.

De Hogeweyk adopts a person-centred service model that prioritises:

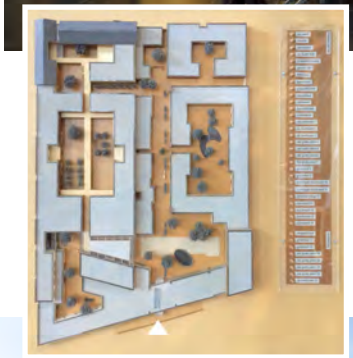
- maximising health, enjoyment and fun
- autonomy and individuality of residents within the facility (which is gated)
- fostering social connection between residents and with family and the broader community through the use of the facility's services such as shops, cafes, pub etc
- providing opportunities for socialisation and privacy in a familiar village-like setting

De Hogeweyk's urban planning creates a familiar 'town like' setting including town square apartments, houses, restaurants, stores, a theatre, gardens, and a pedestrian-only street. Residents are highly autonomous and can walk freely with clear, unobstructed pathways and without the need for help from staffs.

Landscape design prioritises positive stimulation, with a number of opportunities for residents to stop and interact with their surroundings and each other as they move around (eg including benches, fountains, gardens etc). The landscape design allows residents to choose to either socialise or be alone.

De Hogeweyk also uses familiar architectural types. There are a range of house types related to different eras and experiences such as 1950s suburbia, urban apartments, Communist-era housing. The project applies different interior design techniques to trigger memories and provide the sense of familiarity through furniture, artwork and furnishings. It also facilitates residents' individuality by allowing people to tailor of homes including bringing in their own belongings.

The design creates spaces with a clear program to reduce residents' anxiety and foster their independence. This goes beyond wayfinding techniques and taps into architectural language of buildings, with a particular historical feel.



Images sourced from: hogeweyk.dementiavillage.com

Korongee Village, Tasmania

Location	264a Main Rd, Derwent Park TAS 7010
Scale	96 residents (8 people per home) 12 homes on 4 streets and central communal facilities
Year completed	2020
Managed by	Glenview
Designers	Architects: Rob Puflett, Pino Gentile – Thomson Adsett Stephen Geason – Cykel Architecture Rob Davies – RDLA Builder: Fairbrother
Weblink	glenview.org.au vimeo.com/838895594

Korongee designed a model of care and service for people living with dementia and designed the built environment to facilitate that model of care, applying the Dementia Enabling Environment Principles.

The model of care moves away from institutionalisation and prioritises providing autonomy, privacy and dignity to residents in a familiar 'village' like suburban setting, using wellness services and nature as a form of therapy.

Set within an existing Hobart suburb with views of Mount Wellington, Korongee Village includes small homes located around communal village uses. Residents can independently make their own meals, socialise and have their own private space. The streetscape and landscape are designed to ameliorate the symptoms of dementia.

The village includes a range of amenities for the residents and local community including a café, hair salon and general store, community centre and wellness centre, and cinema within a landscape setting that includes an orchard, pocket park gardens and art installations.

Building typologies reflect the surrounding suburbs and landscape colours - single level weatherboard houses with front fences, verandas, and low hedges. The houses are designed so residents can independently use the living and dining facilities within each home. The use of corridors is minimised to make it easy for people to find the dining, living and kitchen spaces.

Residents are supported to independently navigate the village with landscape and streetscape design incorporating wayfinding strategies to reduce potential for residents to feel disorientated.

Colour schemes and building materiality help to differentiate building uses, and village pedestrian pathways use visual cues and signage to assist people find their way easily. Pathways are uniform without clutter or obstructions to enable residents to safely and independently walk through the village.

A series of natural gardens offer sensory stimulation and 'landmarks' (eg through fragrance such as lavender).

"To me it's just like a normal home, very safe, I think it's beautiful" (resident)
It Takes a Village documentary,

Images sourced from:
RDLA.com.au
fairbrother.com.au

References:

Living Architecture feature: vimeo.com/838895594

www.rdla.com.au/projects/korongee-dementia-village

www.architecture.com.au/archives/living-architecture/korongee-dementia-village

www.utas.edu.au/about/news-and-stories/articles/2021/1120-korongee-dementia-village

vimeo.com/439104737

It Takes a Village documentary,thevillagedoco.tv/

Carpe Diem, Norway

Location	Donski in the municipality of Bærum, outside Oslo, Norway
Scale	136 residents in 17 homes (8 people per household) and 22 high-care dementia units.
Site size	18000 m^2
Year completed	2020
Designers	Nordic Architecture
Weblink	nordicarch.com/project/donski-dementia-village archdaily.com/955466/carpe-diem-dementia-village-nordic-office-of-architecture?ad_medium=gallery openhouseworldwide.org/films/carpe-diem

Carpe Diem is a medium density Norwegian dementia village. The project includes 2-3 storey buildings (broken up into smaller household units appropriate for residents with low and higher needs symptoms of dementia) located around central community facilities connected by a public accessible pathways. Varied building heights and roof typologies create a 'neighbourhood' rather than 'institutional' setting.

The community facilities and administration area are located at the 'entrance' to the village but there are no fences used, allowing neighbouring residents to access the village through the community facilities and a side entrance. Internal circulation encourages locals to walk through the village shared spaces.

The village's integration into the local community (both in its service model and built form) is central to its philosophy - creating a normalised environment with a range of activities to enrich residents' life. Village amenities include a restaurant and pub, community centre, gym, hobby room, carpentry workshop, shop, hairdresser and beauty salon, a garden shed, pool, firepit, outdoor activities spaces (with exercise equipment) and spaces for outdoor entertainment programs such as music concerts and movies.

Architecture uses brick and timber materials in facades (including 2 toned brick and untreated wood cladding) to create a familiar residential setting with variety in the buildings.

Reference and images sourced from:
nordicarch.com/project/donski-dementia-village
www.archdaily.com

Village Landais, France

Location	36, rue Pascal Lafitte, Dax, France
Scale	120 residents 4 quarters 16 houses (7-8 people per house)
Size	10,700 m²
Year completed	2020
Managed by	Henri Emmanuelli
Designers	Champagnat & Gregoire Architects, NORD Architects
Weblink	villagealzheimer.landes.fr villagealzheimer.landes.fr/en/video/the-village-landais-alzheimer-short-length www.youtube.com/watch?v=hKIuFSgk2E0&t=142s

Village Landais is a residential care community designed to explore new ways of improving the well-being for people living with dementia. Masterplanning for the site aims to create spaces that function 'like a real village' where residents can enjoy excellent freedom of movement. Homes are at domestic scale, each accommodating 8 ensuite rooms and communal domestic facilities including a functioning kitchen. Some homes are connected to makes transitions easier for staff and to encourage resident interactions.

Accommodating up to 120 residents with dementia symptoms, the village includes housing and lifestyle options for people living with early onset dementia (the youngest resident is 40 years old). This has implications for the services offered such as private spaces for spouses so people can maintain relationships, as well as offering facilities such as the gym.

Autonomy and self-sufficiency is encouraged - residents are able to host meals with their families in their homes and can make decisions about their routines and activities but cannot leave the village without permission. Staff work as 'companions' and don't wear uniforms (to reduce resident's anxiety). The village is also unique in its focus on providing accommodation space for researchers and volunteers to enable the ongoing improvement of the village and in understanding the best approach to dementia care.

Integration into local community is a high priority as part of the model of care. Village Landais provides access for the whole community to village amenities (eg to the on-site restaurant). Extended family (including children) are encouraged to visit - play equipment is available and there is a mini farm, complete with two donkeys that wander the facility. Resident homes are arranged around 'the Bastide' – the heart of the Village – which includes a café / restaurant, a library, art room, performance hall, hair and beauty salon, a medical centre and grocery store.

The architectural language of Village Landais is a contemporary expression of local vernacular architecture. This includes the arches throughout the complex, the central plaza similar to the centre of local villages including terracotta tiling. The design also aims to capture natural lighting, with a focus on energy efficiency and thermal performance to provide comfort for residents and sustainable environmental performance.

Landscape is central to the design of Village Landais with a significant portion of the site dedicated to outdoor spaces. The nature park and pond is located in the centre of the village, providing access to the natural environment from each of the residential quarters and the Bastide.

The site is circular, avoiding dead ends for residents walking the facility. The perimeter is lined with trees to provide screening and reduce the visibility of fencing. Landscape areas include a nature park with pond, outdoor eating / picnic areas, and a productive garden.

The design is quite progressive for dementia villages in its approach to authenticity in landscape and approach to risk (for example, the natural pond retains its existing slope). The space includes potentially dangerous areas that are not flat or technically accessible. While most spaces have natural boundaries, the pond is fenced. This approach offers nature therapy to residents as the space is not artificial or urban.

Images sourced from:
Arch daily https://www.archdaily.com/973948/alzheimers-villa-nord-architects

Newdirection, Queensland

Location	41 Lotus Avenue, Bellmere QLD 4510
Type	Stand alone dementia residential care
Scale	120 residents (17 homes with 7 people in each home)
Year completed	2017
Managed by	NewDirection Care
Designers	Interior architecture: Shaynna Blaze
Weblink	newdirectioncare.com.au

Reflecting a service model of promoting independence and self-sufficiency, NewDirection provides fully functional group homes for residents with commercial kitchens and servicing for laundry. An onsite general store is fully functioning and residents can purchase the food they cook in their homes.

The service model includes a 'home companion' - staff members who don't wear uniforms and accompany residents throughout their day, including assisting with making and sharing meals within the resident's home. As CEO Natasha Chadwick puts it: "it's not about the task it's about the person"

NewDirection aims to integrate within the local neighbourhood, with local community members encouraged to use onsite facilities such as the wellness centre and café . The revenue model adopted by NewDirection is unique - charging some services to residents and the community to supplement government funding.

The homes within the village are offered in a number of designs (and so don't all 'look the same') offering a sense of a more personalised home-like environment.

The landscape and streetscape are designed to be familiar, including 17 single-storey households with 7 residents in each home. Each cottage has a small front and back yard. Street signs are also used throughout the village streets. The homes include ensuite bedrooms, a shared kitchen, laundry, dining and sitting rooms. Residents are able to socialize with other housemates or maintain their privacy as preferred.

End of life accommodation is also available, including accommodation for family members.

The landscape is divided into two precincts: the retail and facilities precinct, located at the front with parking to be accessible to the local community, and the neighbourhood of homes at the back. The retail and facilities precincts provide health services, wellness centre, cinema, retails and a café.

The homes are organised along a central pathway, with each cluster of homes in a cul-de-sac setting. The central area of the residential precinct is productive gardens with trees, BBQ area and a circular sitting space.

The village also uses technology to support dementia care and the General Store uses digital databases of residents with details on residents' likes and dislikes, any allergies and details on the amount of money they have available to purchase items. If a resident takes something without paying, the store person is able to call the relevant house to advise them.

Images sourced from:
https://newdirectioncare.com.au/
https://www.myagedcare.gov.au/find-a-provider/aged-care-homes/1225259

Please note: this consolidated version of the National Principles and Guidelines is for reference purposes only. Proponents should consider the full copy of the Principles and Guidelines (including the relevant checklists) which can be accessed at: www.health.gov.au/resources/publications/draft-national-aged-care-design-principles-and-guidelines?language=en

Draft National Aged Care Principles and Guidelines
Consolidated guidelines

Design Principle	Guideline	
1. Enable the Person **To support people living in a place that maintains their health, wellbeing and sense of identity**	1.1 Personalised Home	***Bedrooms and living areas are furnished with items from people's lives*** *Encourage residents to decorate the place where they live with furniture, artwork, and other objects from their lives. This starts with bedrooms, but should extend to common resident areas, making the entire home more familiar to them. Room design should allow space for residents to bring their own furniture and have open shelving that they can fill.*
	1.2 Minimal Clutter	***Resident areas are uncluttered*** *Minimise visual clutter. Think through the core purpose of each room or outdoor area from a resident perspective, and remove or discreetly store anything that does not reinforce this purpose. For items in resident areas ask, 'Would I have this in my own home?'*
	1.3 Acoustic Comfort	***Unwanted sound (noise) has been removed from resident areas*** *Improve the acoustic environment using strategies of noise elimination (by replacing or dampening noisy equipment, doors, alarm systems), separation (especially between bedrooms and quiet rooms), and absorption (using carpet, curtains and other soft furnishings).*
	1.4 Clean Air	***Air quality is monitored and there is enough fresh air*** *Spot-check quality of the air in the building every six months. Open windows and outside doors to create cross ventilation. In any areas where acceptable levels are not being obtained, consult with a mechanical engineer to identify appropriate solutions. Reduce pollutants that are brought into the building, such as new materials releasing harmful gases, or certain cleaning products.*
	1.5 Brighter Lighting	***Lighting designed to suit older eyes, balancing the need for more light with issues of glare and personal control*** *Ensure that the general light levels are designed for older people, glare is controlled, and lighting can be reduced at night-time. Provide task-lighting in activity-based areas. Use daylight as much as possible. Enable residents to control lighting, reinforcing autonomy. Use high performance commercial fittings, coupled with domestic-style lighting to ensure a domestic appearance is maintained.*
	1.6 Tonal Contrast	***Interior design supports objects being easier to see*** *Use contrasting tones to clarify key surfaces in a room, such as walls and floors. Further highlight fixtures to which residents should have access, such as seating, light switches, and bedroom doors. Avoid the use of reflective surfaces which confuse perception of the material. Use low contrast to hide or minimise objects that should not stand out, such as staff doors, changes in flooring material, and door thresholds.*
	1.7 Simple Circulation	***Simple layouts make it easy for people to find their way*** *Keep circulation simple and easy to navigate without signage, avoiding dead ends. Plan to support bedrooms having a direct line of sight to the main cluster of living rooms and, ideally, to a centrally located kitchen.*
	1.8 Safe Floors	***Flooring is plain in appearance and easy to clean*** *Promote level access, indoors and outdoors. Prioritise use of high-quality healthcare carpet generally and low-sheen acoustic vinyl in bathroom, laundry, dining, kitchen, and back of house areas only. Aim for a consistent tone on floor finishes throughout both the public and private areas of the aged care home, including the transition from inside to outside.*

Design Principle	Guideline	
	1.9 Supportive Seating	***Seating choices and positions support rest, comfort and function*** *Provide additional seating where space allows, particularly in long corridors. In new designs, integrate space for seating rests along corridors and at corridors ends, view points, and changes in direction. Seating should have arms and be varied, easy to see, comfortable, robust, and domestic in style. Fixed seating can be useful in tight spaces.*
	1.10Stress-free Toilets	***Toilets are easy to find and use*** *Ensure that there are toilets which are accessible from main common spaces, easy to find, recognisable and intuitive to use. Specify fittings which are recognisable to users, often more traditional in style, to help someone recognise the room and use items independently. Toilets should be of a good size, so staff are able to support residents.*
	1.11Comfortable Temperatures	***Passive and active heating and cooling systems support comfort and safety*** *Ensure buildings and systems can reliably achieve an internal temperature in the range of 20–26 ˚C in all seasons. Assess risks for temperature extremes in different parts of a building. Be aware of the particular needs of each resident and plan accordingly.*
2. Cultivate a home: **To create a familiar environment in which people have privacy, control and feel they belong**	2.1 Small Households	***People live in groups of no more than 15*** *3 common ways to implement this Guideline:* *Option 1: Independent Group Home Model A stand-alone household located within the local community.* *Option 2: Neighbourhood/Village Model Self-contained households clustered within a complex or larger home.* *Option 3: 'Suite' Model A collection of co-located 'suites' each containing a bedroom, kitchen, outdoor, and living areas.*
	2.2 Private Entries	***Household entry design reduces disruption*** *Create a single front door to each defined household. Services paths should avoid routes through resident areas. Vestibules can effectively provide a buffer space that controls stimulation, acts as an infection control point, and becomes a place to don/doff PPE. Some back of house activity can require use of alternative entries, but these should be inconspicuous.*
	2.3 Domestic Kitchens	***An open plan domestic kitchen is at the heart of each household*** *Provide a domestic-style kitchen that is accessible to people who live in a household and their visitors. The kitchen should be centrally located and adjacent to the dining area. The domestic kitchen might receive food from a commercial kitchen on or off site, or be the primary place of food preparation. Ideally, at least some preparation of meals occurs in this kitchen. The central location is key to safety as it supports visibility throughout the household and uses passive safety features.*
	2.4 Room Clusters	***Households contain multiple areas for smaller groups*** *Provide a cluster of medium-sized open and closed rooms. This might include an open plan lounge, dining areas, and a kitchen. Also provide at least two domestic amenities which reflect residents' cultures and preferences (eg home office, laundry, shed, art studio, or games room). Ideally one room should be separated acoustically, for music, TV or quiet. Each room's function should be easy to recognise through interior design, fixtures, and fittings.*
	2.5 Enabling Corridors	***Corridors are shorter than 20m and handrails are avoided.*** *Corridors in new builds should be less than 20 metres. In existing buildings, measures should be taken to minimise the effective length of the corridor through use of seating, landmarks, and improved lighting. If corridors are reasonably short and/or seating is provided at regular intervals, it should not be necessary to provide handrails in corridors.*
	2.6 Private Bedrooms	***Each resident has their own bedroom*** *Give residents a lockable private bedroom with control over keeping their room how they want it. This includes allowing for layouts that have at least two defined areas, including space to sit, keep plants, rearrange furniture, and decorate the room with personal items.*

Design Principle	Guideline	
	2.7 Ensuite Bathrooms	***Each resident has their own private bathroom*** *Provide residents an ensuite bathroom containing a level access shower, wash basin, and toilet. There should be good storage, and the ability to personalise the room. Provide reinforcing to walls to allow grabrails and enough space for two people to assist a resident comfortably. All fixtures and fittings should be easy to see and intuitive to use.*
	2.8 Appropriate Furniture	***Furniture looks domestic and is fit for purpose*** *Provide robust, ergonomic furniture that is domestic and familiar. Furniture should help the resident recognise the room, and what is happening there.*
	2.9 Clinical Support	***Care supports are well-placed and discreet*** *Provide sufficient handwashing stations, equipment storage and other clinical supports close to where they are needed. However, locate these items discreetly and conceal the access to staff areas either in joinery or by matching doors to the surrounding walls. Where possible hide clinical space, PPE donning and doffing areas, and staff access routes. Locate staff work areas out of resident areas, ideally allowing easy access to those areas.*
	2.10Private Staffroom	***A comfortable place for staff breaks is located away from resident areas*** *Provide staff with a private area away from their work. It should be located outside resident spaces, have a good lounge area and access to a private outdoor space. The area should be connected to a bathroom with shower facilities and a locker room.*
3. Access the Outdoors **To support people seeing, accessing and spending time outdoors in contact with nature**	3.1 Dedicated Outdoors	***A personalised garden or balcony is dedicated to each household*** *Provide a garden or balcony that is an extension of residents' living space, is safe and has opportunities for meaningful engagement. This requires it to be large enough to support the activities residents enjoy and set up appropriately. The space can be a simple, familiar back yard, balcony, or garden.*280 *Fences should not make people feel imprisoned. Balcony balustrading height should not prevent people enjoying views, sunshine, or fresh air flow.*
	3.2 Garden Connections	***Good lines of sight and access connect living areas and the outdoors*** *Support staff training, addressing safety concerns and working towards ensuring doors to the garden or balcony are operable. Ideally locate these adjacent to main living rooms. Maximise visibility, ensuring curtains are drawn back, and other barriers are removed. Doors to the outside must be visible, identifiable, and easily operated by residents. Remove level and tonal changes between the resident areas and outdoors.*
	3.3 Garden Verandahs	***Shaded, sheltered areas are located just outside resident living areas*** *Create sheltered areas immediately outside the doors to the garden. They should be large enough to support at least a small group sitting together around a table.*
	3.4 Garden Destinations	***A variety of outdoor places support different and meaningful activities*** *Different residents will engage with different outdoor activities. Plan and set up outdoor places that match residents' interests. These might include morning tea, gardening, animal tending, or sport. Create areas that support these activities in the garden, ensuring a good path to each space, setting it up with furniture and familiar items, and keeping it clean and well maintained.*
	3.5 Clear Paths	***Garden paths are simple, have seating, and connect back into the building*** *Ensure that the paths around the outdoors are easy to see, simple in layout, and wide enough to suit different levels of mobility. Paths should be slip-resistant, even, and free from clutter and changes in tonal contrast. There should be appropriate seating at regular intervals.*
	3.6 Nature Indoors	***Large windows, indoor planting, fish tanks, and animals connect people to nature while they are indoors*** *Where possible integrate planting programs and pets into aged care homes. Promote the involvement of residents in the maintenance and care of both plants and pets. The design of windows and balconies should help residents connect with nature and the local community from within their home.*

Design Principle	Guideline	
4. Connect with Community **To encourage people to connect with family, friends and community, continuing to participate in meaningful activities**	4.1 Neighbourhood Access	***Links to local cafés, shops, transport, and religious services are supported*** *Where possible locate aged care home near neighbourhood centres. Entering the site should be easy due to accessible configuration.*
	4.2 Community Hub	***Public spaces are available to residents and ideally also used by people living nearby*** *Create public amenities inside or adjacent to the care home. Make these easily visible from the both the street and the resident area. Co-develop such amenities with local institutions, such as places of worship, grocery stores, cafés, social clubs, and childcare facilities.*
	4.3 Easy Navigation to Households	***Routes between street entry, community hubs and households are easy to follow*** *Create easy-to-follow routes between households and those places in the home that residents like to visit.*
	4.4 Integrated Building Form	***Building form is consistent with the character of buildings in the neighbourhood*** *Ensure that the form of buildings relates to other buildings in the neighbourhood through building mass, articulation of facades, surface finishes, the use of green space between a building and the street. Include other features that are common to the neighbourhood and surrounding buildings.*

Gardens that Care: Planning Outdoor Environments for People with Dementia

An Australian Government Initiative

Gardens that Care:

Planning Outdoor Environments for People with Dementia




Alzheimer's Australia SA
Living with dementia

Helping Australians with dementia, and their carers

The Australian Government funds the South Australian Dementia Behaviour Management Advisory Services (SA DBMAS) which is one of eight centres nationally that provides information, advice and support to improve the quality of life of people with dementia and their carers where the behaviour of the person with dementia impacts on their care.

The Australian Government is committed to improving the health of all Australians, ensuring they have access to high quality health services and supportive care services. Through the Dementia Initiative, the Australian Government aims to strengthen the capacity of the health and aged care sectors to provide appropriate evidence-based prevention and early intervention, assessment, treatment and care for people with dementia.

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Design: Kwik Kopy Norwood

What is Dementia?

Dementia is the term used to describe the symptoms of a large group of illnesses which cause a progressive decline in a person's functioning. It is a broad term used to describe a loss of memory, intellect, rationality, social skills and normal emotional reactions that are often reflected in a person's behaviour.

Some of the most common types of dementia are:

- Alzheimer's disease
- AIDS related dementia
- Alcohol related dementia
- Dementia with Lewy bodies
- Down syndrome and Alzheimer's disease
- Fronto temporal lobar degeneration
- Vascular dementia

People with Dementia will exhibit a wide range of behavioural changes throughout the progression of their illness.

Some of the most common changes are:

- Depressed and withdrawn mood
- Wandering and intrusiveness
- Sleep disturbances
- Repetitive actions or questions
- Verbal disruptions
- Physical aggression
- Hallucinations and false ideas
- Socially inappropriate behaviours

Behaviour symptoms associated with dementia account for many negative health outcomes, such as decline in functional status, social engagement and physical activity. (Lyketsos 2007) They also increase the cost of care (Murman & Colenda 2005). The management of these behaviour symptoms associated with dementia is complex. Some strategies focus on prevention or management by medication while others focus on the environment. As we age our ability to adapt to less than optimal conditions becomes more difficult, making the role of the environment increasingly important, particularly for those who are experiencing cognitive difficulties and diminishing physical dexterity (Lawton, 1989). Provision of environmental support to maintain function as long as possible is increasingly being recognised as a way to address the psychosocial needs of individuals with dementia.

Dementia and Garden Environments

Why are gardens an important tool in the care of people with Dementia?

There is a recently resurrected body of knowledge that supports the long held view that our natural surroundings can have a profound effect on people's health, well-being and quality of life. Nature is restorative and has healing powers (Kaplan 1995, 2001). With this in mind, gardens and outdoor environments are increasingly being re-introduced as an important support tool in the care, behaviour management and contributor to the quality of life, of people with dementia.

Gardens designed specifically to support people with dementia provide therapeutic activities designed to maximise retained cognitive and physical abilities and lessen the confusion and agitation often associated with the condition.

Research indicates that physical as well as visual access to nature:

- helps people recover from illness quicker
- reduces stress and lowers blood pressure
- helps a person maintain circadian rhythms (the sleep/wake cycle)
- aids in the natural absorption of vitamin D when exposed to sunlight for brief periods of time, which is important for maintaining strong bones.

Therapeutic Benefits

Although unable to pin down a solid reason, studies have shown that human beings possess an innate attraction to nature. It is known that being outdoors creates feelings of appreciation, tranquillity, spirituality and peace and so it would seem, that just being in a garden setting is in itself restorative and active gardening heightens those feelings.

The activity of gardening has many particular advantages for those with dementia.

Gardening:

- Is an enjoyable form of exercise
- Increases levels of physical activity and maintains mobility and flexibility
- Encourages use of all motor skills – walking, reaching, bending and planting seeds and taking cuttings
- Improves endurance and strength
- Helps prevent diseases like osteoporosis
- Reduces stress levels and promotes relaxation
- Provides stimulation and interest in nature and the outdoors
- Improves sense of wellbeing due to the social interaction

One important benefit to using gardens in the therapy of those with dementia is that traditional forms of communication aren't always required. Gardening activities lend themselves easily to communicatively disabled individuals. This in turn builds teamwork, self-esteem and self-confidence, whilst encouraging social interaction.

There are also many mental benefits such as increased abilities in decision-making, self-control and increased confidence and self-esteem and hope are also common in dementia-specific garden environments.

Gardens That Heal

There are commonly two forms of garden with healing properties:
Healing, Sensory and Meditation Gardens
Horticultural Therapy and Therapeutic Landscapes

Healing Gardens are calming and peaceful garden settings where one can escape and emotionally regenerate. A place to meditate, to quietly chat or to just relax and get away from it all. By spending time in a healing garden users are healed in a passive way, through sensing nature.

Examples of a healing garden include:
- Sensory Gardens

A sensory garden is a garden that stimulates all five senses, sight, sound, smell, taste and touch. The plants and materials in the garden are specifically chosen for their scent, texture, colour and edibility.

- Meditation Gardens

Meditation gardens are quite often linked to specific religious or spiritual practices. They can take on many different forms, but their primary purpose is to provide a beautiful and therapeutic place for relaxation, rejuvenation and meditation.

> "A garden environment for people with dementia is best to be a combination of both a healing garden and a horticultural therapy/therapeutic landscape."

Horticultural Therapy and Therapeutic Landscapes are very different from healing gardens in that they promote active healing. The garden setting is specifically designed to be used by therapy professionals such as physiotherapists, psychologists, occupational therapists, diversional therapists and nurses as a tool for specific courses of therapy. Individuals are healed by actively participating in garden activities.

Horticultural Therapy is a recognised form of therapy and uses garden related activities to heal social, cognitive, physical and psychological issues as well as enhance general health and wellbeing.

Examples of horticultural therapy or therapeutic landscapes include:
- Dementia-specific gardens
- Mobility gardens
- Rehabilitation gardens
- Community gardens
- Raised garden beds

Garden Implementation Process

How to Implement a Dementia-Specific Garden into your Facility or Community

- Build a business case to put forward to facility management or community leaders that explains the benefits of a dementia-specific garden for your community and how the garden will meet organisational policies, strategic plans and mission statements. This will also be strongly influential in developing grant applications.
- Determine project goals. What do you want the garden to achieve?
- Set up a pre and post evaluation study that evaluates the benefits of the garden on the health and well-being of people with dementia. This will be a valuable resource to share with the aged care community and will support others implementing dementia-specific gardens into their facilities or communities. This doesn't have to be a huge task but a simple collection of data that evaluates how people used the outdoors before and once the garden is in full use, focusing on behavioural, medical and social improvements.
- Determine therapy goals. How will the garden be included in the daily therapy programs of your facility or community? E.g. physiotherapy, occupational therapy and horticultural therapy. "Developing a strong outdoor activity program before, not after the garden is designed and built is the foundation that determines how the design can best support activities and ultimately the residents. It is important to envision a clear and detailed picture of the experiences you want to create and the activities you want to accommodate before putting pen to paper to begin designing the garden. The most successful gardens are designed and built to accommodate robust activity programs." (Brawley 2007)
- Include staff and community participation in the planning and designing of the garden as they have a major influence on the successful use of the garden and the implementation of the activity programs.

Garden Implementation Process

- Include people with dementia in the planning of the garden. This will foster a sense of ownership and inclusion.
- Before you pick a location for your garden employ a landscape architect or designer to determine the best garden site opportunities. These will be based on climatic influences such as sun, shade, wind and noise; functional aspects such as accessibility, supervision, safety; and locality to internal activity spaces, bedrooms and conveniences.
- Invite your landscape architect/designer to participate with people with dementia in existing outdoor or garden related activity programs. This will give them a better understanding of how the design must adapt to special needs.
- Your landscape architect will then put together a conceptual design based on information collected during their initial consultation with staff, key stakeholders and end-users.
- Work with your landscape architect to refine the concept design based on priorities. Be aware that your budget may not be able to include everything on the wish-list, so prioritise. Often projects are designed for staged construction to be implemented as funding becomes available.
- Determine how the garden will be maintained. e.g. in-house gardener, community gardening group.
- Once you are happy with the conceptual design your landscape architect will develop a set of construction drawings that will be used to tender the construction. Landscape contractors will be invited to quote on the construction of your project.
- Develop a site disruption plan that manages how the community or facility and residents will be affected by the construction.
- Employ a project manager or retain your landscape architect to manage the construction phase and ensure your garden is built as designed.
- Grand opening. Make it special. Invite everyone involved. Include the families of those you are building the garden for.
- Commence the planned outdoor therapy and activity programs.
- Undertake a post occupancy evaluation. Evaluate how the garden is meeting its objectives. What were the project goals? Did the outdoor space meet the project goals? Is it being used the way it was intended? Do residents spend more time outside? Has the garden helped to increase mobility and exercise? Is it being properly maintained? By answering these questions and rectifying any issues up-front your garden will become sustainable and usable for many generations to come.

What to Consider When Planning a Dementia-Specific Garden

During the formation of this guide a committee of dementia experts from Alzheimer's Australia independently reviewed various examples of dementia related gardens looking for specific design elements that through research were reported to support the quality of life of people with dementia and were aids in their therapy programs. These design elements were then mapped to a matrix of underlying health and behavioural benefits. From this process a list of key design principles were determined.

The key design principles are:

- Sustainability
- Orientation
- Accessibility
- Socialisation
- Meaningful activity
- Reminiscence
- Sensory stimulation
- Safety

In the following pages each of these key design principles are explained and broken down into design instructions aimed at aiding organisations in the planning and designing of their dementia-specific garden.

Sustainability

The longevity of a dementia-specific garden is dependent on the understanding of its therapeutic value, activity programs and maintenance regime.

Su1 Use predominantly low maintenance plants except in interactive garden beds used for horticultural therapy activities.

Su2 Ensure the garden is self-sufficient by including a rainwater tank specifically for watering the garden.

Su3 The garden's success is very much dependent upon the staff's understanding of the design. By recognising the different elements and their functions and use, staff will feel more empowered to develop activities that encourage the use of the gardens.

Su4 Ensure that gardens are visible to staff. Staff should feel relaxed enough to allow people with dementia unrestricted access to the garden. If this is not possible then users will not gain the maximum benefit from the garden.

Su5 Organise a regular gardener or gardening group to maintain the garden. Locate a garden shed in or nearby the garden for ease of maintenance.

Su6 Collect garden and kitchen scraps for a compost bin. Use the compost to feed the garden.

Orientation

People with dementia often forget where they are going and from where they've come. This can be confining and inhibit them from exploring outdoors. By designing a garden that enables users to orientate themselves through visual cues they will gain a sense of control and in-turn self confidence.

01 Locate gardens where they can be easily viewed from inside to encourage people with dementia to venture out.

02 Incorporate a simple looped path system to lead users along a journey of interesting focal points and then return them to a where they began.

03 Ensure the entry/exit is obvious, clearly marked and open at all times to ensure that users feel in control of their garden journey and do not feel trapped.

Orientation



04 Locate garden elements where they can be seen from numerous vantage points to encourage users to explore and also to orientate themselves.

05 Edge paving and paths with a contrasting colour or raised edge. This will support way-finding and define the change from paving to garden.


06 Screen fences with plants to make them less obvious. This will minimise feelings of enclosure.

07 Use signs that lead users to entries and key locations.

Accessibility

Accessibility affects people with dementia on both a physical and mental level. Ensure your garden is accessible to people with dementia by removing the physical and mental barriers.

A1 Make gardens accessible all year round by incorporating conservatories, sunrooms, greenhouses and indoor planting.

A2 Ensure main paths are wide enough for two users either walking or in wheelchairs to pass easily.

A3 Choose garden furniture that is of a sturdy timber construction with armrests for ultimate comfort and accessibility.

Accessibility



A4 Offer a range of garden beds at differing heights for ease of access.

A5 Intermittently placed handrails or waist-height structures to enable users to rest or balance themselves as they move throughout the garden.


A6 Ensure there is plenty of shade for sunny days and warm sitting areas in the winter as people with dementia will not venture out if there is a large change in temperature.

A7 Locate seating at regular intervals for resting.

A8 Supply tools that are designed specifically for limited strength and mobility.

Socialisation

Enhance the quality of life of people with dementia by creating opportunities to socialise and interact with friends, family, children, pets and carers.

So1 Include interactive garden features that will bring people together such as men's shed, raised garden beds, flower gardens, bird feeders and bird baths.

So2 Include elements that encourage interaction between family members and people with dementia such as child-friendly elements, areas for pets and easy conversation pieces.


So3 Incorporate all-year sheltered and heated outdoor entertaining areas for celebrations, family visits and outdoor group activities.


So4 Include a range of seating styles in numerous locations which offer people with dementia an opportunity to choose how they use the garden.




So5 Include quieter, passive areas for refuge and large activity areas for groups.

Meaningful Activity

"People with dementia still have the energy and desire to remain active and involved in the world around them. Throughout our lives, we develop activities and interests, hobbies, likes and dislikes, skills and talents, that give our life structure and meaning and provide a sense of worth. These activities whether recreational or activities related to ordinary household tasks, establish a routine, provide opportunities for socialization, and help define who we are." (Brawley 2007).

M1 Design the main path to lead people with dementia along a journey of discovery, linking small and large garden spaces and focal elements of interest.

Meaningful Activity




M2 Include home-like activities in the garden to engage users in daily chores as they would have in their own homes such as posting a letter, making a telephone call, washing the car, gardening, sweeping, hanging out washing, watering the plants, feeding the birds and tinkering in the shed.

M3 A level and safe walking route will encourage people with dementia to exercise. Design the route so it loops both inside and outside for a more stimulating experience.

M4 Include garden features that require daily interaction such as a bird feeder, herb garden, bird aviary or fish pond.

M5 Incorporate raised vegetable gardens, herb gardens and fruit trees to engage people with dementia in the task of food production. Use the produce in activity programs, daily meals or social bbqs.

M6 Work with staff to develop horticultural therapy/outdoor activity programs that are supported by the garden and its design.

Reminiscence

For people with dementia encouraging the act of reminiscence can be highly beneficial to their inner wellbeing and their interpersonal skills. Reminiscence involves exchanging memories with others and the passing on of information, wisdom and skills. By incorporating reminiscence elements and activities, people with dementia are able to engage with the world around them and retain feelings of value, importance, belonging and peace.

R1 Incorporate elements that evoke memories of the users pasts such as bird baths, wheelbarrows, old cars, farming elements, pottery, old kitchen utensils and old gates.




R2 Plant the gardens with plants that are familiar to the age and culture of the users.


R3 Ensure garden elements are of an era, style and material familiar to the users.


R4 Work with the support staff to develop outdoor activity programs that evoke memories for people with dementia.

Sensory Stimulation

Sensory stimulation is important in the overall emotional wellbeing of people with dementia. It can convey emotional support, affection and respect and also play a major part in helping people with dementia communicate. Sensory stimulation is the engaging of any of our five senses – sight, sound, taste, touch and smell.

Se1 Develop a garden that stimulates the five senses through use of colour, scent, texture, sound, taste and seasonal change.

Sensory Stimulation

Se2 Include garden elements that are interactive and engaging to people with dementia.

Se3 Ensure that gardens can be viewed from inside so that watching the rain or wind in the trees can be enjoyed by people with dementia even when it's too cold to go outside.

Se4 Include gardens of differing heights to enable users to easily touch, smell and taste the plants.

Se6 Incorporate lighting for night-time use or viewing from indoors.

Se5 Include nature attracting elements to attract native birds, animals and insects.

Se7 Work with the support staff to develop outdoor activity programs that focus on stimulating the five senses.

Safety

Safety can be the defining factor in whether a garden is allowed to be used or not. Ensure that all potential safety issues are addressed in the planning process of the garden.

Sa1 Ensure paths and paving are level, smooth, slip resistant and low glare.

Sa2 Secure the garden with 1.8m high fencing. Locate posts on the outside so there are no footholds.

Sa3 Locate large trees at a distance from the fence to inhibit people with dementia using them as a climbing aid.

Sa4 Disguise entrances and exits that are not for people with dementia by making them unmarked panels in the fencing. Ensure there are no obvious locks or handles.

Sa5 Ensure that garden features are strong and sturdy. Secure features where necessary so they cannot be lifted or thrown.

Sa6 Ensure that there is ample shade.

Sa9 Follow safety instructions on potting mixes.

Sa7 Shelter building thresholds to allow resident's eyes time to adjust to the change in lighting levels.

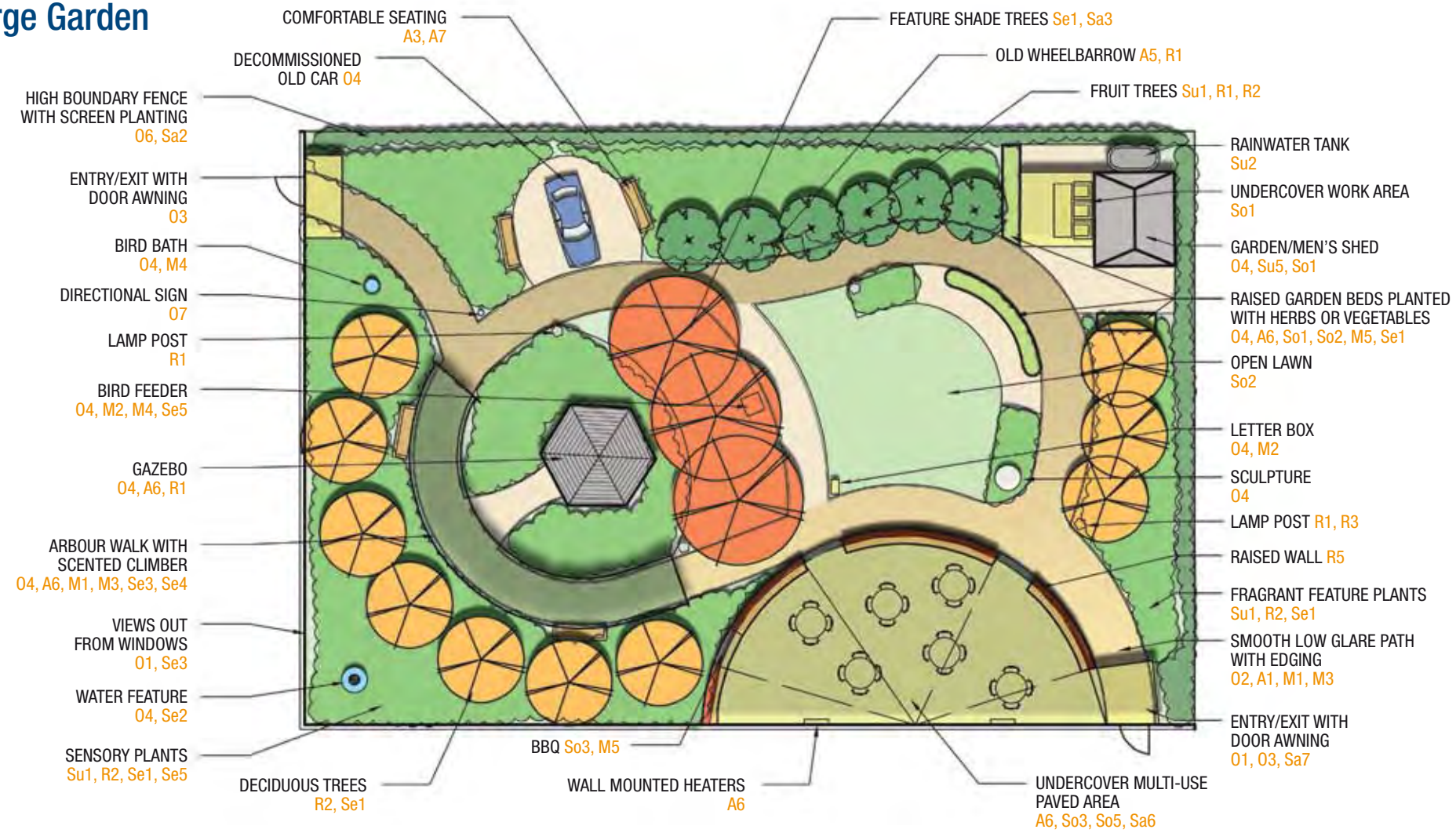
Sa10 Don't forget to slip, slop, slap.

Sa8 Ensure that all plants are non-toxic.

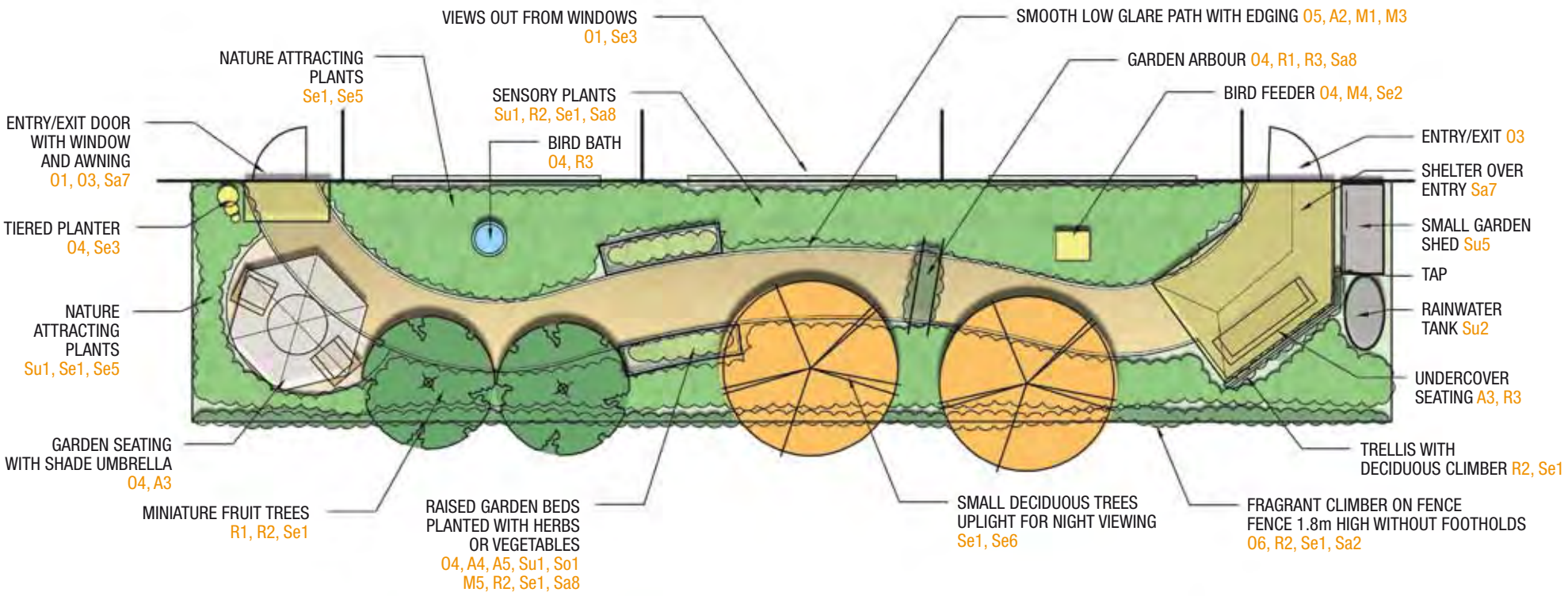
Basic Garden Design Ideas

Here are a few basic design ideas to show how the design instructions come together in the layout of a dementia-specific garden.

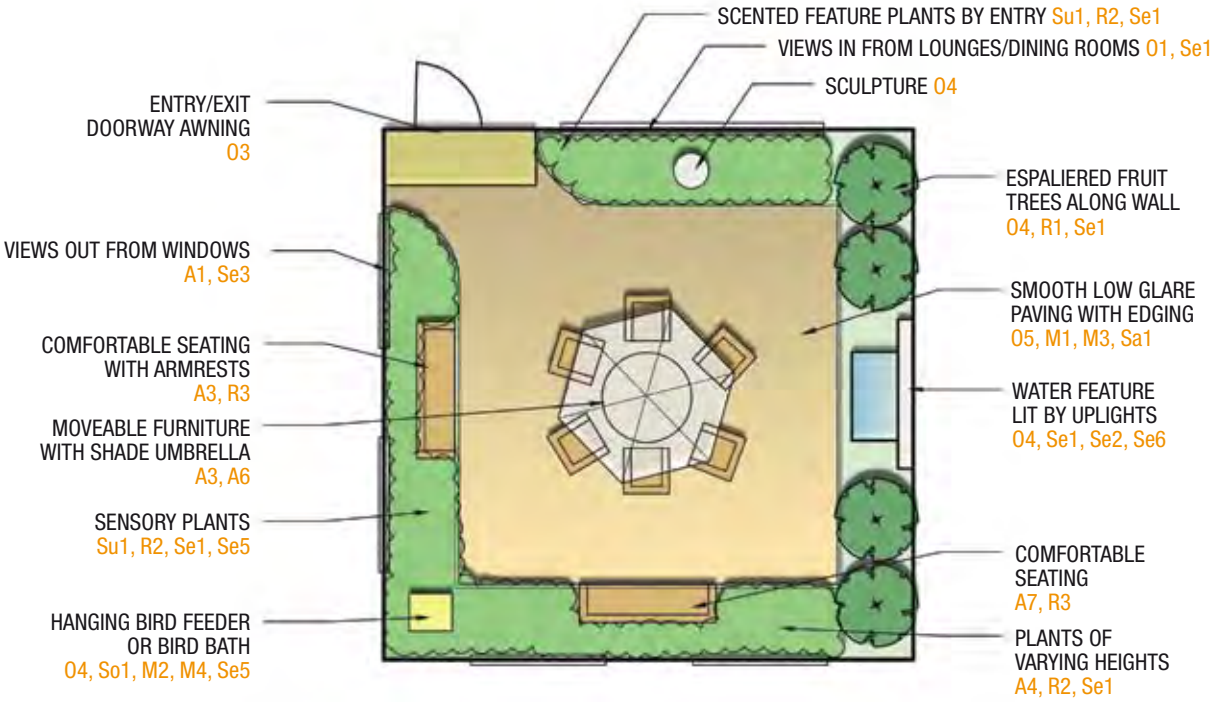
Large Garden



Narrow Garden



Small Inner Courtyard



Horticulture Therapy Program

Horticultural therapy is one of the many therapies that can be undertaken in a garden environment. Horticultural therapy programs use horticulture and garden related activities to enhance the social, emotional and physical well-being of people.

Here are a few dementia-specific horticultural therapy program activities.

Flower Arranging

Equipment:

- oasis block
- ribbon
- cellophane gift wrap
- flowers
- foliage
- scissors

Objective: Sensory stimulation through sight, touch and smell. Participants enjoy this activity as it is achievable for those with dementia, validating achievable skills. The activity promotes feelings of enhanced self esteem and fun. Reminiscence is generated by talking of gardening and flowers. Discussion is prompted by talking of events when one would receive flowers.

Description: Soak oasis block in water. Cut to smaller size or leave whole. Place cellophane wrap on table with oasis block in the centre, one for each resident. Arrange flowers and foliage in oasis block. Draw cellophane up around block and foliage/flowers tie with ribbon. Top up with water as required.

Pine Cone Bird Feeder Ornaments

Equipment:

- pine cones
- sturdy string
- plastic knives
- peanut butter
- bird seed

Objective: For participants to experience creativity and utilise fine motor skills.

Description: Distribute peanut butter on pine cone, and then sprinkle with bird seed. Attach string to pine cone, then assist participants in hanging their creations for the birds to enjoy! This activity is fun for any population, but can be especially valuable when working with Alzheimer's patients; they are sometimes prone to put non-edible things in their mouths, but this activity is safe for them in that aspect. This activity can also be used for Christmas ornaments by simply using glue, glitter, sequins, etc.

Decorating Empty Plastic Pots for Planting

Equipment:

- Empty plastic pots 5 to 10L size
- Coloured paint

Objective: Creativity through imaginative art in decorating empty plastic pots for the purpose of using them for planting flowers, vegetables, etc. The activity increases self esteem.

Description: Collect empty plastic pots. Wash them well. Drill holes in the bottom of pots if necessary. With paint (spray paint, oil base paint or acrylics) the resident uses their imagination to decorate the pot with hand painted pictures of favourite plants, flowers or vegetables. Let dry. Seal them with clear spray paint for a shiny coat. Fill them up with potting soil. Residents plant their favourite plant and watch them grow with love and tender care.

(Give participants ideas, but allow them to use their imagination) Works better with participants with low self esteem. Give praise for job well done. If vegetables are grown, allow participants to make salads. If flowers are grown, allow participants to photograph them.

Indoor Tropical Plants

Equipment:

- Assorted tropical plants – Bromeliads, Palms, Ferns
- Soil less mix
- Hand Tools
- Pots
- Watering Cans

Objective: To increase sensory awareness and to foster creative expression.

Description: Arrange tropical plants on table. Discuss how tropical plants become house plants. Demonstrate how to pot-up plants. Have group pot-up plants. Water plants. Date & label with participant's name.

Useful Plants

Horticultural Therapy Activities

- Nasturtium
- Lavender
- Cherry tomatoes
- All Herbs
- Zucchini flowers
- Banksia flowers and leaves
- Any plant that requires pruning or garden maintenance

Sensory Plants

Smell

- Rose
- Mint
- Thyme
- Jasmine
- Lavender
- Rosemary
- Lemongrass

Touch

- Lamb's ears
- Fountain grass (Pennisetum alopecuroides)
- Paperbark tree
- Banksia
- Kiwi fruit
- Any bark

Sound

- Sheoak trees
- Gum trees
- Fountain grass
- Mat rush

Taste

- Basil
- Passionfruit
- Strawberries
- Capsicum
- Peppermint
- Sage
- Chive
- Avocado

Seasonal Change

- Ornamental Pear
- Maple
- Ash
- Honey Locust
- Jacaranda
- Magnolia
- Camellia
- Gardenia

Butterfly and Bird Attracting

- Bottlebrush
- Grevillea
- Wattle
- Correa
- Mat rush
- Cut-leaf daisy
- Sweet bursaria
- Tufted bluebell
- Kangaroo grass
- Coastal rosemary

Plants listed here are only a guide.
Please refer to your local council for plants specific to your region.

Further Information

Websites

Australia

Alzheimer's Australia www.alzheimers.org.au
Horticultural Therapy Association of SA www.htsa.org.au
Horticultural Therapy Association of NSW
www.cultivate.org.au
Horticultural Therapy Association of Vic www.htav.org.au
Australian City Farms and Community Gardens Network
www.communitygarden.org.au
Connection2Nature: Enabling garden tools
www.connection2nature.com.au
Eden Alternative www.edeninoz.com.au

International

Thrive www.thrive.org.uk
American Horticultural Therapy Association www.ahta.org
Therapeutic Landscapes Network
www.healinglandscapes.org
Access to Nature: Planning Outdoor Space for Aging
www.accesstonature.org

References

- Abbott. (1997). Innovations in Intergenerational Programs for Persons who are Elderly: The Role of Horticultural Therapy in a Multidisciplinary Approach. *Activities, Adaptation & Aging.* 22(1-2): pp. 27-39.
- Beckwith, M. Gilster S. *The Paradise Garden: A Model Garden Design for those with Alzheimer's Disease.*
- Bengtsson, A. & Carlsson, C. (2005). Outdoor Environments at Three Nursing Homes: Focus Group Interviews with Staff. *Journal of Housing for the Elderly.*
- Bossen, A. (2010). The Importance of Getting Back to Nature for People with Dementia. *Journal or Gerentological Nursing,* vol 36, no. 2, pp 17-22.
- Brawley, Elizabeth C. (1997). *Designing for Alzheimer's Disease: Strategies for Creating Better Care.* John Wiley, New York. USA.
- Brawley, E C. (2007). Designing Successful Gardens and Outdoor Spaces for Individuals with Alzheimer's Disease. *Journal of Housing for the Elderly,* 21:3, pp 265-283.
- Burgess, C. W. (1990). Horticulture and its Application to the Institutionalized Elderly. *Activities, Adaptations and Aging,* 14(3): pp. 51-61.
- Burns, A., J. Byrne, et al. (2002). Sensory Stimulation in Dementia. *British Medical Journal,* 325: pp. 1312-1313.
- Calkins, M, Szmerekovsky, JG. and Biddle, S.(2007). Effect of Increased Time Spent Outdoors on Individuals with Dementia Residing in Nursing Homes. *Journal of Housing For the Elderly,* 21: 3, pp 211-228.
- Carmen J. (2000) ASLA: Annual Meeting Proceedings: *Gateway to Discovery Creating Therapeutic Gardens for Individuals with Alzheimer's Disease,* USA, pp.181
- Chalfont GE, Rodiek S (2005) Building Edge: An Ecological Approach to Research and Design of Environments for People with Dementia. *Alzheimer's Care Quarterly*
- Chalfont, G. (2005, October). Creating Enabling Outdoor Environments for Residents. *Nursing and Residential Care,* Vol 7, No 10.
- Chapman, N J., T. Hazen & E.Noelle-Waggoner. (2007). Gardens for People with Dementia: Increasing Access to the Natural Environment for Residents with Alzheimer's. *Outdoor Environments for People with Dementia.* pp 249-263. The Haworth Press Inc.
- Cohen, U. and G.D. Weisman. (1991). *Holding on to Home: Designing Environments for People with Dementia.* Baltimore: Johns Hopkins University Press.
- Cohen-Mansfield & Werner. (1998). *Visits to an Outdoor Garden: Impact on Behaviour and Mood of Nursing Home Residents Who Pace.* Research and Practice in Alzheimer's Disease. B. Vellas and L. J. Fitten (eds.). New York: Springer, pp. 419-436.
- Cohen-Mansfield J, Werner P. (1999) Outdoor Wandering Parks for Persons with Dementia: A Survey of Characteristics and Use. *Alzheimer Assoc.*13(2). pp 109-17.
- Connell, B R, Sanford, J A. and Lewis, D. (2007). Therapeutic Effects of an Outdoor Activity Program on Nursing Home Residents with Dementia. *Journal of Housing For the Elderly,* 21: 3, pp. 194-209.
- Cooper Marcus, C. (2007). Alzheimer's Garden Audit Tool. *Outdoor Environments for People with Dementia.* (ed: Susan Rodiek and Benyamin Schwarz). The Haworth Press Inc., pp. 179-191.
- Cultivate NSW. (2007). *Raised Garden Beds – Fact Sheet.* Horticultural Therapy Society of NSW.
- Cultivate NSW. (2007). *Sensory Gardens – Fact Sheet.* Horticultural Therapy Society of NSW.
- Ebel, S. (1991). Designing Stage-specific Horticultural Therapy Interventions for Patients with Alzheimer's Disease. *Journal of Therapeutic Horticulture,* 6(1): pp. 3-9.
- Epstein, M. (2002). Building an Alzheimer's Garden in a Public Park. *Interaction By Design: Bringing People And Plants Together For Health And Well-being* (an International Symposium) by *Candice A. Shoemaker.* USA
- Gamble, J. C. (Jan 2007). Multigenerational Playgrounds. *Park and Recreation Design.* USA.
- Gigliotti & Jarrott, et. Al. (2004). Harvesting Health: Effects of Three Types of Horticultural Therapy Activities for Persons with Dementia. *Dementia,* 3(2): pp.161-180.
- Grealy J, Garbutt M. (2006). Natural Healing: Dementia Sensitive Design: The Garden. *Hospital & Healthcare Aged Care Review.* May 2006, pp.12-15.
- Heath, Y. (2004). Evaluating the Effect of Therapeutic Gardens. *American Journal of Alzheimer's disease,* 19(4): pp 239-242.
- Horticultural Therapy Association of Victoria. (2006). *Edible Garden – Creating your own plants.* Melbourne: Department of Human Services.
- Horticultural Therapy Association of Victoria. (2006). *Gardens for the Senses.* Melbourne: Department of Human Services.
- Horticultural Therapy Association of Victoria. (2006). *Gardening for Seniors.* Melbourne: Department of Human Services.
- Kaplan, R and Kaplan, S. (1990). *Restorative Experience: The Healing Power of Nearby Nature,* in M. Francis and R.T. Hester (eds.) The Meaning of Gardens. Cambridge, Mass.: MIT Press.
- Kaplan, R., (1973). Some Psychological Benefits of Gardening. *Environment and Behavior,* 5(2): pp.145-162.
- Kaplan, R. (2001). The Nature of the View from Home: Psychological Benefits. *Environment and Behavior,* 33(4): pp.507-542.
- Mooney P, Nicell PL. (1992).The Importance of Exterior Environments for Alzheimer Residents: Effective Care and Risk Management. *Healthcare Manage Forum* 5(2): pp.23-29.
- Marcus CC, Barnes M, eds. (1999) *Healing Gardens: Therapeutic Benefits and Design Recommendations.* John Wiley, New York.
- Mattson & Hilvert. (1976). Psychological, Social, Physical and Educational Effects of Horticultural Therapy for Geriatrics. *Hortscience.*
- Mooney & Milstein. (1994). *Assessing the Benefits of a Therapeutic Horticulture Program for Seniors in Intermediate Care.* The Healing Dimensions of People-Plant Relations Conference. UC Davis, CA: Center for Design Research. USA
- Pollock, A. (2001). *Designing Gardens for People with Dementia.* Stirling: Dementia Services Development Centre. U.K.
- Rappe, E and Topo, P. (2007) Contact with Outdoor Greenery Can Support Competence Among People with Dementia. *Journal of Housing For the Elderly,* 21: 3, pp. 229-248.
- Stoneham J, Thoday P. (1994). *Landscape Design for Elderly and Disabled People.* Packard, Chichester U.K.
- Ziesel, J. (n.d.). Treatment Effects of Healing Gardens for Alzheimer's : A Difficult Thing to Prove. *Edinburgh Garden Paper: University of Salford & Hearthstone Alzheimer Care,* U.K, pp 1-6.

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Tara is a Landscape Architect with over 9 years experience in landscape architecture and urban design within the private and public sectors of Adelaide, Melbourne and Sydney.

Tara has a passion for designing educational, healing and therapeutic landscapes for aged care, healthcare and educational facilities.

“The impact of a garden is much more than something attractive to look at. It is a therapeutic tool that can be used to revitalise health and to enhance emotional, social and physical wellbeing.”

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Living with dementia

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