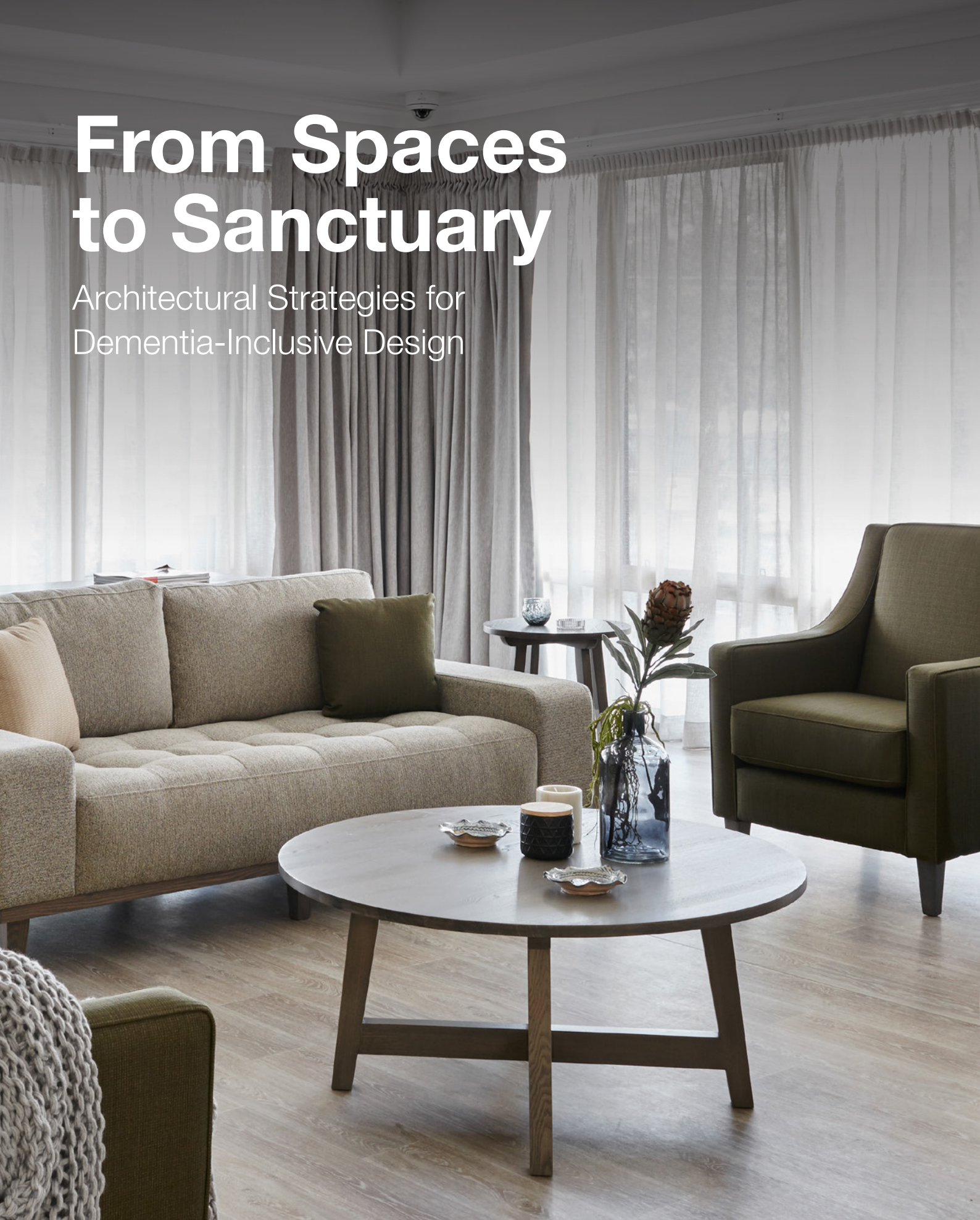


From Spaces to Sanctuary

Architectural Strategies for
Dementia-Inclusive Design





INTRODUCTION

Australia's aging population is growing rapidly, with dementia emerging as one of the leading causes of disability among this demographic. Currently, approximately 400,000 people in Australia are living with dementia, a figure projected to more than double by 2058, reaching around 800,000.¹ As this number rises, the need for dementia-friendly healthcare environments becomes increasingly urgent.

While medical advancements continue to improve dementia care, the built environment remains a critical yet often overlooked factor in enhancing the quality of life for individuals with cognitive impairments. Thoughtful design can help mitigate confusion, reduce stress and promote independence for those living with dementia.

Despite the importance of the built environment in dementia care, many healthcare and aged care facilities

are not optimally designed to accommodate cognitive impairments. Common design shortcomings include poor wayfinding, overstimulating or disorienting layouts, inadequate lighting and a lack of accessible outdoor spaces. These environmental barriers can contribute to distress, increased fall risks and reduced quality of care.

Inclusive design provides a framework for creating environments that support individuals with varying abilities, including those with dementia. It encompasses considerations for vision, hearing, mobility, intellectual abilities and communication needs, ensuring that spaces are intuitive, accessible and supportive. This paper will explore how architects and designers can implement these principles to create environments that enhance the well-being of people living with dementia while also improving overall healthcare outcomes.

INCLUSIVE DESIGN AND COGNITIVE DIVERSITY

Historically, inclusive design has focused primarily on physical accessibility, such as ramps, wide doorways, and step-free entrances. While these features remain essential, growing research highlights the importance of designing for sensory and cognitive inclusivity as well.

Neurodiversity-focused design enhances accessibility for individuals with dementia, as well as autism, ADHD and other neurological differences by addressing factors such as lighting, wayfinding, acoustics and spatial organisation. Simple yet effective design strategies, such as reducing visual clutter, using clear and consistent

signage, and incorporating calming colour schemes can significantly improve the user experience for those with cognitive impairments.

As the understanding of inclusive design evolves, the industry is shifting toward a more holistic approach that integrates sustainability, neurodiversity and wellness. This movement recognises that human and environmental well-being are interconnected, requiring solutions that not only minimise ecological impact but also enhance physical, cognitive and emotional health.

UNDERSTANDING DEMENTIA

Dementia is a broad term used to describe a group of illnesses that cause a progressive decline in cognitive and physical functioning. It affects memory, intellect, rationality, social skills, and the ability to perform daily tasks. There are multiple types of dementia, including Alzheimer's disease, vascular dementia, frontotemporal dementia and Lewy body disease, each with distinct causes and patterns of progression. While dementia can occur in younger individuals, it is significantly more common after the age of 65, making it a major concern as populations age.

In Australia, dementia is the second leading cause of death based on recent figures.² As life expectancy increases, the number of people affected by dementia continues to rise, presenting challenges for healthcare systems and society in general. Given its progressive nature, dementia affects

not only individuals but also families, requiring long-term care solutions that address cognitive, emotional and physical needs. With no cure currently available, prevention strategies and supportive environments play a crucial role in improving quality of life for those living with dementia.

While some risk factors for dementia, such as age and genetics, are beyond human control, lifestyle choices can influence cognitive health. Regular physical exercise, a brain-boosting diet, and the management of conditions like high blood pressure, diabetes and hearing loss can help reduce the risk of developing dementia. Mental stimulation, social engagement, and quality sleep are also vital in slowing cognitive decline. Although these strategies cannot prevent dementia entirely, they contribute to overall brain health and may delay the onset or severity of symptoms.





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CHALLENGES FACED BY PERSONS LIVING WITH DEMENTIA IN THE BUILT ENVIRONMENT

Wayfinding and navigation

For individuals living with dementia, navigating the built environment can be a significant challenge. Recognising familiar places may become difficult, leading to disorientation and confusion, particularly in complex layouts with long corridors and a lack of clear signage. Wayfinding difficulties can result in frustration, anxiety, and even unsafe wandering, leading to low levels of self-esteem and interaction.

Sensory processing differences

Dementia often affects how individuals process sensory information, making certain environmental features overwhelming or disorienting. Sensitivity to noise is common, with background sounds such as alarms, loud voices, or echoes causing distress. Visual perception changes can also create confusion, as individuals may struggle with distinguishing colours, depth, and contrast. Poor lighting, glare, or sudden brightness changes

may lead to discomfort or misinterpretation of spaces. Additionally, strong patterns, mirrors and reflective surfaces can create illusions or confusion.

Emotional and psychological responses

Cluttered, noisy, or visually chaotic spaces can trigger anxiety and agitation, whereas calm, familiar, and homely environments promote relaxation and security. Predictability is essential—sudden changes in the environment, such as unexpected noise or rearranged furniture, can cause distress.

Physical mobility and safety

Dementia-related mobility challenges increase the risk of falls and injuries in poorly designed environments. Uneven flooring, poor lighting and confusing visual cues can make movement difficult and unsafe. Stairs, thresholds, and slippery surfaces present additional hazards, particularly when contrast or depth perception is impaired.

DESIGNING FOR DEMENTIA: KEY PRINCIPLES ENVIRONMENT

What is a dementia-friendly environment?

A **dementia-friendly environment** is a thoughtfully designed space that promotes independence, well-being and engagement for individuals living with dementia. It prioritises **safety**, ensuring clear, unobstructed pathways, non-slip flooring, and even lighting to reduce fall risks. **Orientation** is enhanced through intuitive layouts, familiar surroundings and clear wayfinding cues like colour contrasts, landmarks, and signage. These features help individuals navigate their environment with confidence.

Supporting **memory** and **comfort**, dementia-friendly spaces incorporate recognisable objects, structured routines, and familiar design elements to create a reassuring atmosphere. By fostering **positive behavior**, these environments enable participation in meaningful tasks and daily activities, reinforcing a sense of purpose and autonomy. Thoughtful design balances all these factors, reducing distress while promoting dignity and emotional well-being.

How to improve safety

Light reflectance values: Light reflectance values (LRVs) measure the amount of visible light reflected from a surface, ranging from 0 (pure black) to 100 (pure white). Tonal contrast is the degree of difference in tone between two materials.

Understanding LRVs allows designers to enhance wayfinding and safety by using tonal contrast where visibility is crucial—such as between floors and walls, walls and doors, or walls and grab rails—ensuring at least a 30-point LRV difference for clear distinction.³ Conversely, to promote seamless movement, flooring transitions should have minimal contrast, ideally less than an 8-point LRV difference (if the floor is level).⁴

Figure 1: Tonal contrast between floors and walls (30-point LRV difference)

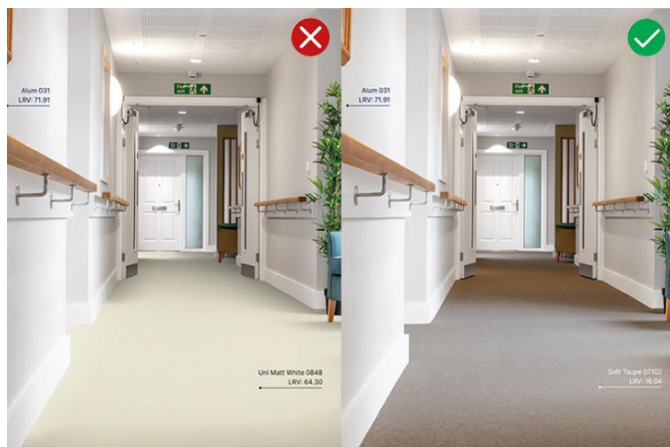


Figure 2: Floor as one continuous surface (<10 LRV difference)



Camouflaging technique: Camouflaging enhances safety by disguising doors and features that could pose risks for individuals with dementia. Non-essential doors, such as those leading to hazardous areas, can be painted to blend into surrounding walls or designed to appear inconspicuous, reducing the likelihood of wandering.

Slip-resistant and anti-shine surfaces: Non-slip, matte, or textured flooring improves stability and reduces fall risks. Avoid polished surfaces that may appear slippery or distort depth perception.

Avoiding pattern confusion: Simple, uniform finishes with neutral colours prevent visual misinterpretation. Avoid busy patterns and high-contrast transitions that may appear as obstacles.

Durability and maintenance: Using durable, low-maintenance materials ensures long-term safety and hygiene. Seamless flooring and easy-to-clean surfaces reduce trip hazards and support high-traffic areas.

Figure 3: Avoid patterned or shiny flooring Any shine or sparkle effect may be seen as a wet floor surface by someone with dementia, disrupting their gait and raising the possibility of a slip.



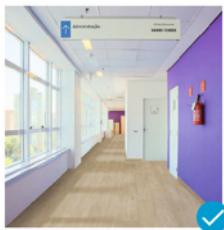
How to improve orientation

Colour contrast: Strong contrast between key elements, such as doors, handrails and walls, enhances visibility and helps individuals navigate more easily. Proper differentiation ensures important features stand out while avoiding unnecessary distractions.

Highlighting: Essential areas like exits, restrooms, and shared spaces should be emphasised using distinct colours, lighting, or signage. This guides individuals towards critical areas without creating confusion.

Elimination of confusion: Cluttered environments and complex layouts can increase anxiety and disorientation. Simplified, structured designs with clear sightlines help individuals move through spaces confidently.

Figure 4: Eliminating confusion Plainer designs are more suitable for dementia-friendly environments.



How to improve memory

Contrasting: High contrast between essential features, such as furniture and walls, aids recognition and recall. Ensuring that frequently used objects are clearly visible supports daily activities.

Pattern usage: Subtle, familiar patterns can reinforce spatial memory and create a sense of continuity, while overly intricate or high-contrast designs may cause confusion. Using patterns thoughtfully can help individuals associate different spaces with their intended functions.

Haptics: Tactile materials, such as textured flooring, grab rails and familiar fabrics, provide sensory cues that support memory and spatial awareness. Incorporating different textures throughout a space can reinforce navigation and comfort.

Acoustics and smell: Familiar sounds, such as nature-inspired background noise or soft music, create a calming environment and aid recognition. Similarly, consistent, pleasant scents can reinforce memory and emotional connection to a space.

Figure 4: Tonally consistent floors Avoid large tonal contrasts between the primary floor tone and secondary flecks, as individuals with dementia may mistake them for objects and attempt to pick them up; instead, opt for solid colours or flooring with subtle tonal flecks.



How to improve comfort

Natural colours: Soft, earthy tones create a calming and familiar atmosphere, reducing stress and agitation. Avoiding stark contrasts or overly bright colours can enhance relaxation.

Home-like atmosphere: Incorporating residential-style furnishings, warm lighting, and personalisable spaces fosters a sense of familiarity and security. A homely environment helps individuals feel more at ease and engaged.

Positive atmosphere: Access to natural light, spacious layouts, and biophilic design elements like plants can improve mood and overall well-being. Thoughtful design choices help create an inviting and uplifting space.

Decreasing smell: Proper ventilation and the use of neutral, pleasant scents help maintain a fresh, non-clinical environment. Strong, unfamiliar odors can trigger distress or confusion.


Minimising unpleasant sounds: Noise-reducing materials, such as carpets, acoustic panels and soft furnishings, help absorb sound and reduce sensory overload. Minimising sudden loud noises and echoes can create a more comfortable and stress-free space.

How to improve behaviour

Warm and bright colours: soft, warm tones can have a calming effect, while brighter hues can be used strategically for navigation or stimulation. Avoiding overstimulating colours prevents agitation and supports emotional regulation.

Community areas: Open, welcoming spaces encourage social interaction, reducing isolation and promoting engagement. Comfortable seating, accessible layouts and inviting communal zones can enhance a sense of belonging.

Lead paths: Clearly marked, gently curving pathways provide intuitive guidance, reducing confusion and promoting safe movement. Avoiding abrupt turns or dead-end spaces can help individuals navigate without distress.



Simple yet effective design strategies, such as reducing visual clutter, using clear and consistent signage, and incorporating calming colour schemes can significantly improve the user experience for those with cognitive impairments.

Designing with purpose with Gerflor's accredited dementia-friendly flooring solutions

Architects play a crucial role in designing environments that support individuals with dementia, making it essential to apply evidence-based principles that enhance cognitive accessibility and well-being. The Dementia Services Development Centre (DSDC) at the University of Stirling, UK, is a global leader in dementia-friendly design research, providing guidance on best practices for healthcare, residential, and public spaces. A key aspect of dementia-inclusive design is the selection of appropriate materials, finishes, and layouts that minimise confusion and promote safety.

Gerflor's DSDC-accredited flooring solutions provide architects with reliable options for creating safe, dementia-friendly environments. Products such as **Taralay Impression, Premium, Creation, Mural** and **Tarasafe H2O** are specifically designed to adhere to key dementia-friendly principles, prioritising contrast, texture, and LRVs to support intuitive navigation. These flooring solutions eliminate strong patterns, high-contrast flecks, and reflective surfaces, which can create visual illusions of movement, holes, or obstacles that contribute to disorientation. Matte, non-reflective finishes further enhance safety by reducing glare.

Beyond safety, Gerflor's flooring solutions support acoustic comfort, hygiene and long-term durability, making them ideal for healthcare, residential, and public spaces designed for dementia care. Resilient, easy-to-clean surfaces prevent odor absorption, a crucial factor in maintaining a calming environment, while acoustic flooring options help minimise disruptive noise. By integrating these design features, Gerflor's flooring solutions empower architects to create inclusive, future-proof environments that enhance well-being, independence, and overall quality of life for individuals with dementia.



REFERENCES

- ¹ Dementia Australia. "Dementia facts and figures." Dementia Australia. <https://www.dementia.org.au/about-dementia/dementia-facts-and-figures> (accessed 10 March 2025).
- ² Australian Institute of Health and Welfare. "Dementia in Australia." AIHW. <https://www.aihw.gov.au/reports/dementia/dementia-in-aus/contents/population-health-impacts-of-dementia/deaths-due-to-dementia> (accessed 10 March 2025).
- ³ Dementia Services Development Centre. "Your dementia design toolkit: Light reflectance values (LRVs)." DSDC. <https://www.dementia.stir.ac.uk/newsblog/dementia-design-toolkit-lrvs> (accessed 10 March 2025).
- ⁴ Ibid.