

**Dementia Friendly
Hospitals from a
Universal Design Approach**
Design Guidelines 2018

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This project was undertaken by TrinityHaus, TCD, Tallaght University Hospital and O'Connell Mahon Architects, in collaboration with the co-authors above and steering committee opposite. For more information on these guidelines, the associated research, or other work in this area please visit www.trinityhaus.tcd.ie



O'Connell Mahon Architects |



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Finally, and most importantly, we sincerely thank all the of the patients, family members, staff who gave generously of their time and who provided indispensable insight into the lived experience of the hospital.

Foreword

HBS Estates, Health Service Executive

The publication of this guidance is timely and to be welcomed, as we acknowledge and seek to cope with the increasingly complex needs of people attending our acute hospitals as patients, visitors, family members and carers.

By definition, hospitals and healthcare facilities are busy places, with large numbers of people working and attending. The environment can be challenging, the route from place to place can be unclear, distances from one department to another can be great, and the language used can be unfamiliar. The circumstances under which many attend are often stressful and difficult. For people with particular illnesses or disabilities, whether physical, sensory or cognitive, these issues and concerns can be compounded, as they attempt to move in and around hospital buildings in order to access necessary services and the care that they need. It is therefore essential that we try to understand the many and varied needs of those using, visiting and working in our hospitals as we work through the different stages of designing, building, and operating them.

This document will assist greatly with all of these processes and stages, by raising awareness of the range of issues that need to be taken into account in order to support the particular needs of people with dementia, and by suggesting approaches to meeting these needs, all underpinned by research, evidence, an analysis of best practice, and the critically important concept of Universal Design.

From the perspective of the Estates function in the HSE, this guidance has significant potential to improve our design response to these needs, thereby helping to ensure that the hospital environments we create into the future do not give rise to added difficulties but provide instead significant support to all who use them, including people with dementia. This publication is an important and very welcome addition to the guidance material available to those commissioning, designing, developing and operating our hospital facilities.



Paul de Freine
Chief Architectural Adviser
HBS Estates, HSE

Foreword

National Dementia Office

The National Dementia Office welcomes the publication of these evidence based Design Guidelines for Acute Hospitals. The need for further development of our acute hospital environments to ensure they are cognisant and supportive of the needs of people with dementia was highlighted in the 2014 Irish National Audit of Dementia Care. Since then work has been undertaken by committed individuals and groups to improve the environment within their own wards, emergency departments and hospital campuses. These guidelines build on and support that work by providing detailed and practical information that is relevant and accessible to a wide range of people working in our acute hospitals, empowering all staff to take the steps necessary to begin to create hospital environments that actively support the health and well-being of people with dementia.

By adopting a Universal Design approach to the development of these guidelines, the authors highlight that designing and developing our acute hospital environments to support a person with dementia will ensure that they are supportive of people with a range of disabilities or functional impairments. This approach helps to reduce the excess disability the built environment can create for many people, and reminds us that small changes can greatly improve how we all navigate and interact with our environment.

I would like to thank TrinityHaus for inviting us to collaborate on this substantial piece of work, and to commend them. We look forward to supporting the implementation and dissemination of the guidelines across the acute hospitals.



Mary Manning
General Manager
National Dementia Office

Foreword

National Disability Authority

Ireland is unique in having a statutory Centre for Excellence in Universal Design. Our work in raising awareness and informing policy is to enable people in Ireland to participate in a society that takes account of human difference and to interact with their environment to the best of their ability.

It is our aim that the Dementia Friendly Hospitals Guidelines from a Universal Design Approach will inform national policy and be used in practice by all practitioners – those who commission, design, build, provide and occupy hospitals. If new hospitals or alterations to existing hospitals are built in line with a Universal Design Dementia Friendly approach, they will reduce environmental stress, provide supports, and contribute to more healthful and therapeutic spaces; in so doing, dementia friendly hospitals from a Universal Design approach help people by creating natural supportive hospital environments. This approach will also support family members and carers to sustain the caring relationship, particularly if these carers are older people, or a person with a disability.

I would like to thank all the stakeholders for their engagement in this process and I would also like to thank the authors from TrinityHaus, Trinity College Dublin, Tallaght Hospital, and O’Connell Mahon Architects for their work on this publication.



Helen Guinan
Chairperson
National Disability Authority



Preface

One of the most significant societal advances in recent decades has been a stronger sense of our shared humanity and intertwined narratives with those among us living with dementia. Rather than being othered into a two-dimensional and grim label from which our collective gaze was averted, particularly in terms of the design and function of our hospitals, we now are beginning to appreciate that including the world view and perspectives of those of us living with dementia is an imperative for the future design of all health care facilities.

Not only is dementia, and associated cognitive disorders such as delirium and mild cognitive impairment, an important predictor of need to use hospitals, but we all stand to gain from an approach to Universal Design which simplifies, supports and consoles us in settings which are complex and associated with some of life's greatest challenges and difficult dilemmas.

As a research team, we have been heartened by the responsiveness of the people living with dementia, their families and staff and management of a range of hospitals, as well the HSE and the architectural profession to the spirit of innovation and change inherent in the development of these guidelines.

Incorporating these principles into new build, redevelopments and reconfiguration of Irish hospitals will require determination, drive and imagination. However, we are confident that the synthesis of insight, wisdom and practicality built up in these guidelines as well as the momentum from campaigns such as "Understand Together" and the expertise of the Centre for Excellence in Universal Design will represent a significant change in the framework of planning, adapting and developing Irish hospitals to better accommodate and support all of us, and in particular those of us living with dementia.

Incorporating dementia friendly design into routine practice is an idea whose time has come, and in this we are encouraged by the words of Victor Hugo: "Mightier than marching armies is the force of an idea whose time has come".



Prof. Desmond O'Neill

Geriatrician and Professor of Medical Gerontology
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Part A: Introduction, Background & User Guidance



Introduction

These guidelines provide detailed guidance in relation to dementia related design issues and the Universal Design of acute hospitals in Ireland.

For many patients and their families, the hospital is a challenging setting due to the busy, unfamiliar, and stressful nature of the environment. For a person with dementia the hospital experience can be exacerbated by cognitive impairment and behavioural or psychological symptoms, and can therefore prove to be a frightening, distressing, and disorientating place.

In response to these issues research has been completed to investigate dementia friendly design for acute care hospitals. This has examined how the physical hospital environment might provide a better experience for people with dementia, and how hospitals can be designed to enable family members and carers to provide support for the person with dementia throughout their visit to the hospital. This research underpins these guidelines to provide detailed guidance in relation to dementia specific design issues and the Universal Design of dementia friendly hospitals.

Acute hospitals cater for people of all ages with a wide range of conditions and visiting for a variety of reasons. Visits may be planned or unexpected and often visitors will be accompanied by a member of their family or a carer/friend to help them. The duration of visits vary from a short visit for an appointment to those who have an extended stay of several weeks. Visitors may also be regular visitors and familiar with the hospital or those who have entered the hospital for the first time. Visitors may be healthy and mobile and move freely around the building while others may be incapacitated due to illness. The common theme in the design should be to make the environment accessible, understandable, and easy to use, and ensure that the whole process of attending an acute hospital is comforting and free from stress and anxiety.

To achieve this, Universal Design principles should apply to all facilities. In this regard, while dementia friendly design will provide higher levels of support for people with dementia, it should not compromise the needs of another group. The Universal Design approach not only identifies the diversity of building users,

but also recognises the heterogeneous nature of dementia. A person with dementia may be middle-aged or an older person and may also be living with another disability or illness. Their family members or visitors may have a disability or experience age-related mobility or sensory difficulties. These guidelines have been developed with this diversity in mind and they should not be interpreted as dementia-specific, but as dementia supportive, framed by Universal Design to provide a more inclusive setting for a wide range of patients, accompanying persons, visitors and staff.

Creating calm, people-centred, orientating and legible settings that are accessible, usable, and easily understood is at the core of these guidelines. While these conditions are critical for people living with dementia, they will also provide a more supportive environment for all users and therefore improve the overall environmental quality of the hospital.

With over 50 existing acute hospitals in Ireland, these guidelines recognise the importance of applying dementia friendly design to existing settings, whether this means the retro-fit of an element such as signage across the entire hospital, refurbishment of a ward, or minor works in a single location, often carried out by ward staff.

The guidelines are also applicable to new-build projects, with the aim being that they can be used by design professionals, healthcare staff, and lay people. Hopefully, this applicability to both existing and new build will contribute to both incremental improvements of existing settings, and a step-change in how we design hospitals into the future.

Furthermore, while these design guidelines are primarily for acute hospitals, it is acknowledged that there are significant overlaps between the issues presented in this document and the issues that appear in other healthcare settings. Therefore, it is expected that these guidelines will also be useful in the design of non-acute healthcare facilities.

With all of this in mind these Universal Design dementia friendly guidelines can be used for:

- Small scale works to existing spaces.
- Refurbishment or retrofit of individual spaces or entire wards.
- New hospital buildings or new extensions to existing hospitals.

Moreover, considering the size and complexity of many acute hospitals, it is essential that there is a supportive environment across the full patient or visitor journey, from entering the campus, to admission, and to discharge. In response, Section 1 of these guidelines considers the hospital as a whole, while the subsequent sections focus on a number of sequential spatial scales.

In considering the hospital as a whole, the connecting external and internal public spaces are critical to the creation of a supportive setting. These spaces form the 'public realm' of the hospital and provide a connective tissue across all spatial scales.

While the connective public realm is being considered, it is also important to examine the sequential spatial scales across the hospital including:

- At a larger scale, location, campus approach, and site circulation.
- At the intermediate scale of building entry, internal circulation, and key spaces.
- At the smaller scale of building components, technology and internal environment.

It is hoped that this guidance will raise awareness about designing for dementia and highlight the benefits of adopting a Universal Design approach to ensure that hospitals support all people regardless of age, size ability or disability. Furthermore, adopting this approach will ensure that:

- Hospitals are supportive, therapeutic and healing spaces for all people.
- Hospitals are supportive of families, visitors and staff as well as the person with dementia.
- Cost effective practical solutions will promote independence and address safety concerns.
- The well-being of the person with dementia and their families will be enhanced.

“To create a supportive environment for people living with dementia, the environment and philosophy of care / operation philosophy need to complement each other. Despite the best efforts of staff, the physical environment sets a limit to what can be achieved in the support of people with dementia - particularly people who are mobile.

A good environment can, almost by itself, reduce confusion and agitation, improve wayfinding and encourage social interaction. On the other hand, a poor environment increases confusion and behaviour that causes distress to people with dementia and others and will eventually reduce staff to a state of helplessness, in which they feel that nothing can be done.”

Fleming and Bennett 2017



Background

International and National Context

The built environment of the hospital has an integral role in supporting therapeutic outcomes and patient well-being. In this context, dementia friendly design is part of a growing evidence based design approach that recognises the influence of the built environment on the health and well-being of older people, and those with dementia or a cognitive impairment. The importance of dementia friendly design is demonstrated internationally by the work of, among other organisations: Dementia Services and Development Centre (DSDC), University of Stirling; The King's Fund - EHE Dementia Care Programme; the Association for Dementia Studies (ADS) at the University of Worcester; the Bradford Dementia Group; and, Dementia Training Australia. In Ireland, both the Irish National Dementia Strategy and the Irish National Audit of Dementia Care in Acute Hospitals identify the importance of good design for supporting people with dementia.

The Centre for Excellence in Universal Design (henceforth referred to as CEUD) at the National Disability Authority (henceforth referred to as NDA) refers to Universal Design as “the design and composition of an environment so that it can be accessed, understood and used to the greatest extent possible by all people, regardless of age, size, ability or disability”. The definition adopted by the CEUD draws on the Disability Act 2005, which defines Universal Design as meaning: “the design and composition of an environment so that it may be accessed, understood and used to the greatest extent possible, in the most independent and natural manner possible, in the widest possible range of situations, and without the need for adaptation, modification, assistive devices or specialised solutions, by persons of any age or size or having any particular physical, sensory, mental health or intellectual ability or disability.”

The typical hospital must cater to a wide range of public users and hospital staff who will represent the full spectrum of ages, abilities, disabilities and needs. As such, adopting a Universal Design approach to ensure that the built environment is supportive of all patients, visitors and staff who use the hospital cannot be understated.

Key Documents and Normative References

Dementia friendly hospital design is part of an overall design approach, in association with HSE Estates, the National Dementia Office, and the Centre for Excellence in Universal Design at the National Disability Authority. In this regard there are a number of complimentary guidance documents that will inform a Universal Design dementia friendly hospital approach in Ireland. Some of these are listed below, further information for these documents and other relevant guidance is listed in Appendix B.

Key HSE documents

- HSE Design Brief: 10 Bed Dementia Specific Household - Residential Care Centre, HSE 2016.
- HSE Infection and Control Building Guidelines for Acute Hospitals in Ireland.

Key CEUD documents

- Building for Everyone: A Universal Design Approach (2012).
- Universal Design Guidelines for Homes in Ireland (2015).
- Universal Design Guidelines: Dementia Friendly Dwellings for People with Dementia, their Families, and Carers (2015).

Other Relevant National Documents

- The Irish Hospice Foundation: Design and Dignity Style Book (Lovegrove and Rose Roberts 2014).
- A Guide to Creating a Dementia Friendly Ward in the Acute Setting (O’Hea and Mercy University Hospital Cork 2017).
- Irish National Audit of Dementia Care in Acute Hospitals (de Siún et al 2014).

Hospital Design Guidance from the UK

- Health Building Note 08-02-Dementia-friendly Health and Social Environments (Department of Health UK 2015).
- Improving the patient experience. Developing supportive design for people with dementia. The King’s Fund’s Enhancing the Healing Environment Programme 2009-2012 (Waller et al 2013).
- Design features to assist patients with dementia in general hospitals and emergency departments (DSDC, Stirling University 2012).

Designing for People with Dementia in the Acute Hospital Setting: Overall Design Considerations

When designing environments that support people with dementia, it is important to understand the key symptoms so that design responds to the needs and preferences of people with dementia, their family members, and carers.

Dementia is an umbrella term to describe a group of disorders caused by several diseases and conditions, with Alzheimer's disease and Vascular Dementia being the most common. When outlining the symptoms of dementia in terms of the built environment, the following broad classification is useful:

- **Cognitive impairment:** indicated by problems with memory (amnesia), speech or understanding of language (aphasia), a failure to carry out physical tasks despite having intact motor function (apraxia), and failure to recognise objects or people despite having knowledge of their characteristics (agnosia).
- **Reactive behaviour, formerly described as Behavioural and Psychological Symptoms of Dementia (BPSD):** cognitive impairment may be accompanied by symptoms such as depression, delusions, hallucinations (visual and auditory) – and behaviours such as wandering, incessant walking or agitation. These are thought to represent responses to altered perception of environments and interactions, or reaction to unarticulated stress, pain, disorientation, or other discomforts.
- **Dysfunction in activities of daily living (ADL):** In the early stages of dementia these can include difficulties with more complex tasks such as shopping, driving or handling money. In the later stages more basic tasks are affected such as dressing, eating and bathing.

Moreover, depending on the type and stage of dementia, or the way it affects a specific individual, a person with dementia may also experience:

- **Gait disorders impacting on mobility and stability while walking.**
- **Muscular strength loss and associated functional decline.**
- **Visual and perception issues related to visuospatial and visuo-perceptual defects.**

Furthermore, given that increasing age is one of the strongest risk factors for dementia, it is also important to consider other age-related changes that might affect a person such as:

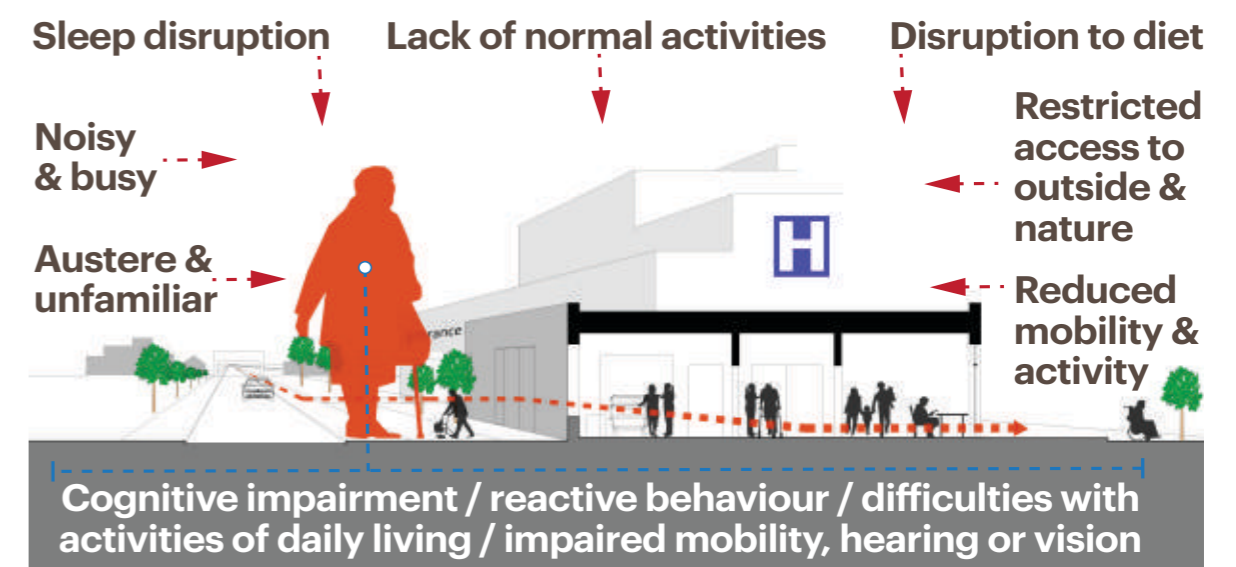
- **Physical frailty.**
- **General mobility difficulties leading to increased risks of falls.**
- **Partial and severe sight loss.**
- **Hearing loss.**
- **Circadian rhythm difficulties resulting in sleep disturbance or disruption.**

These impairments may be exacerbated by dementia, as the person with dementia may fail to comprehend, or compensate for these difficulties.

Challenges for people with dementia and accompanying persons in the acute hospital

For many patients the hospital is challenging due to the busy, unfamiliar, and stressful nature of the environment. For a person with dementia the hospital experience can be exacerbated by cognitive impairment and behavioural or psychological symptoms, and can therefore prove to be a frightening, distressing, and disorientating place due to:

- Constant movement, activity and clinical nature of the setting.
- Sensory overload such as sound and lighting.
- Lack of familiarity.
- Disorientation and difficulties in wayfinding due to the large-scale, complex and often visually monotonous nature of the hospital.



01 Impact of the hospital for a person with dementia.

Hospitals typically lack supports for family members and carers accompanying the person with dementia to the hospital. The role of family members and carers is an important one as they are a familiar and trusted person within the hospital. The physical environment should be designed to provide space and support for a family member or carer to, where appropriate and feasible, remain by the side of the person with dementia throughout their admission and journey.

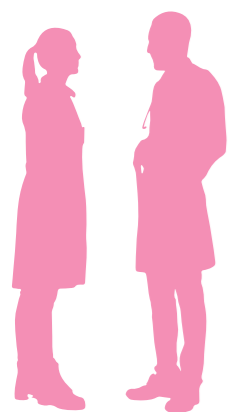
As a final note, in many instances the accompanying person, particularly if this is a partner or a sibling, may also be an older person with age-related difficulties.

Universal Design: Creating naturally supportive environments

Considering the physical, sensory and cognitive impairments associated with dementia, and the diverse needs of accompanying persons, visitors and staff, it is important to adopt a Universal Design approach to provide a supportive hospital environment for all users. In Ireland, the Centre for Excellence in Universal Design at the National Disability Authority refers to Universal Design as:

“the design and composition of an environment so that it can be accessed, understood and used to the greatest extent possible by all people, regardless of age, size, ability or disability”

We all have evolving needs based on different stages in our life cycles including varied health circumstances or age-related changes. A Universally Designed environment can adapt and change with us by factoring in at the outset key design features that enhance quality of life for everyone. Furthermore, Universal Design promotes a higher and more inclusive baseline from which specialised care, and personalisation or adaptation for specific needs can take place.

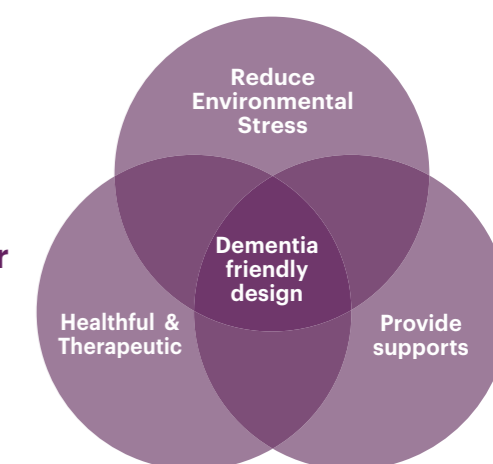


Dementia Friendly Design from a Universal Design Approach

In the context of Universal Design, the stress placed on many people with dementia by the built environment can be addressed. The hospital environment can also provide a prosthetic or enabling environment in relation to disabilities or functional impairments, particularly for patients who may be at their most vulnerable due to illness while in hospital. It is vital to also go beyond these, and start considering how the built environment can be designed to play a more active and positive role in providing supportive, healthful, and therapeutic places and spaces for people with dementia, their families and carers.

In this regard, and in the context of new-build or the retro-fit of hospitals, Universally Designed Dementia Friendly Hospitals:

- **Are accessible, understandable and easy to use for all occupants;**
- **Recognise the cognitive, behavioural and psychological, physical, and sensory difficulties that a person with dementia may experience as a patient or visitor to the hospital;**
- **Reduce hospital related environmental stress;**
- **Provide a prosthetic or enabling environment to account for dementia-related disability;**
- **Create a healthful and therapeutic setting to promote healing; and,**
- **Recognise that dementia friendly design from a Universal Design approach, not only supports people with dementia, but also supports accompanying persons, visitors and staff in their caring role.**



A word about terminology

While the term dementia friendly design is used in these guidelines, we are aware that other terms such as ‘dementia-inclusive’, or ‘designing for people with dementia’ may be favoured by many others. In the interest of consistency with previous Irish design guidance in this area, and a hard-won national and international recognition of the term dementia friendly design, we feel it is best to remain with this term for the moment. However, we are ready to embrace change if a consensus is reached around alternative terminology.

Overall Benefits of Universal Design

The application of Universal Design thinking to the hospital environment recognises our differences and accommodates them at the outset of the design and construction stages, by including the following:

- **Flexibility and ease of adaptability to meet peoples' changing needs over time in a cost-effective way;**
- **Sustainable design to improve comfort and energy efficiency; and,**
- **Smart technologies to support independence and care delivery.**

Universal Design is not about a 'one-size-fits-all' model – the Universal Design environment enables the widest possible number of people to participate in society, and to move about and operate independently.

A Universal Design hospital works well for everyone and supports the delivery of care for a wide range of people. It is mainstream in aesthetics, not separate or distinct for those with special needs, and is designed according to 4 key Principles:

- **Integrated into the neighbourhood;**
- **Easy to approach, enter and move about in;**
- **Easy to understand, safe to use and manage; and,**
- **Flexible, cost effective and adaptable over time.**

A hospital underpinned by the 4 key Universal Design Principles will provide a more naturally supportive environment for people with dementia, their family members and hospital staff, as well as other groups.

Key Design Issues

Design Issues at a Glance

Hospital design should support dignity, independence, and wellbeing in a calm, supportive and inclusive environment that is accessible, usable and easily understood by people with dementia, accompanying persons, visitors and staff. To support this aim the following Key Design Issues should be considered:

Engagement and participation



1. Promote engagement with friends and family, staff and community

- Engagement with friends and family, staff and community is a multi-faceted issue that spans a number of spatial scales. For instance, the hospital must be located and sufficiently accessible to ensure family or friends can easily visit. Furthermore, the hospital should provide opportunities for visitors to spend time interacting with the patient.
- Participation in meaningful activities is important to maintain functioning during a hospital stay. Many of these activities, i.e. making a cup of tea, playing cards, are based on interactions with family, visitor, or staff, and often require a physical space in which to occur.

2. Provide space and supports so that accompanying persons can remain with the person with dementia, where possible, throughout their time in the hospital

- The support of a partner, family member, friend, or carer that might accompany a person with dementia as they visit or are admitted to the hospital, is important. An accompanying person can ease the hospital experience for the patient; furthermore, the accompanying person can share information with hospital staff regarding a patient's needs, preferences and usual behaviour patterns. That said, the role of the accompanying person can be stressful and therefore, it is important to consider how the hospital environment can be designed to the benefit of all.

3. Promote a participatory design approach

- Design participation needs to be a critical part of Universal Design. The design of an inclusive environment is predicated upon an understanding of the needs and preferences of those who will occupy it.
- All key stakeholders should contribute in a meaningful way to the design process to ensure their needs and preferences are incorporated into the design, delivery and management of the physical hospital environment. Efforts should be made in every design project to include representatives of end users. This is particularly relevant to people with dementia who are often not consulted directly about their needs.

Provide a people-centred environment

4. Soften the institutional environment: more human-scale, less clinical or austere in appearance

- The scale of a building will have an effect on the behaviour and feelings of a person with dementia. The experience of scale is determined by the following three factors: the number of people encountered, the overall size of the building and the size of the individual components, such as doors, rooms and corridors.
- A person should not be intimidated by the size of the surroundings or confronted with a multitude of directions, interactions and choices. In this regard, the scale should help the person feel in control.

5. Familiar design: recognisable design that is easily understood and intuitive to use

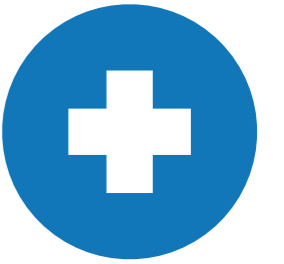
- Promote design features and objects that are familiar to a person from his/her earlier life. This will allow these features be more easily understood and used if the person's memory becomes impaired.
- Familiarity should not be interpreted literally as 'homelike' or represent an earlier era, but rather as something that reminds a patient of previous products or previous experiences.
- It is important to investigate what underpins familiarity so that it might be accomplished in a subtle way, given that familiarity will often be difficult to achieve in the hospital context. In this regard the Universal Design principle 'Simple and intuitive' may be helpful as it is about design that meets users' expectations.



6. Facilitate personalisation: provide opportunities to add personal belongings such as photos to reinforce identity and help with orientation

- Reinforcing personal identity or the continuity of self is important in designing for people living with dementia.
- Objects that are meaningful to a person can support their well-being and address the therapeutic goals of awareness and orientation, continuity of self, and personal control.

Support patient safety, health and well-being



7. Provide a safe environment: unobtrusive safety measures that do not conflict with other issues such as privacy or the freedom to engage in physical activities

- While a safe environment is critical in a hospital, this should involve unobtrusive safety measures that do not conflict with other issues such as privacy and dignity, or the freedom to engage in physical activities.

8. Support diet, nutrition and hydration

- A calm, accessible and usable space with appropriate lighting, and clearly visible and easily understood furniture and tableware will create more supportive conditions for eating and drinking. Furthermore, it is important to incorporate appropriate visual cues and stimuli such as food smells to encourage and prompt appetite.

9. Support meaningful activities: including physical, social, and activities of daily living (ADLs)

- An environment that supports ordinary activities that are meaningful to the person is a crucial component to keeping patients active and engaged.

Balance sensory stimulation

10. Optimise positive sensory stimulation while minimising negative stimulation as part of a calming and therapeutic approach

- The therapeutic impact of sunlight has been shown to decrease stress, pain, and analgesic medication use. It also improves sleep/wake patterns through boosted circadian rhythms.
- Natural light, particularly sunlight, also plays a spatial orientation role by providing different light qualities in different parts of the building depending on the orientation to the sun and time of day.
- Negative sensory stimulation is a major concern for people with dementia. Noise will disrupt sleep and can adversely affect a person, for example, by raising blood pressure. Positive sensory stimuli such as music or artwork is advocated in the clinical setting to provide a calming effect and to support meaningful activity, orientation and wayfinding.

11. Provide indoor and outdoor contact with nature, and access to outdoor space to support active and passive therapeutic activities

- If a person with dementia is admitted to a hospital for an extended period of time, access to outdoor space is a crucial factor in relation to their health and wellbeing. Accessible and safe outdoor space makes it easier for people with dementia to go outdoors independently, to enjoy nature, socialise, or carry out gardening.
- For many people with dementia whose ability to go outside may be impaired, external views provide a way to experience the outdoors and contact with nature. The presence of windows with a view can enhance social interactions since people tend to group in seats around an attractive window, the view itself provides an easy opening for conversation. Views of everyday activities of people outside are attractive to those who are confined indoors.



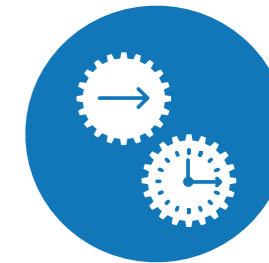
Support orientation and navigation

12. Support orientation to date, time, location, and improve spatial cognition

- Many people with dementia will experience spatial cognition difficulties (i.e. spatial processing; angle discrimination and motion perception; perceptual discrimination; contrast sensitivity; navigation learning and spatial memory; and others). Therefore, an environment that supports orientation is key to comprehending their environment.
- This can be achieved via the following: artwork to reflect and emphasise the seasons; calendars; large face clocks; natural light; access to outside spaces; photographs of local scenes; views of nature; and visible staff.
- The built environment should balance differentiation of appearance (e.g. size, shape, colour etc.); visual access (the visibility of a space or object from various locations); and layout complexity (e.g. level of spatial articulation, number of separate spaces etc.) to reinforce spatial mapping and ensure that the hospital is easy to comprehend and remember.

13. Provide good way-finding that supports navigation

- To achieve better wayfinding for people with dementia in a complex environment such as a hospital, the importance of a simple layout and a configuration that minimises memory and inference-based decisions, will allow a person to move from one decision point to the next without too much forward planning.
- The spatial organisation in the hospital should reduce dependence on mental mapping by providing good visual access and by clearly communicating the overall structure of the space. This can be achieved by articulating key features and functional zones, clearly expressing the circulation strategy, creating spaces with distinct character, introducing key landmarks, and at a more detailed level, using graphic information.
- Progressive disclosure is a wayfinding approach often used in large building complexes such as airports, and is based upon providing the visitor with just enough information to get them to the next decision-making point.



14. Provide good visibility and visual access: Optimise lighting conditions and make important features, spaces, and people clearly visible

- An environment that allows people to see their destination will help to minimise confusion. It should also enable staff to see the patient from where they spend most of their time. This assists with the monitoring of the patient and reassures the patient of their safety.

Adequate space to support the needs of a person with dementia



15. Provide enough space around all beds, both in shared rooms and single rooms, for personal belongings and adequate room for visitors

16. Space for retreat in multi-bed wards and communal areas in single-bed wards to allow social interaction

- A secure retreat space helps a person to withdraw when they feel overwhelmed. In a multi-bed room, given the active and shared nature of the space, it will not always be possible to maintain calm conditions; therefore providing a retreat space or a space for one-to-one communication or activities will be beneficial.
- Consideration should also be given to a day room for activities, dining, or engaging with visitors or other patients.

17. Provide space and supports for physical movement: including safe and stimulating walking or circulation routes

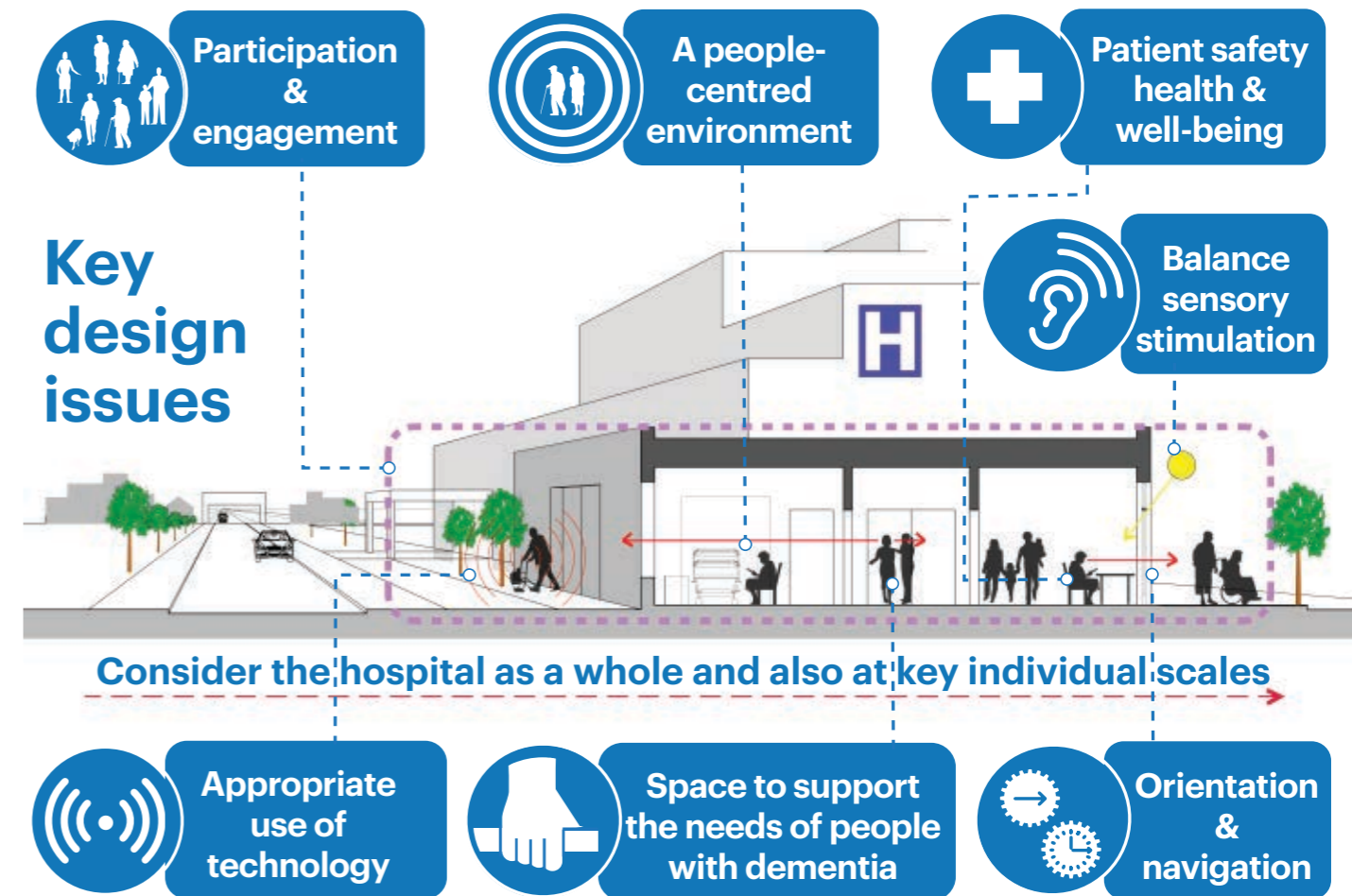
- Space and resources are important for patient activity, as inactivity can lead to deconditioning, lack of stimulation and boredom for patients.
- The provision of calm and gently stimulating internal circulation routes, spaces to move around, and external paths, will provide much needed walking and mobilisation opportunities within the hospital.

Appropriate use of technology



18. Appropriate use of technology for care delivery, safety or therapy (i.e. sensory stimulation)

- One of the main applications of technology in the hospital setting is related to observation or safety. Electronic monitoring equipment is available to ensure patients do not go beyond predetermined exit points, to monitor movement within a hospital, as well as the prevention and monitoring of falls.
- It is important that any technology solutions are needs led, rather than technology led. It is vital that designers have an in-depth knowledge about the issues that face users when they interact with a technology, and also how they might react to potential solutions.



02 Dementia Friendly Design Issues and their relationship with the overall hospital.

Levels of Design and Intervention

Five levels of Design, Interventions, or Adaptations

These guidelines are applicable to both new build and existing hospitals. In this regard, we have identified five different levels of design and intervention that can be applied as part of a dementia friendly and Universal Design approach. These different levels allow the user of these design guidelines to choose one or all of the design levels depending on the needs and constraints of the project; whether it is a new build or an existing building, available budget, or other such determining factors.

The design levels are based primarily on the level of impact to the structure of the hospital that would result from a design intervention at that level. For instance, the introduction of labelling or signage have no impact on the structure, while the addition of assistive technology, particularly if it is wireless, will be a low impact intervention. Moving up the intervention levels involves greater impact on the building, culminating in Design Level Number 5, which involves spatial layout changes, structural modifications, or new build.

The five design levels which are shown in Figure 03 are as follows:

1. Labelling, signage, painting, artwork or planting:

This level of intervention provides immediate assistance and benefit to those using the facility by improving information, softening the institutional environment and making the buildings simple and intuitive. These can be low disturbance, low cost solutions and can be considered in all scenarios, whether this involves a retrofit, or a new build project.

2. Assistive Technology, Ambient Assisted Living, Telecare, or Telehealth:

The use of technology plays an important role in the care process while also providing patients with communication and entertainment technology. Given the variety of technology available, including wireless, this could represent a low disruption option.

3. Interior and exterior furniture, fixtures and fittings (F, F&F):

This could involve replacing internal floor finishes, upgrading bathroom fittings, or providing new furniture. This level will allow dementia friendly design to inform ongoing upgrades/maintenance and replacement programmes.

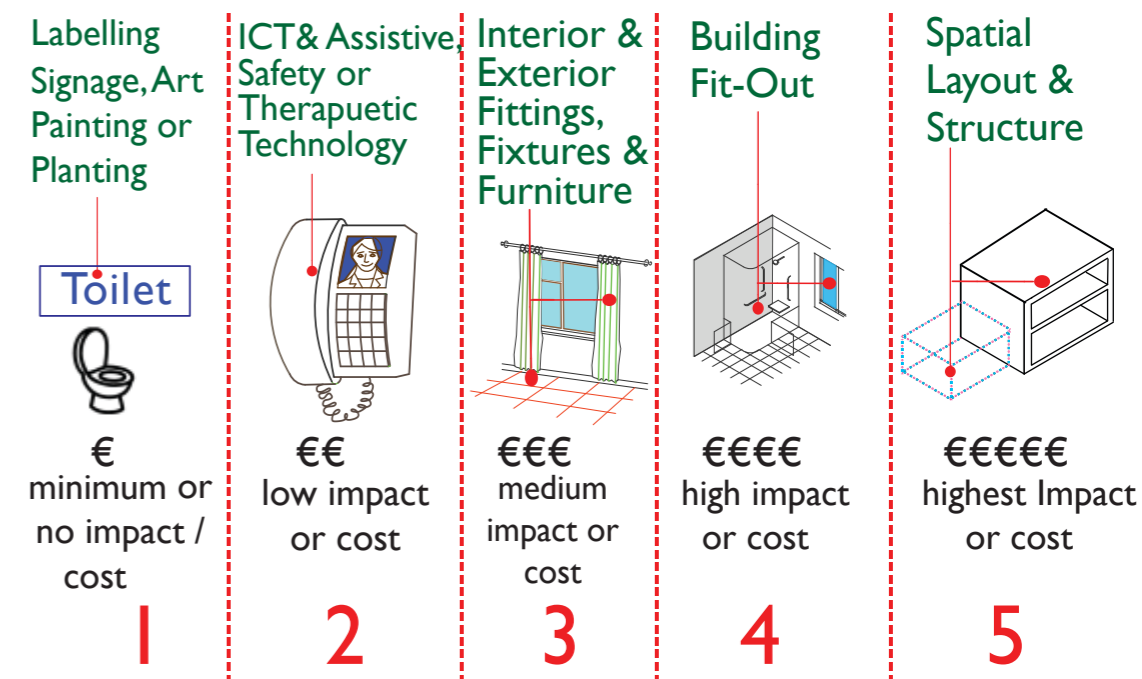
4. Building fit-out including external windows and doors:

This level of intervention may involve fitting new windows to increase thermal or acoustic performance, or the fitting of a level access shower. It may also involve minor internal works such as fitting new doors or widening door openings. This level will allow dementia friendly design to inform fit-outs whether generated by

the need to accommodate those with dementia or as part of general building upgrades/maintenance and refurbishment i.e. fabric, services or upgrades to meet statutory regulations.

5. New Buildings and spatial/structural changes to existing building:

This applies to all new build or projects with major renovations. It involves spatial considerations such as room location, orientation or size, along with all associated structure and design elements such as windows, doors, etc. This level will allow dementia friendly design to inform works including the building's spatial arrangement to provide the optimum layout for patients with dementia.



03 Levels of design and intervention.

These five levels of design have been identified to outline how the guidelines are:

- Applicable to both new and existing buildings.
- Usable across a wide spectrum of issues; from minor low-cost adaptations, to major works involving structural adaptations or new-build.
- Can be used by various stakeholders, whether this is a staff member who wants to implement minor changes, or the design team involved in new-build or refurbishment.

The reader should consider these levels as part of the design process to help inform the decision-making process in line with patient needs and construction budget.

At a Glance

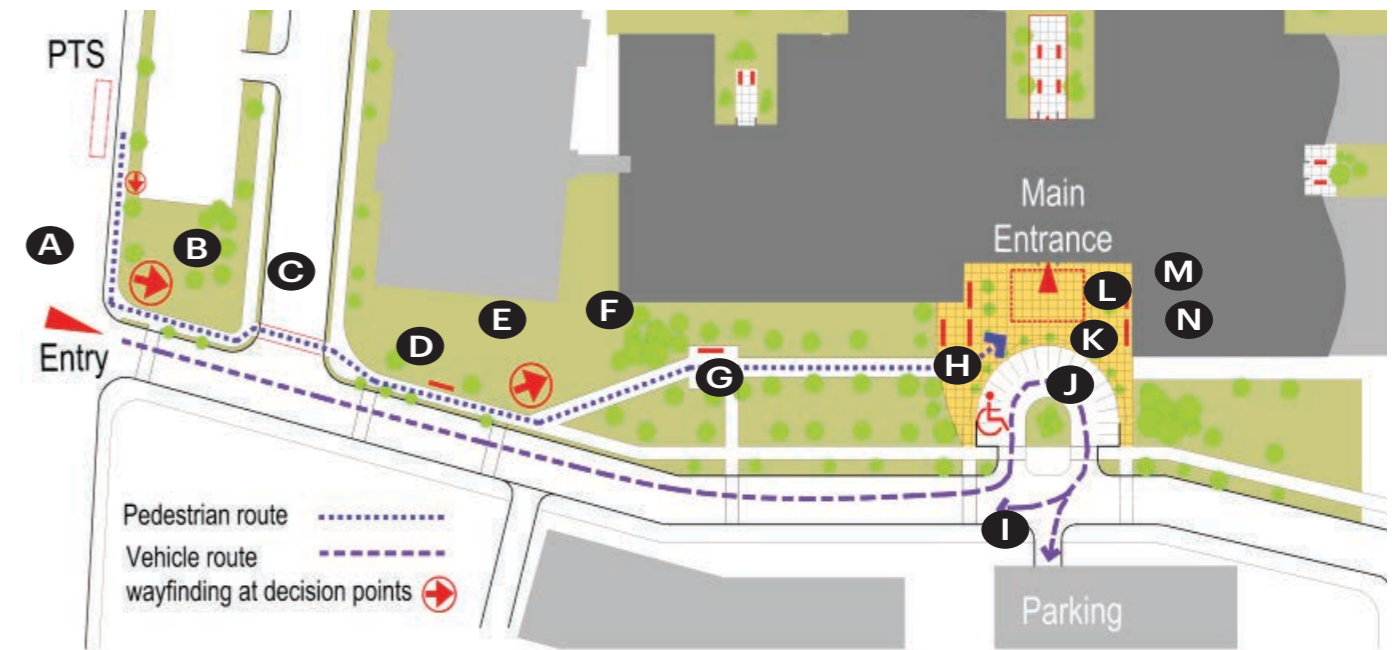
Universal Design Dementia Friendly Hospitals

In the following pages, indicative plans are presented for eight key areas in relation to the hospital to illustrate the main design features that should be considered as part of a Universal Design (UD) dementia friendly approach for both new-build and existing hospitals. These eight key areas are as follows:

- 1. Site plan to illustrate the key features that can be incorporated in relation to entering the campus, the overall site design of the hospital campus, and some key features relating to any external space adjacent to the main entrance.**
- 2. Main entrance and main public circulation areas along with the key public facilities associated with the public entrance area.**
- 3. An Outpatient Department.**
- 4. An Emergency Department.**
- 5. An inpatient ward presenting a typical existing ward with a mixture of shared and single inpatient rooms.**
- 6. A six-bedded patient room within a shared inpatient ward.**
- 7. A more contemporary ward with single inpatient rooms.**
- 8. A single inpatient room.**

As stated in the introduction, there are significant overlaps between the dementia friendly and UD issues presented in this document and the issues that appear in other healthcare settings. Therefore, many of the design issues set out in the following eight key areas will also be useful in the design of non-acute healthcare facilities.

1. Hospital Campus



04 Site plan of hospital campus.

Provide a strong centre of gravity where the main public entrance acts as a focal point within the site. This entrance should be conveniently located, easily identified and accessible for those arriving to the hospital on foot, bicycle, car or public transport. A legible site layout with a clear movement hierarchy, supported by good wayfinding, will orientate hospital users and help them navigate to their destination.

Some typical UD Dementia Friendly Hospital Features:

- A.** Locate the main site entrance so it is easily identified, located, and accessed from the public realm. Where possible, locate entrances close to public transport stops (PTS) so they are easily identified and to reduce travel distances for those with mobility impairments. Provide simple and clear signage at the site entrance to identify the hospital on approach. Ensure that the natural path to the site entrance is not broken by railings or barriers.
- B.** Where the main building entrance is located at a distance from the site entrance, ensure there is a clear and easily identified pedestrian route from site entrance to the building entrance.
- C.** Where the onsite pedestrian route crosses a road ensure there are appropriate pedestrian crossing points with dropped curbs, tactile warning surface indicators (TWSIs), and road crossing markings to safely guide people across the road.

- D.** Pedestrian routes should be flat, even and sufficiently wide to allow the safe and comfortable passage of groups of pedestrians. All surfaces should have good drainage, be non-slip, non-glare, and avoid strong patterns or sharp tonal or colour contrast.
- E.** Good campus wayfinding will help people find their way and this can be provided through clear, consistent, and easily read signage; supported by distinct paths or routes, and recognisable visual cues such as seating, building elements, artwork or planting. Provide simple and clear signage that communicates the relative positions of buildings and facilities within the site.
- F.** Overall, the campus should create a calm, legible setting with careful use of planting to support wayfinding and produce a therapeutic environment within the site.
- G.** Provide comfortable seating with back and arm rests every 100m to 125m to offer people rest points and opportunities to stop and orientate themselves.
- H.** Provide designated accessible car parking spaces as close as possible to the main building entrance (the number of spaces will depend on the size of the facility). Designated parking should also be provided as required in other parking areas or multi-storey car parks.
- I.** The location and proximity of the main car parks should take into account the mobility difficulties that may be experienced by many patients and visitors, particularly older people or those with a disability. Provide sheltered walkways where possible.
- J.** Provide enough set-down areas and associated meeting areas where a patient or visitor can be dropped off close to the main entrance. The entrance should be clearly identifiable and easily accessed from the drop-off point so that when a person is dropped off they can make their way to the entrance without difficulty. For a person with dementia or a cognitive impairment, there may be some particular difficulties associated with drop-off zones and expecting a person to make their way to the entrance.
- K.** Create an entrance plaza or similar public space adjacent to the main public access point. This strengthens legibility, affords a transition space between inside and outside, and provides a gathering space for social interaction.
- L.** Provide a large covered area to create a transition area between inside and outside, and provide shelter for a person exiting the building to allow them to adjust to the external conditions.
- M.** Ensure that artificial lighting provides even illumination with an average maintained illuminance of 30 lux for approach, while entrances, steps and ramps should have an illuminance of 100 lux. The use of LED lighting should be carefully considered as the quality of the light may cause issues for people with visual impairments.

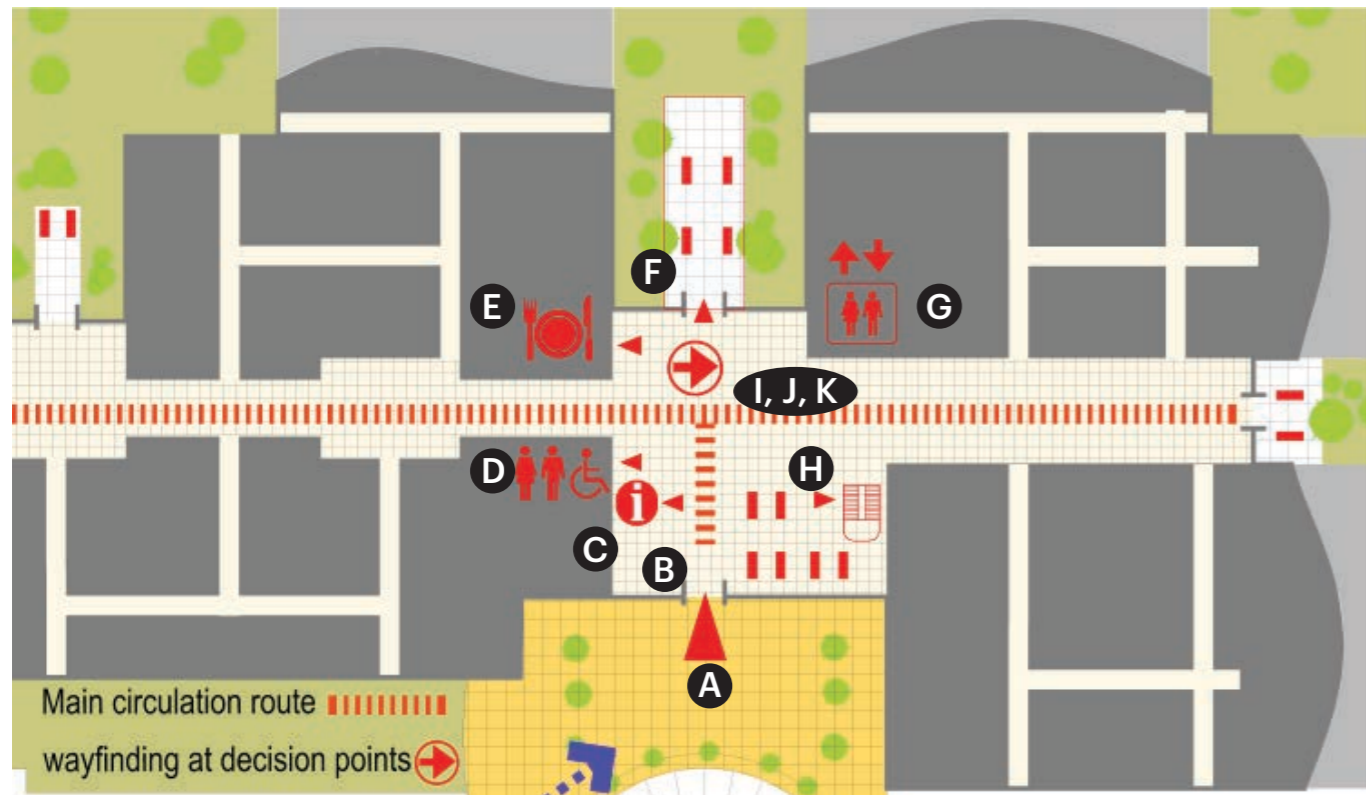
- N.** Provide sheltered and shaded seating with back and arm rests to allow a person sit while waiting for an accompanying person who has dropped them off, or simply to rest or orientate themselves before entering, or after leaving the building.

For more in-depth design considerations and detailed design guidance please refer to Section 2 - Site Location, Approach, and Entry and Section 3 Campus Design and Onsite Circulation

Note: Research and stakeholder engagement has shown that parking can be a difficult and problematic issue for people with dementia and their accompanying persons. Serious consideration should be given to the design and placement of (1) drop-off zones for patients, (2) carpark facilities, and (3) the location and number of accessible parking spaces. It may be appropriate to increase the number of accessible spaces beyond the statutory requirements, where space permits.



2. Main Hospital Entrance and Circulation areas-Part Plan



06 Site plan showing hospital main entrance and key circulation area.

The main entrance to the hospital should provide a calm and welcoming experience for a patient or visitor entering the hospital. Once inside the hospital the overall circulation strategy should be obvious and key public facilities such as reception or information desks, toilets, shops and cafes should be clearly identified and readily accessible from the main entrance area. The wayfinding system should be continued from outside and provide the right amount of information in the right locations to lead people to their destinations. The entrance lobby or the transitional zone between inside and outside forms a critical threshold in the hospital, therefore it is important to create a calm and legible space by avoiding excessive information and signage such as the hospital policy signage, carparking ticket machines, anti-bacterial liquids, fire panels, or security information.

Some typical UD Dementia Friendly Hospital Features:

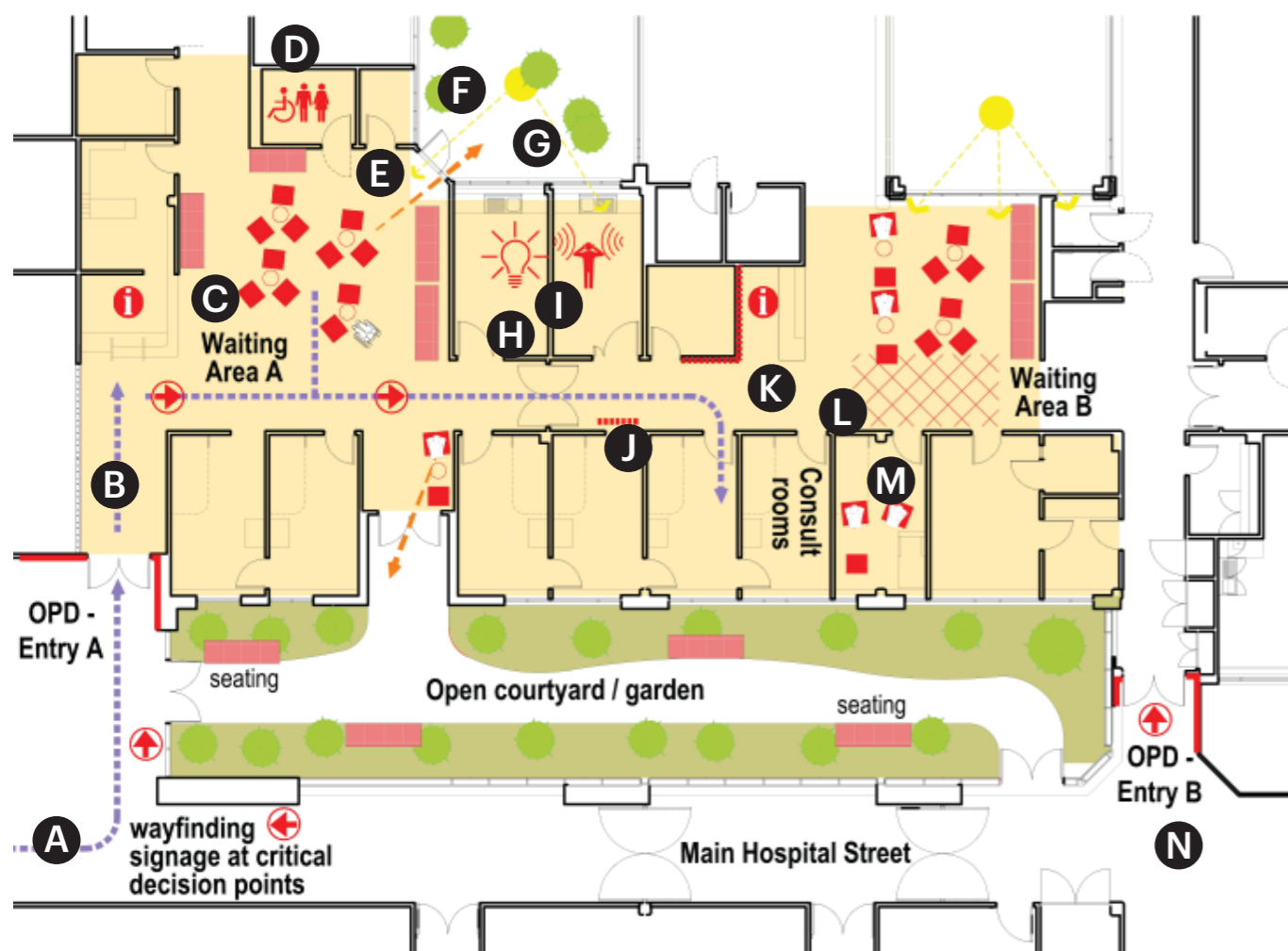
- A.** Provide an easily located and identifiable main entrance door that is accessible, easily operated and understood.
- B.** Provide a clearly articulated and legible circulation spine that provides a continuous, well defined, and identifiable path throughout the hospital. Successful examples include generously sized hospital streets or full height atria that extend throughout the length of the hospital. These spaces help to manage the size and complexity of the hospital by allowing various departments to be clearly expressed as a collection of buildings, and at the same time connecting them with a coherent public realm.

The circulation strategy should also establish a hierarchy of scale with a legible and easily understood graduation from the large-scale and public areas, to smaller and more fine-grained internal circulation within departments. Use visual cues and memorable features as part of this strategy.

- C.** Ensure the reception area is within close proximity to the entrance and easily visible from the entrance area.
- D.** Provide public toilets that are easily located upon entry, and that are accessible, understandable and easy to use.
- E.** Ensure key public facilities such as shops and cafes are easily located upon entry. These facilities should be accessible, understandable and easy to use.
- F.** Provide visual and physical links to external spaces to support time and location-based orientation. This also provides contact with nature and access to therapeutic outdoor space.
- G.** Place key public vertical circulation elements such as lifts and stairs so they are easily located from main entrance space. On all floors, ensure these stairs and lifts are easy to locate, accessible, understandable and easy to use.
- H.** Provide comfortable seating areas within the main entrance area to provide a resting and orientation point when people are entering and leaving the hospital.
- I.** The wayfinding strategy should extend into the building from the campus and provide clear, consistent, and easily read signage, supported by distinct paths and internal spaces, along with recognisable visual cues such as colour, building elements, artwork or planting.
- J.** Provide wayfinding information progressively and when necessary to avoid information overload. Provide the right information, at the right time, in the right locations, such as key decision points (i.e. upon entry, or at circulation junctions)
- K.** As part of the wayfinding strategy consider colour coding of floors, or key departments, along with floor plan maps placed at major decision junctions.

For more in-depth design considerations and detailed design guidance please refer to Section 4 - Building Approach, Entry and Internal Circulation.

3. Outpatient Department



07 Floor plan of typical Outpatient Department.

Many older people will have regular visits to the Outpatients Department (OPD) and therefore the environment of the OPD must be responsive to their needs, while also supporting accompanying persons and staff in their caring role.

Some typical UD Dementia Friendly Hospital Features:

- A.** The OPD will typically be reached through the main hospital and therefore the approach should consist of a legible route leading to a clearly identifiable and easily located OPD entrance.
- B.** Ensure the reception area is directly visible from the entrance area and is welcoming, accessible, easily understood and used. Avoid excessive information and signage including the policy signage, anti-bacterial liquids, etc. that might be typically placed at the reception area.

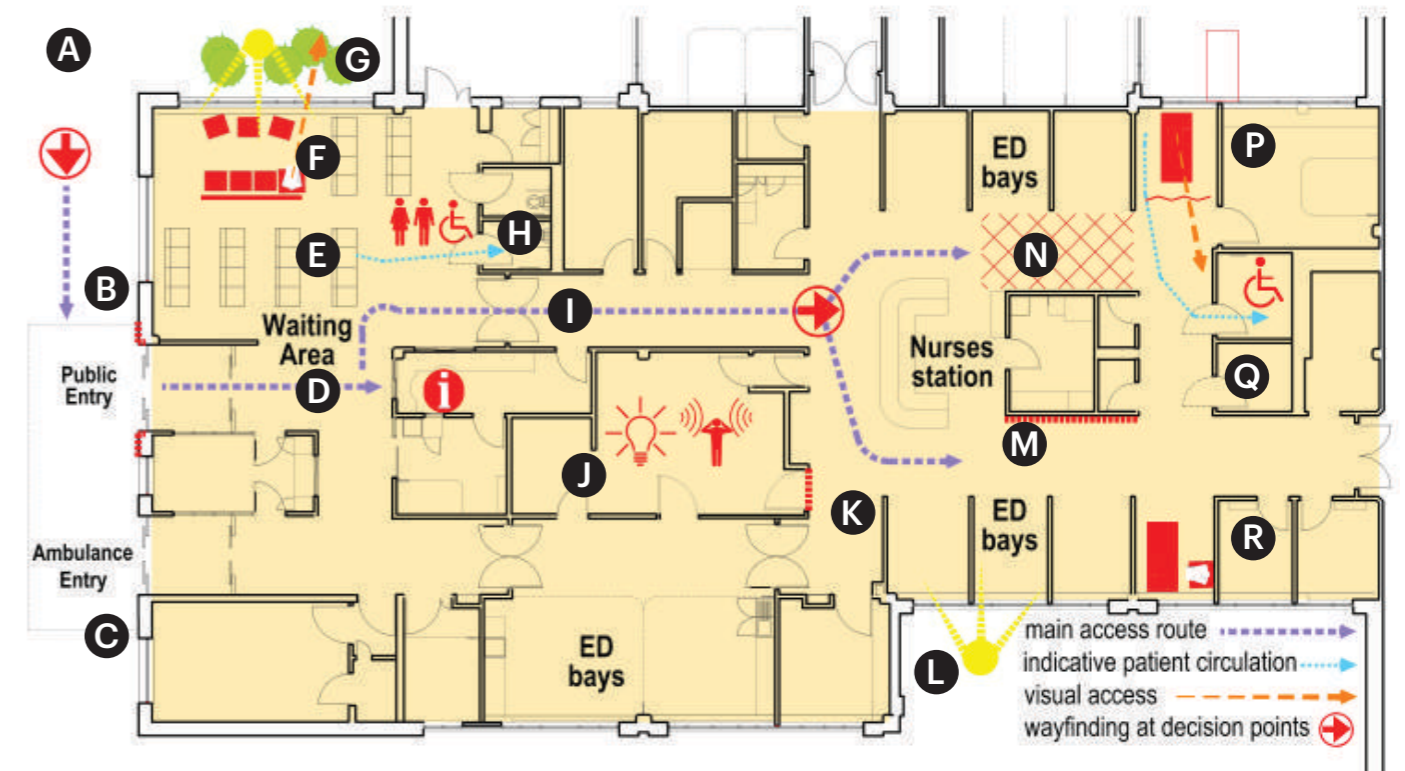
- C.** Provide a spacious waiting area with generous circulation area and clearance between seating. Consider a less institutional seating layout with more comfortable furnishing (i.e. instead of waiting room fixed seating or beam benches, that are typically arranged in rows, consider a combination of lounge seating or soft benches with coffee tables, to create a more welcoming and less clinical environment). Care must be taken to make sure all furniture is supportive of older people.
- D.** Locate toilets so that they are easily identified upon entry, and are accessible and easy to use. Provide enough toilets throughout the OPD so that they are within easy reach of the patients within the waiting area and the consulting rooms.
- E.** Patients may be waiting for a period of time, and therefore it is important to provide views to calm exterior spaces, or internal artwork to help create a more calming and therapeutic environment.
- F.** Provide natural light to orientate patients to the time of day and season. In areas without natural light consider artificial lighting that mimics natural light.
- G.** If possible provide direct access to an outdoor space where patients can step outside to get some fresh air, take a break from the hospital environment, or reorient themselves between appointments.
- H.** Provide a clearly articulated and legible main circulation route for patients. This may provide patients with a better comprehension and sense of being able to manage. The wayfinding should be considered as running from the entrance to the campus to the OPD reception and through to the consulting rooms in a consistent manner. Where more than one clinic may be in session, provide clear and consistent signage and information to facilitate orientation and navigation.
- I.** Careful use of artificial lighting and the reduction of noise through sound absorbing materials can help mitigate environmental stress within a busy OPD.
- J.** Use distinct and contrasting colours on doorframes, doors, or wall reveals to identify patient areas or rooms, while simultaneously disguising non-patient rooms by painting doors or frames to match background.
- K.** Use contrasting colours or tones to distinguish the floor from the walls. Similarly, use contrasting colour on the skirting boards to provide a visual break between the walls and the floors to ensure greater visual contrast.
- L.** All floor finishes should be non-slip, non-glare, and avoid strong patterns or sharp tonal or colour contrast. The avoidance of contrast is very important at door thresholds to prevent those with visual or cognitive impairments misinterpreting this contrast as a step.
- M.** A patient will often be accompanied to the OPD by a family member or carer and therefore it is important to provide space and supports for an accompanying person throughout the OPD. This may simply consist of sufficient seating in the waiting area (See feature C), or enough space and a seat within consulting rooms so that an accompanying person can remain by the patient's side without getting in the way of the medical staff.

N. The OPD may contain a number of suites for different clinics and these may have separate entrances, reception and waiting areas. Additionally, a particular suite or clinic may be reached through a number of routes, for these reasons it is important to define the main entry point and location of each suite using colour coding and wayfinding.

For more in-depth design considerations and detailed design guidance please refer to Section 5 - Key Internal and External Spaces.



4. Emergency Department



07 Floor plan of typical Emergency Department.

Emergency Departments (ED) by their very nature need to focus on the medical and clinical outcomes from emergencies. The environment needs to be designed for optimum outcomes based on the needs of the broad range of persons visiting the ED. The needs of those with dementia as well as other groups (including maternity and mental health patients who are admitted through the ED) need to be balanced with trauma and other admissions. Ensuring the environment is suitable for this broad range of users including those with dementia is a particular challenge in EDs.

Some typical UD Dementia Friendly Hospital Features:

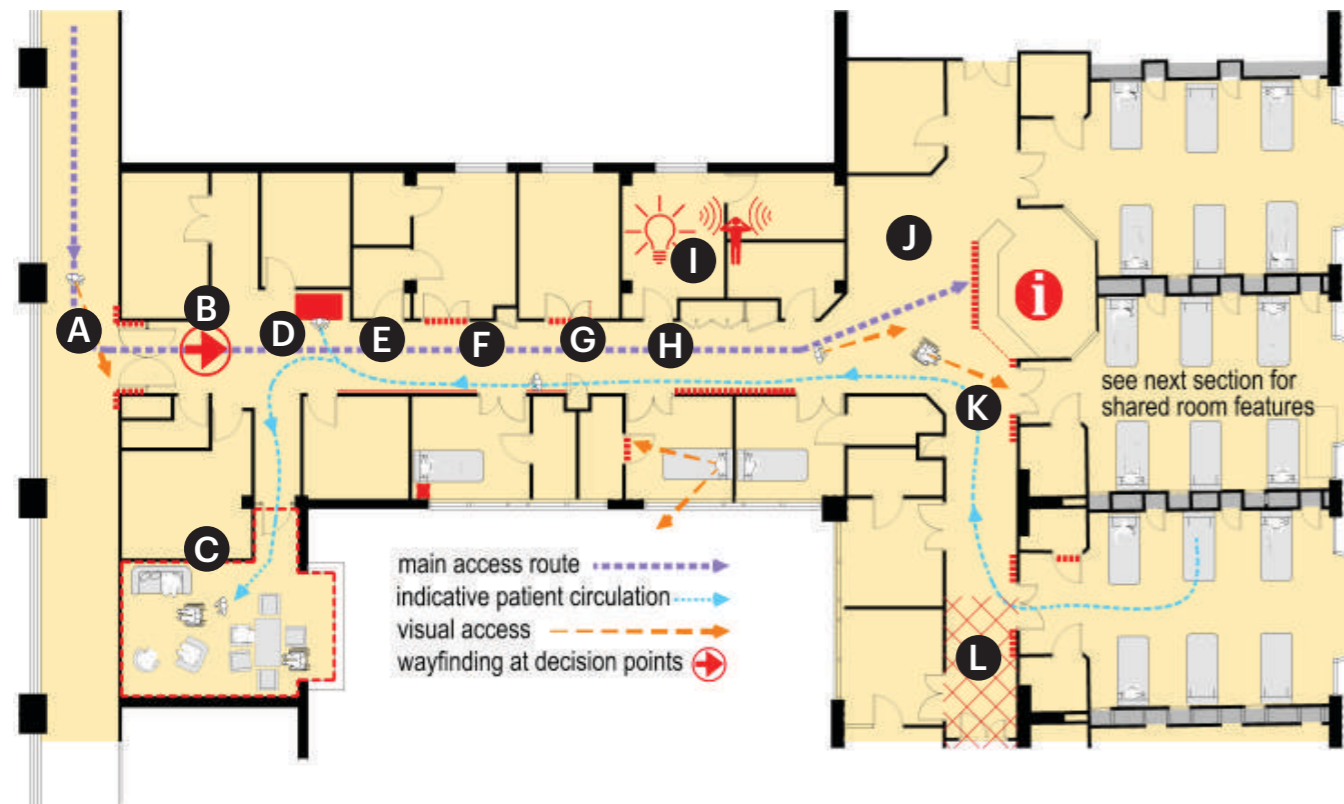
- A.** The approach to the ED entrance should consist of a legible route leading to a clearly identifiable and easily located entrance space. This supports orientation, affords a transition space between inside and outside, and provides a gathering space that may be a welcome respite from the ED.
- B.** Provide an easily located and identifiable public entrance to the ED. This entrance should be highlighted and clearly differentiated from other entrances through the use of colour or other visual cues. Provide a door that is accessible, easily operated and understood.

- C.** Where possible the ambulance entry should be in a different location to the public entrance. If they are adjacent, the ambulance entrance can be visually down-played to ensure it doesn't attract the attention of the public as they approach the ED.
- D.** Ensure the reception area is directly visible from the entrance area and is accessible, easily understood and used. Even though the reception might be glazed it should be welcoming. Avoid excessive information and signage including the policy signage, anti-bacterial liquids, etc. that might be typically placed to the front of the reception area.
- E.** Provide a spacious waiting area with generous circulation area and clearance between seating.
- F.** Consider a distinct seating area with some level of separation where a person who is more sensitive to environmental stress such as noise or activity can find some respite in a busy ED waiting area.
- G.** Provide views to calm exterior spaces and appropriate artwork to help create a more calming environment.
- H.** Locate public toilets so that they are easily identified upon entry and that are accessible and easy to use.
- I.** While the interior of the ED is typically a complex setting, provide a clearly articulated and legible main circulation route for patients. This may provide patients with a better comprehension and sense of being able to manage. The wayfinding should be considered as running from the entrance to the campus to the ED reception and through to the ED bays in a consistent manner.
- J.** While the ED is often unavoidably hectic due to emergency situations, careful use of artificial lighting and the reduction of noise through sound absorbing materials can help mitigate environmental stress.
- K.** Use distinct and contrasting colours on doorframes, doors, or wall reveals to identify patient areas or rooms, while simultaneously disguising non-patient rooms by painting doors or frames to match background.
- L.** Provide natural light within the core of the ED to help orientate patients to the time of day and if possible provide views to the exterior to help relieve the intensity of the ED experience. In areas without natural light consider artificial lighting that mimics natural light.
- M.** Use contrasting colours or tones to distinguish the floor from the walls. Similarly, use contrasting colour on the skirting boards and doors to provide a visual break between the walls and the floors to ensure greater visual contrast.

- N.** All floor finishes should be non-slip, non-glare, and avoid strong patterns or sharp tonal or colour contrast. The avoidance of contrast is very important at door thresholds to prevent those with visual or cognitive impairments misinterpreting this contrast as a step.
- O.** Select ED bays that can be designated for distressed or disoriented patients. These bays should provide a balance, as much as possible, between good visual access and observation from the main nurse's station, proximity to a toilet, and a calm location.
- P.** The designated bays should be uncluttered, provided with seating for an accompanying person, and if possible fitted with a privacy screen to provide some level of acoustic separation from the ED floor.
- Q.** Provide enough toilets and locate them so that they are within easy reach of the patients within the ED bays.
- R.** Space and supports for an accompanying person throughout the ED will have benefits for both the patient and for staff. This may consist of sufficient seating in the waiting area, or enough space within an ED bay so that an accompanying person can remain by the patient without getting in the way of the staff. It is challenging to deliver the above features in an ED, but providing some will assist the experience of those with dementia

For more in-depth design considerations and detailed design guidance please refer to Section 5 - Key Internal and External Spaces.

5. Existing Inpatient Wards with Shared and Single Rooms



08 Floor plan of typical inpatient ward.

While single patient rooms are becoming standard provision in new build hospitals and extensions, most acute hospitals in Ireland contain shared inpatient wards and these must be carefully considered as part of any retrofit project.

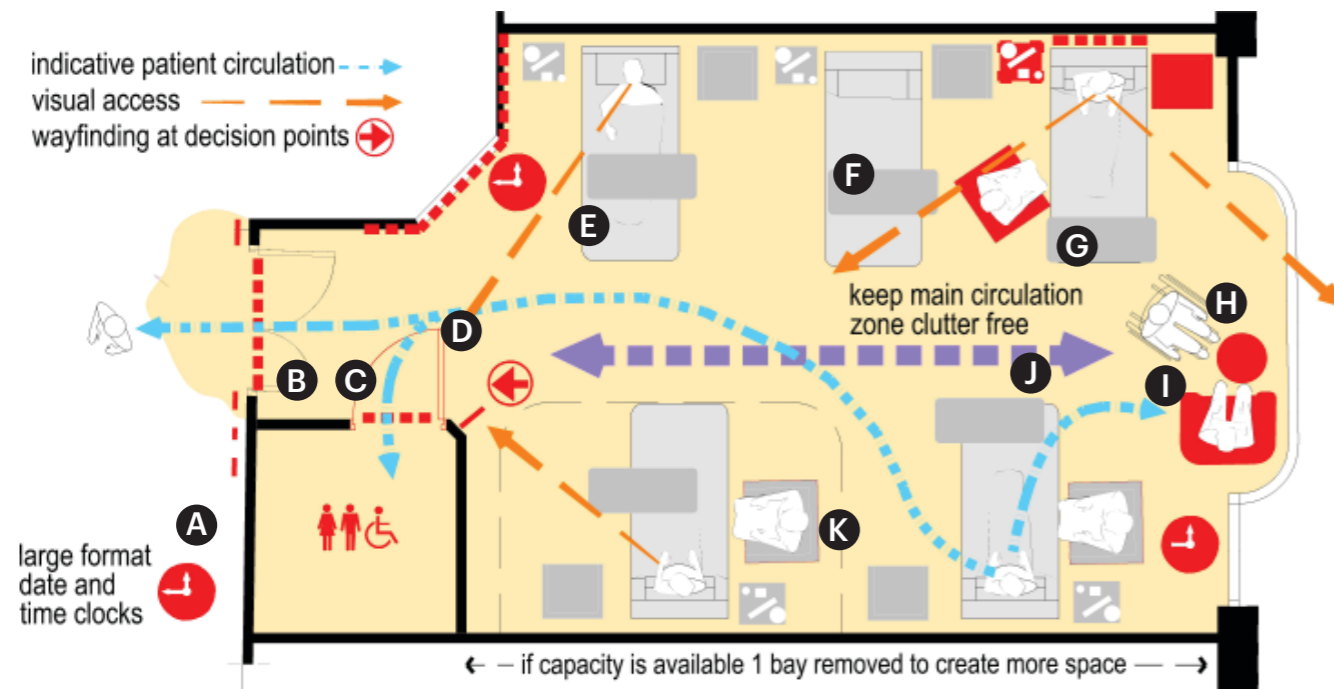
Some typical UD Dementia Friendly Hospital Features:

- A.** Use large format signage, colour coding, or images to identify ward entry on approach.
- B.** Provide a calm, coherent and legible structure to the accommodation articulated by visual clues including identifiable spaces, features, connections to external spaces and views, artwork, planting, lighting, fittings and furniture. This will be supported by clear wayfinding using signage, colour coding, images, or other visual cues to help create a more easily navigated setting.
- C.** Provide lounge area or family room to allow patients retreat from the busy ward. This will also help the patient to interact with visitors, or carry out activities of daily living such as dining with family. While there may be advantages in having this space in a quieter part of the ward, it may also be appropriate to locate it close to shared rooms for easy access.

- D.** Provide dedicated seating or small social area as a destination or resting point within the ward circulation space. This area could be made more identifiable and attractive through the display of art or images, or the presence of planting.
- E.** Use distinct and contrasting colours on doorframes, doors, or wall reveals to identify patient rooms, while simultaneously disguising non-patient rooms by painting doors or frames to match background.
- F.** Provide uncluttered, safe and comfortable conditions for patient mobilisation within patient rooms and along corridors. Walking within corridors will be supported by handrails that are clearly visible to the patient.
- G.** Ensure each patient room is easily identified and located through distinct colour or images to each entrance.
- H.** Use contrasting colours or tones to distinguish the floor from the walls. Similarly, use contrasting colour on the skirting boards to provide a visual break between the walls and the floors to ensure greater visual contrast.
- I.** Careful use of artificial lighting and the reduction of noise through sound absorbing materials can help mitigate environmental stress within a busy ward. Provide appropriate lighting levels within corridors to ensure they are accessible, comfortable, and safe to use for all patients.
- J.** Ensure the nurses station is welcoming, clearly visible and easily identified by those arriving into the ward or moving about the corridors
- K.** Use large format signage, colour coding, or images to identify shared rooms on approach.
- L.** All floor finishes should be non-slip, non-glare, and avoid strong patterns or sharp tonal or colour contrast. The avoidance of contrast is very important at door thresholds to prevent those with visual or cognitive impairments misinterpreting this contrast as a step.

For more in-depth design considerations and detailed design guidance please refer to Section 5 - Key Internal and External Spaces

6. Existing Shared Patient Rooms



09 Floor plan of typical shared patient room.

Within shared inpatient wards there are typically a number of shared patient rooms often containing up to six beds. These can be a difficult environment for a person with dementia due to the busy nature of the environment.

Some typical UD Dementia Friendly Hospital Features:

- A.** The approach to the room should consist of a legible route leading to a clearly identifiable door to the room. This can be achieved using large format signage, colour coding, or images to identify room entry on approach.
- B.** All floor finishes should be non-slip, non-glare, and avoid strong patterns or sharp tonal or colour contrast. The avoidance of contrast is very important at door thresholds to prevent those with visual or cognitive impairments misinterpreting this contrast as a step.
- C.** Provide good colour or tonal contrast between floors, walls and doors to improve spatial perception for patients.
- D.** Provide large format date and time clocks to improve temporal orientation and place them within view of the patients.
- E.** Ensure key spaces such as toilets are clearly visible and easily identified.

- F.** Ensure each patient bay is easily identified and located through subtle visual cues behind each bed.
- G.** Provide space beside beds for lockers with personal belongings, a comfortable patient chair, and space for visitors.
- H.** Remove clutter from windows to ensure patients have a clear view to the outside.
- I.** If possible provide seats by the window as a small break-out space within the room.
- J.** Provide uncluttered, safe and comfortable space for patient mobilisation in the room.
- K.** To achieve adequate space and a calmer environment, consider, where feasible, reducing the number of bays with a shared patient room.

For more in-depth design considerations and detailed design guidance please refer to Section 5 - Key Internal and External Spaces

7. Contemporary Inpatient Wards with Single Rooms



10 Floor plan of contemporary inpatient ward with single rooms.

For new build hospitals and extensions, wards with single bed patient rooms will be the normal provision into the future. Many of the UD dementia friendly features for wards with single bedrooms are the same as those for wards with shared inpatient rooms, but are worth reiterating to ensure these new wards are dementia friendly.

Some typical UD Dementia Friendly Hospital Features:

- A.** Use large format signage, colour coding, or images to identify ward entry on approach.
- B.** Provide a calm, coherent and legible structure to the accommodation articulated by visual clues including identifiable spaces, features, connections to external spaces and views, artwork, planting, lighting, fittings and furniture. This will be supported by clear wayfinding using signage, colour coding, images, or other visual cues to help create a more easily navigated setting.
- C.** Provide dedicated seating or small social area as a destination or resting point within the ward circulation space. This area could be made more identifiable and attractive through the display of art or images, or the presence of planting.
- D.** Use distinct and contrasting colours on doorframes, doors, or walls reveals to identify patient rooms, while simultaneously disguising non-patient rooms by painting doors or frames to match background.
- E.** Provide uncluttered, safe and comfortable conditions for patient mobilisation within patient rooms and along corridors. Walking within corridors will be supported by handrails that are clearly visible to the patient.
- F.** Ensure each patient room is easily identified and located through distinct colour or images to each entrance.
- G.** Use contrasting colours or tones to distinguish the floor from the walls. Similarly, use contrasting colour on the skirting boards and doors to provide a visual break between the walls and the floors to ensure greater visual contrast.
- H.** Ensure the nurses station is welcoming, clearly visible and easily identified by those arriving into the ward or moving about the corridors.
- I.** Careful use of artificial lighting and the reduction of noise through sound absorbing materials can help mitigate environmental stress within a busy ward. Provide appropriate lighting levels within corridors to ensure they are accessible, comfortable, and safe to use for all patients.
- J.** All floor finishes should be non-slip, non-glare, and avoid strong patterns or sharp tonal or colour contrast. The avoidance of contrast is very important at door thresholds to prevent those with visual or cognitive impairments misinterpreting this contrast as a step.
- K.** Provide lounge area or family room to allow patients retreat from the busy ward. This will also help the patient to interact with visitors, or carry out activities of daily living such as dining with family. While there may be advantages in having this space in a quieter part of the ward, it may also be appropriate to locate it close to shared rooms for easy access.

Guidance regarding Design Consultation / Participation with Key Stakeholders

It is very important to engage with key people during the design process to ensure that the design is in line with the client's or patient's requirements. All key stakeholders should contribute in a meaningful way to the design process to ensure their needs and preferences are incorporated into the design, delivery and management of the physical hospital environment. Participatory design is important in terms of the design process and catering to the physical, sensory and psychological needs of patients; supporting a patient-centred approach; and, reinforcing patient empowerment.

Before developing proposals around dementia friendly design, it is important to understand the range of patient, visitor and staff needs in an acute hospital. As stated in the introduction, these guidelines have been developed with this diversity in mind and they should not be interpreted as dementia-specific, but as dementia supportive, framed by the UD approach to provide a more inclusive setting for a wide range of hospital users.

Direct engagement with patients and families

Depending on the circumstances of each project, the designer should consider how they might engage with the following key stakeholders:

- The person with dementia, if this is appropriate.
- Other family members who provide care or who are involved with the person with dementia on a regular basis.

Challenges

- There are many challenges around participatory design process and designing for people with dementia. Some people with dementia may have problems understanding and communicating their opinion regarding some of the complex issues relating to design the influence or role of the built environment.
- Declining communicative abilities of a person with dementia can create many barriers and challenges.
- Family members or carers may speak on behalf of the person with dementia and therefore it can be difficult to elicit direct feedback from the individuals themselves.

- The relationship dynamic between the carer and the person with dementia can result in the input provided by the person with dementia being suppressed or overridden by that of the family member or carer.

Things to consider

- No two people with dementia will have the same experience with regards to their illness; nor will they have the same perspective in relation to the hospital environment.
- Patients with dementia are usually at their worst when in hospital, i.e. they will be unwell or worried about a hospital appointment. As such, their usual level of cognition may be worse, thereby making it more difficult for people with dementia to cope with the hospital setting.
- Communication and engagement strategies underpinned by the 'value-driven' nature of person-centred care, particularly as it relates to promoting empowerment and agency of the person with dementia, may provide an effective way to counter the key challenge that declining communication abilities impose on participatory design.
- Altering perceptions and attitudes to facilitate connecting with people with dementia in a more meaningful way should be a component of strategies designed to engage with this patient group.
- Effective participatory design must consider the relationship dynamic between the person with dementia and their family member(s) and/or carer(s) and the extent to which it hinders or supports the person with dementia providing input into the engagement process. This in turn will contribute to the promotion of a meaningful engagement with all persons impacted and affected by dementia.



Hospital Staff

As noted in the National Dementia Strategy “a good awareness of dementia and appropriate skills for dealing with dementia is extremely important for all those who deal with people with dementia in acute hospitals”. Including staff as catalysts in all aspects of dementia friendly design can not only support an effective participatory design process and ease of implementation of a dementia-friendly approach, but it can also act as a counter-measure to the attitudinal or cultural barriers that may be present in some hospitals.

It should be acknowledged that some of the levels of design (i.e. Design levels 1,2 & 3) may be led by staff who have a valuable contribution to make in improving the environment and setting for people living with dementia.

Challenges

- Difficulties with respect to existing staff shortages and staff recruitment, as well as restrictions related to cost, can be a barrier to effective engagement and the effective implementation of a dementia friendly approach in the hospital setting.
- Change is often simply impeded by attitudes and cultural issues. While some physical alterations may not be that expensive or disruptive, they may be opposed due to a lack of consensus or people’s resistance to change.

Things to consider

- Effective participatory design must exploit staff awareness regarding the role of the built environment in human health and well-being.
- It is important to note that people with dementia will usually come into contact with a wide range of staff in acute settings.



Estates Management, Facilities Management, and Technical Services Departments

Effective participatory design involves the need for greater stakeholder engagement, especially buy-in from management. Full and comprehensive engagement by Facilities Management and Technical Services personnel not only contributes to better hospital design, but also better management and maintenance of completed works in the hospital over time.

Challenges

- It is sometimes the case that Facilities Management and Technical Services Departments are not fully engaged in the design stage of a hospital development/ retrofit project.
- Engaging with multiple stakeholders presents many challenges; while greater stakeholder involvement will improve the effectiveness of the participatory design process, each stakeholder will bring their own professional ‘language’, expectations, and views of the built environment.

Things to Consider

- Universal Design can play a valuable role in terms of establishing the foundation on which terms of reference can be based, to manage expectations of stakeholders, thereby ensuring an effective and more meaningful participatory design process.
- A carefully managed stakeholder engagement process relies on awareness by the Project Manager (responsible for hospital refurbishments and developments) of all stakeholders to be consulted as part of the participatory design process.

Overlapping with other initiatives

Hospitals are challenging environments. Diverse stakeholders, multiple hospital services, various strategies, standards, and regulations, along with complicated procurement policy, all combine to create a complex environment where real and perceived obstacles can hinder change.

Positive societal and policy developments regarding ageing and dementia contribute to creating the conditions to support good health for older persons. Specifically, strategies which promote and support a positive ageing process (such as the National Positive Ageing Strategy), and a greater awareness of dementia (including understanding of dementia as a disability, as outlined in the National Dementia Strategy), can act as facilitators in the implementation of dementia friendly design. These will support greater understanding and change of mind-set with regards to ageing and dementia at a broader societal and policy level.

It is important to take stock of where the key synergies between a dementia friendly design approach and hospital improvement initiatives lie, and where to exploit them for the benefit of patients and families, staff, and visitors.

Challenges

- Constant service improvement and concurrent initiatives to improve patient care can lead to 'initiative fatigue' or 'quality improvement overload' where management or patient-facing staff are less willing and able to implement changes.
- Disruption to patient care is a significant obstacle to carrying out building works in a hospital due to operational pressures and increasing numbers and patient flow.

Things to consider

- The extent to which strategies recognize the role of the built environment in supporting positive health outcomes in relation to ageing and dementia. For example, the National Dementia Strategy has a section on Acute Care, and notes that hospitals should be dementia-friendly from admission to discharge – should not be overlooked.

Conclusion

Design teams need stakeholder engagement in order to produce patient and staff friendly healthcare buildings. However, participatory design requires a certain level of concern, awareness and understanding in order to engage stakeholders in the design process. Where this awareness or understanding is lacking, efforts should be made to address both of these elements as it will result in a more effective and meaningful process of engagement.

Overall, it is essential to ensure that firstly the voice of a person with dementia is heard in the design process, and secondly that it builds awareness and understanding for all stakeholders of the importance of the physical environment. To this end, an engagement process which (1) recognizes and includes all the relevant stakeholders, (2) outlines their role and manages expectations with respect to the design process, (3) is, at its foundation, based on the tenants of patient-centred approach, and (4) is built around clear and accurate tender information, will have a higher chance of producing an optimum dementia friendly design for the hospital setting.



“Memory is a very personal thing it needs to always be dealt with the voice of the patient at the forefront...

We get patients on the entire spectrum, from subjective memory complaints and MCI, where there is no functional loss... and then the patients with dementia.

We also have to try and take into account the personality and dynamic with their family; the collateral from family and patient is regularly very conflicting and the truth will lie somewhere in between...”

Quote from Staff Member



How to use the guidelines at the various design levels

This guidance document largely follows the same format as the Universal Design Guidelines for Homes in Ireland and the Universal Design Guidelines for Dementia Friendly Dwellings for People with Dementia , their Families and Carers. The guidance comprises the following:

- Eight sections of design guidelines that flow from the location and outside of the building, to the inside of different key spaces within the building, to specific components and finally internal environment.
- Each section describes design considerations with photographs of existing buildings to communicate UD and dementia friendly features.
- Design quality guidelines with indicative floor plans are provided and can be applied to any new or existing hospitals.
- The Design Guidelines apply to all five levels of design to ensure that the guidelines are applicable to both new and existing hospitals, and that they can be used for minor or major works. The design scales are identified as: 1. Labelling, Signage, Painting and Planting; 2. ICT and Assistive Technologies; 3. Interior and Exterior Furniture, Fixtures and Fittings; 4. Building Fit-out; and, 5. New buildings and spatial/structural changes to existing buildings.
- UD dementia friendly hospital guidance and design tips are also provided to raise awareness and assist in patient-centred design.
- Appendices include a glossary of key terms and list of key acronyms.

At a Glance

Universal Design Dementia Friendly Hospitals Quality Features

Section 1 –

The Hospital as a whole

- Hospital campus and buildings providing a clear, coherent and legible whole.
- A good public realm composed of external and internal spaces that unify the hospital and provide a good overall experience for all users.
- Design that supports orientation to time and place.
- Clear wayfinding strategy that orientates people to where they are and where they are going.



Section 2 –

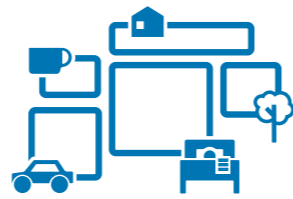
Site Location, Approach and Entry

- Hospital or specific department sited to ensure it is within easy reach of the community and easily located.
- Campus approach routes and access points that are clearly visible and accessible.
- Making a high quality public realm that is supportive, attractive, accessible, and easily understood.
- Provision of lighting, seating, signage to ensure accessible and usable public spaces.



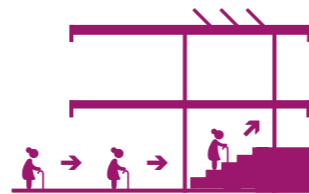
Section 3 – Campus Design and Site Circulation

- Clear and legible onsite circulation routes.
- Making a high quality public realm within the campus that is supportive attractive, accessible, and easily understood.
- Provision of lighting, seating, signage to ensure that the campus supports all users.
- Calm and therapeutic outdoor social and landscaped spaces with a balance of hard and soft landscaping.
- Use of building form and massing to create a legible environment that helps with orientation and navigation on the hospital grounds.



Section 4 – Approach, Entry and Internal Circulation

- Clearly visible and easily identified entrance points to the main public areas and individual departments.
- Accessible, usable and easily understood entrance doors.
- Clear and legible circulation areas where key spaces are easily located and identified.
- Using the connective tissue of the hospital public realm to create a high quality, supportive and accessible setting.



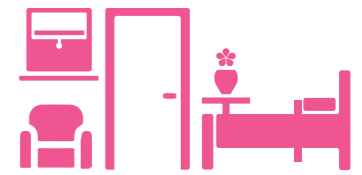
Section 5 – Key Internal and External Spaces

- Calm, legible and distinct spaces that support orientation and navigation.
- People centred environment with a softening of the institutional setting.
- Provide adequate space to ensure patients can partake in activities and move about.
- Provide space and supports so that accompanying persons can remain with the patient for as long as possible.
- Using key internal and external spaces to connect and contribute to the hospital's public realm.



Section 6 – Building Components

- Use of unobtrusive features to ensure health and well-being of patients.
- Clear and legible signage to support wayfinding.
- Furniture and fittings to support the specific needs of an older person and a person living with dementia.
- Calming and harmonious décor and artwork to enhance aesthetic and orientation experiences.



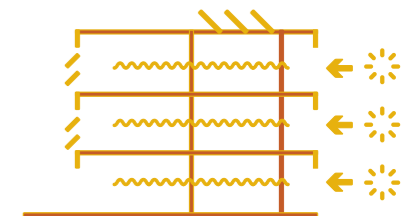
Section 7 – Technology

- Use of technology for safety, care delivery, communication, and entertainment
- Use of therapeutic technologies as part of the care process.
- Assistive technologies to support patients, family members and staff.



Section 8 – Internal Environment

- People centred environment that softens the institutional setting and makes the hospital more welcoming.
- Optimal use of lighting, heating and ventilation to create a supportive environment.
- Careful acoustic design and use of materials.



Part B: Design Guidelines



Section 1

Experiencing the Hospital as a Whole



The connective tissue of the hospital public realm

These guidelines present a number of distinct spatial scales across the entire hospital in order to illustrate the design features most salient to dementia friendly design for certain parts of the hospital. However, an integrated, coherent and therapeutic hospital is only possible when the building design is considered as a whole and where careful consideration is not only given to each individual spatial scale, but also to the connection and interaction between these scales. This is particularly important when considering the connecting public spaces that tie the spatial scales together. For the purposes of these guidelines we refer to these external and internal connective spaces as the Public Realm of the hospital.

Bridget is 84 and visits the hospital as an outpatient. She was diagnosed with dementia three years. She typically arrives at the hospital via public transport. While she frequently experiences stress and anxiety due to the busy hospital environment, the overall hospital design, which includes calm, legible circulation spaces, and several easily accessible garden spaces with seating mean that she is able to relax before her appointment.



Experiencing the hospital as a whole through the hospital public realm: Overall design issues

The hospital as whole is experienced when a person enters from the community and travels across the hospital grounds, through the entrance and main public areas, into a specific department, and finally to the room or destination they are seeking. This continuum of places and spaces can be considered as the public realm of the hospital, extending from the adjoining locality, along a progressive hierarchy of public, semi-public, and private spaces.

While all spatial and physical features effect this public realm, and these are dealt with in detail in Sections 2 to 8, it is important to consider the overall structure and quality of the public realm to ensure it is strong enough to provide a legible organising principle that also supports more detailed design strategies employed at various spatial scales. In this regard, the current section focuses on the **integration and interface with the community**, the main patient route through the hospital and the **connective tissue of key spaces experienced along the way**.

When considering this public realm, it important to think about the Key Design Issues:



Engagement and participation

1. Promote engagement with friends and family, staff and community.
2. Provide space and supports for accompanying persons.
3. Promote a participatory design approach.



Provide a people-centred environment

4. Soften the institutional environment.
5. Familiar or recognizable design that is easily understood and intuitive.
6. Facilitate personalisation and opportunities to add personal belongings.



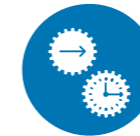
Support patient safety and health

7. Provide a safe environment through unobtrusive safety measures.
8. Support diet, nutrition and hydration.
9. Support meaningful physical and social activities including ADLs.



Balance sensory stimulation

10. Optimise positive sensory stimulation and minimize negative stimulation.
11. Provide indoor and outdoor contact with nature, and access to the outdoors.



Support orientation and navigation

12. Support orientation to date, time, location, and improve spatial cognition.
13. Provide good way-finding that supports navigation.
14. Provide good visibility and visual access.



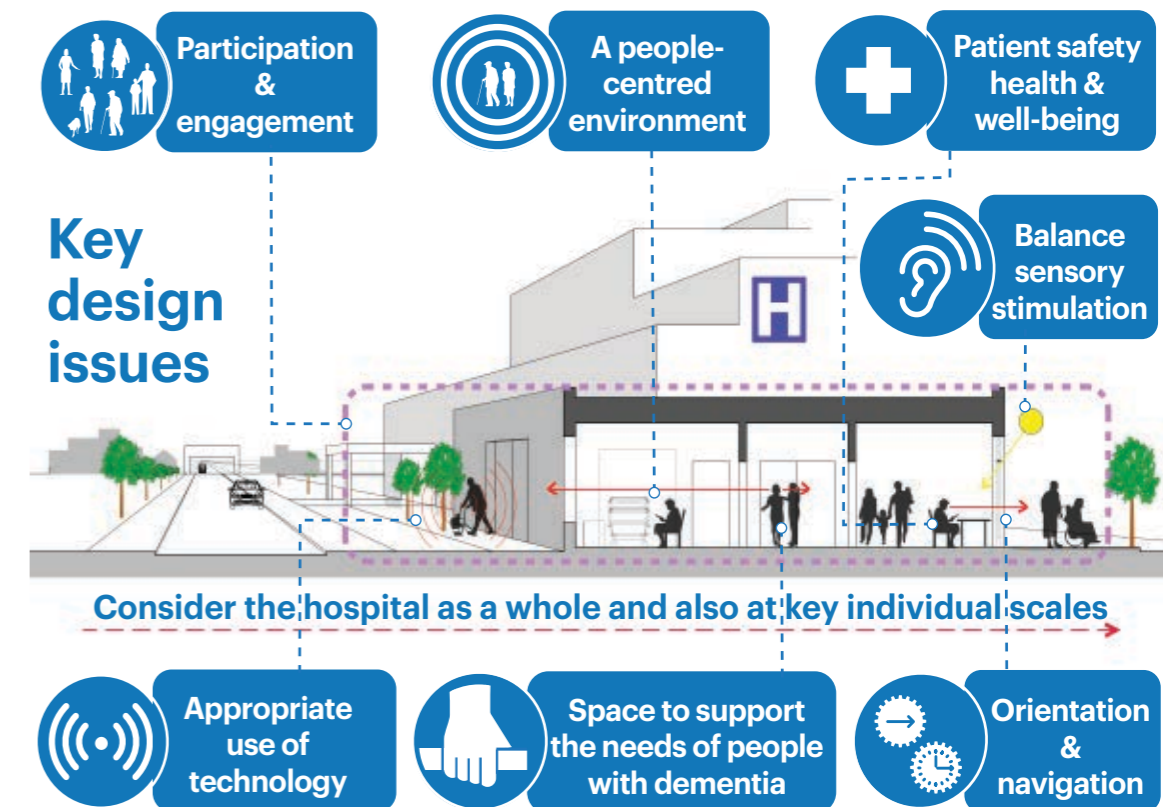
Adequate space to support the needs of a person with dementia

15. Bays or single rooms with space for personal belongings and visitors.
16. Retreat spaces in multi-bed wards or communal areas in single-bed wards.
17. Provide space and supports for patient mobilisation and activities.



Appropriate use of technology

18. Appropriate use of technology for care delivery, safety, therapy, communication, and entertainment.



1.1 Integration and Interface with the Community



01 Navan Road Primary Care Centre, Dublin, Ireland.

Photo Design Features

- Strong relationship and integration between the building and the public road.
- Creation of welcoming transition area that forms new public space.

Design Considerations and Awareness

Community Integration

The location and physical relationship of the hospital with the community will influence both ease of access for the patient, accompanying persons, friends and family, and community at large. Irish hospitals provide a range of inpatient, outpatient and day services that are frequently used by many older people. Where the hospital is within easy reach and is connected to the community with a safe, comfortable and accessible public

realm, it will contribute to age friendly and dementia friendly communities that enable older people and those with dementia to travel independently to the hospital as a patient, an accompanying person, or a visitor. This level of accessibility provides greater equality and equity in terms of facilitating independent travel, but also provides a public realm that supports physical exercise, cognitive stimulation, and social interaction.

While proximity and convenient access for patients have obvious benefits for patients in relation to shorter travel distances and possibly less stressful journeys, it also increases the potential for greater interaction with visitors and the community. This will support Key Design Issues such as engagement, and participation in meaningful activities.

Interface and transition from the Community

Making a journey from the community to the hospital involves a transition from the home to a clinical setting. For a person with dementia this may be challenging if the transition is too abrupt, illegible or confusing, or presents an intimidating experience. Therefore, creating a coherent and supportive interface and transition between the hospital and the community is an important part of dementia friendly design.

The appearance of the hospital and the public realm design qualities that interface with the adjacent community must be carefully considered. Where a hospital site or campus is well-integrated with its context, and sits within permeable boundaries, there is a greater chance that it will not be perceived as an isolated institution. In addition, if the design character reinforces a sense of place, and reflects the local context and identity, this may soften the institutional setting and enable a less clinical and austere appearance and more human scale environment. This may also support the concept of recognisable design that is easily understood and intuitive to use.

Achieving a balance between integration and legibility is challenging and relies firstly on how the hospital contributes to placemaking within the community, and secondly, how it uses placemaking to create its own sense of place and distinctive character. In this way it must strive to simultaneously produce an environment that does not alienate people, while also creating a distinctive setting with clear thresholds and landmarks to aid with orientation and wayfinding for a person with memory difficulties or spatial cognition impairments.

UD Dementia Friendly Design Guidance

- Where possible place public hospital facilities in accessible locations to enable independent use of the hospital by patients within the community and increase the level of family, visitor and community interaction.
- Consider how hospital buildings and boundaries interface with the community to soften the institutional perception and help integrate the hospital into the community.

“Key factors in creating an accessible environment are the location of services and of good transport links. Safe routes between key places that are designed to be easy to use by all individuals are another essential feature”.

CEUD 2014, Building for Everyone, Booklet 9 ‘Planning and Policy’.

“The scale of a building will have an effect on the behaviour and feelings of a person with dementia. The experience of scale is determined by three factors; the number of people that the person encounters, the overall size of the building and the size of the individual components, such as doors, rooms and corridors. A person should not be intimidated by the size of the surroundings or confronted with a multitude of interactions and choices. Rather the scale should help the person feel in control”.

Fleming and Bennett, 2014.

1.2 Main External and Internal Patient Route: Orientation, Navigation and Wayfinding throughout the Hospital as Whole



02 Approach to main entrance, South West Acute Hospital, Enniskillen, Co. Fermanagh, Northern Ireland.

Photo Design Features

- High quality external public space leading up to entrance as part of hospital public realm.
- Clearly legible entrance provided by entrance canopy.
- Natural elements such as trees and grass carried right up to the hospital entrance.

Design Considerations and Awareness

Creating calm, coherent, and legible spaces that provide orientation and support wayfinding is critical to a dementia friendly hospital. These conditions are dependent on the quality of the connective tissue of the external and internal spaces which make up the main route or path that take a person from outside the hospital to their destination or appointment within the hospital. While the quality of this route is dependent on range of elements, the following three elements are examined below: a supportive External and Internal Public Realm; Spatial Configuration and Building Form; and, Wayfinding

Creating a supportive External and Internal Public Realm

Where the hospital public realm interfaces with the locality it influences the level of community engagement, relationality, and sense of familiarity that may benefit many people with dementia, accompanying persons, and visitors.

As you move onto the hospital and continue on your journey, the legibility, coherence and quality of this public realm determines the patient and visitor experience in terms of accessibility, usability, physical and sensory comfort, orientation and navigation.



03 Main internal circulation area, North West Cancer Centre, Altnagelvin Hospital, Derry, Northern Ireland.

Photo Design Features

- High quality internal public space forming part of the hospital public realm.
- Integration with outdoor space affording easy access to garden areas and supporting orientation to space and time.
- Exterior brickwork on walls carried into the interior of the building to connect the internal and external spaces and help create a unified public realm.

Photo Design Tip

- Greater visual contrast using colour or tone between the columns and the floor would provide better differentiation between these elements for a person with visual or cognitive impairments.
- The highly polished floor finish/glare could cause difficulty for a person with dementia.

A high quality public realm can help manage the scale, complexity and busy-nature of a typical acute hospital through the creation of strong and coherent public spaces that frame the patient journey and link the various external and internal spaces, departments, and wards within the hospital. In this regard, clearly legible spatial and formal elements such as clear paths or routes; strong edges and containment; distinct zones; strong nodes such as squares or junctions for orientation; and clear landmarks, will provide a sense of orientation and help with wayfinding throughout the hospital.

In addition to these spatial and formal elements described above, the quality of materials, finishes, lighting, seating, and other details will enhance the hospital public realm and provide valuable orientation and navigation cues.

Contact with nature and natural processes has significant benefits for the health and well-being of people with dementia. In this regard the public realm of the hospital should use the natural environment including the natural elements, flora and fauna to create a calm, therapeutic and orientating setting for patients as they circulate throughout the hospital.

Spatial configuration and building form

The overall spatial configuration and building form of the hospital determines legibility, coherence, proximity and the qualities of the places and spaces that constitute the hospital setting. These consequently effect how a person perceives, understands, accesses and uses the campus and building. It also influences how the building frames and communicates external environmental conditions including local context, weather conditions, seasons, and time of day.

Amnesia and agnosia are two common symptoms of dementia and these can often result in a person becoming disorientated in terms of time and place. In addition, many people with dementia will experience spatial cognition difficulties, visual hallucinations, and visual perceptual disturbance.

For a hospitalised person, these challenges are often compounded by the size, busyness, and unfamiliarity of the hospital; not to mention potential disorientation due to delirium, illness or medication.

To alleviate these impairments, the spatial environment should balance formal massing (building form, height, mass); differentiation of appearance (size, shape, colour, or architectural style); visual access (the visibility of one part of a building or space from various locations); and layout complexity (i.e. level of spatial articulation, number of separate spaces etc.) to ensure the space is easily to comprehend and remember.

Many of the most successful hospitals embrace the use of a series of, or a single central public space which establishes the organisational and circulation principles for the entire scheme. This can take the form of a hospital street, a public concourse, or a large atrium space.

For instance, a central, dominant public space, such as the long, full-height concourse, presents patients and visitors with a legible element around which the rest of the building is arranged and broken down into blocks. This central space creates both an internal public realm, and a hierarchy of scale within the building, allowing visitors, patients and staff to navigate more intuitively.



04 Atrium, Brunel Building, Southmead Hospital, Bristol, UK.

Photo Design Features

- Atrium providing organisational and orientational function throughout building.
- High quality internal public realm providing main circulation route.
- Vertical circulation elements such as the stairs are clearly expressed.

Photo Design Tip

- Contrast in floor colour may be perceived as a step by some people with a visual or cognitive impairment.

To support orientation to time and geographic location, the design of the spatial layout and building form should carefully consider natural light; access to outside spaces and local scenes; and views of nature.

External and Internal Wayfinding throughout the Hospital as a whole

Carefully designed and detailed circulation space determines how well users move and flow from one area of a building to another. How easy and comfortably a person can navigate within the hospital is key to successful circulation spaces. This section examines the role of external and internal wayfinding to support navigation for people living with memory loss, a cognitive and sensory impairments, or visuospatial and visuo-perceptual difficulties.

“The process of finding one’s way includes knowing where you are, knowing your destination, knowing (and following) the best route to the destination, recognizing the destination upon arrival, and finding the way back”.

Marquardt, 2011.

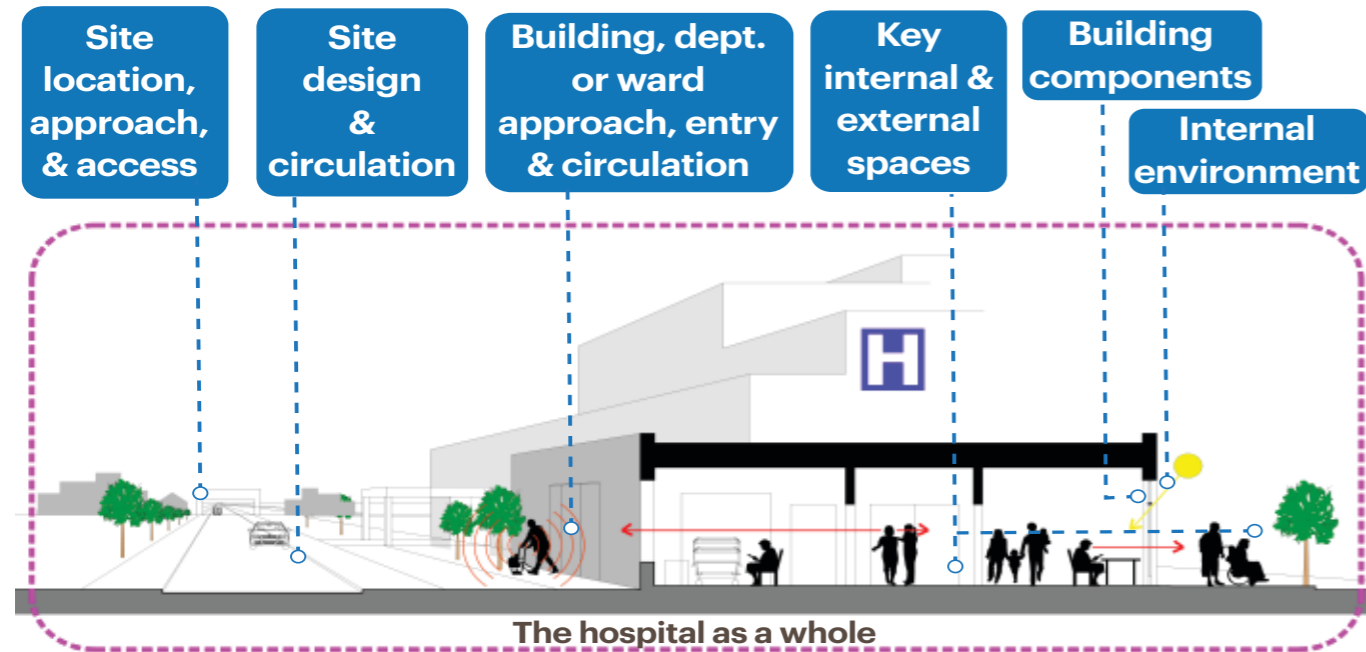
Wayfinding is the problem-solving ability necessary in reaching locations and is predicated on higher order and task decision making, decision execution, and information gathering. Taking into the account the symptoms of dementia, including impaired memory, impaired reasoning and ability to learn, high levels of stress and an acute sensitivity to the social and built environment, the decision-making process that underpins wayfinding is often undermined for people with dementia. Furthermore, these wayfinding challenges may be compounded in the busy, large-scale and complex environment of the hospital and exacerbate a person’s level of anxiety.

A person with dementia will be better served by a simple spatial layout with a configuration that minimises memory and inference-based decisions, and one that allows a person to move from one decision point to the next without too much forward planning. The spatial organisation should reduce dependence on cognitive mapping by providing good visual access and clearly communicating the overall structure of the space.

‘Environmental communication’ can be achieved by clearly articulating key features and functional zones, clearly expressing the circulation strategy, creating spaces with distinct character, introducing key landmarks, and at a more detailed level the use of graphic information. Many of these elements have been outlined previously in relation to the hospital Public Realm and Spatial Configuration and Building Form, however they are reiterated below as part of the Building Block Model to reinforce their importance.

Wayfinding - Building Block Model

These underpinning components of wayfinding in the hospital environment are clearly delineated by the wayfinding 'building block model' that uses a hierarchy of layers or building blocks' to build up a good wayfinding system across the spatial scales of a hospital (i.e. from master plan to graphics and amenities) as outlined below.



05 Diagram illustrating Wayfinding Building Block Model

- Master Plan: at a site plan level establish good circulation pathways and ensure that this legibility can be maintained with that future expansion.
- Architecture and Landscape: at a site level use landscape, planting, landmarks, and buildings for wayfinding.
- Interior Architecture: use architectural elements such as entrances, legible pathways, clearly visible vertical circulation such as lifts, internal landmarks, visual access, and visual cues at decision points.
- Interior Design: use lighting, colour, distinct materials to facilitate wayfinding.
- Signage: signage supports the previous 'building blocks' and is typically: 1) Informational (i.e. where to find assistance, opening hours etc.); 2) Directional; 3) Identifying (i.e. identifies a particular area or zone in the hospital); 4) Regulatory (i.e. radiation in use).
- Graphics: using symbols and wayfinding graphics to support and reinforce signage.
- Facility Amenity: the final 'building block' are the services provided by information desks visitor information centres within the hospital.



06 Aerial view of Phoenix Care Centre, Granegorman, Dublin 7, Ireland.

Photo Design Features

- Clearly expressed entrance area and route in contrast to the meandering courtyard paths.
- Careful and integrated use of architecture and landscaping to create a legible site plan.
- Integration of courtyard spaces and roof terraces to create potential for contact with nature.

Wayfinding – Directories and Site Maps

Large buildings and complexes such as airports or shopping centres use directories and site maps as a major part of their wayfinding strategy.

'You are here' markers will help a person orientate themselves, form or reinforce mental maps of the facility, and visualise the path they need to take to get to their destination. The usefulness of these maps depends on how closely they relate to the actual environment, are orientated correctly to the immediate environment, and that clearly illustrate where the viewer is with a 'you are here' mark.

Directories are used to inform the user if the destination they are looking for is in the area they currently located, or elsewhere. It also provides key facility or departmental locations related to floor levels or zones. It is important that a directory clearly illustrates what zone or floor it is located in, to help orientate the user.

Both site maps and directories should be placed at critical locations such as arrival points and decision junctions to provide wayfinding information when and where it is required most.



07 Hospital directory in main public atrium, Mater Hospital, Dublin, Ireland.

Photo Design Features

- Hospital signage located in main entry space and positioned at key decision junction.
- Colour coding to differentiate floor level and indicate current floor location.

Photo Design Tip

- The location of other signage, advertising, and hand sanitisers may cause confusion. .

Wayfinding – Signage, Graphics and Symbols

Many types of signage are typically required in hospitals including emergency exit signage, health and safety signage, and other mandatory signage. Along with this, there is wayfinding signage such as: Information signs; Directional signs; Locational or Identification signs must also be provided. To avoid confusion and cognitive overload, wayfinding signage should have a distinct and consistent identity and be located in critical locations such as arrival points and decision junctions.

Carefully designed graphics and symbols will also reinforce wayfinding and provide additional visual cues for people who may find it difficult to read or understand the signage text.

The language and terminology used in wayfinding should be as simple and intuitive as possible. It is important to avoid excessively technical language if there is a more commonly used term for a department or specific treatment within the hospital.



08 Large format signage in the MISA Building, St James's Hospital Dublin, Ireland.

Photo Design Features

- Large format signage opposite the exit to a passenger lift to orientate the user.
- Directional arrows pointing to key destinations.
- Colour coding used for each level to identify and differentiate between floors.

Wayfinding: Progressive Disclosure

Progressive disclosure is a wayfinding approach often used in large building complexes such as airports, and is based upon providing the visitor with just enough information to get them to the next decision-making point. This avoids information overload and confusion and helps to simplify the navigation of a building.

Note: See Section 6.3 for more detail on signage

UD Dementia Friendly Design Guidance

- The wayfinding strategy should extend into the building from the campus and provide clear, consistent, and easily read signage, and supported by distinct paths and internal spaces, along with recognisable visual cues such as colour, building elements, artwork or planting.
- Clear signage will enhance wayfinding, as will the provision of a clear circulation hierarchy composed of distinct and legible spaces and buildings.
- Carefully designed graphics and symbols will also reinforce wayfinding and provide additional visual cues for people who may find it difficult to read or understand the signage text.
- Ensure that language and terminology used in wayfinding should be as simple and intuitive as possible.
- Ensure all signage uses non-reflective material, provides large easy-to-read graphics and characters and employs contrasting colours to increase legibility of information.
- Good visual access to key hospital facilities and spaces should provide visual cues in terms of orientation and help remind or prompt people regarding their destination.

1.3 Key Internal and External Public Realm Spaces



09 Courtyard between blocks, South West Acute Hospital, Enniskillen, Co. Fermanagh, Northern Ireland.

Photo Design Features

- Courtyard providing high quality outdoor public space between blocks.
- Views to courtyard providing contact with nature and orientation to time and space.

Photo Design Tip

- A small covered outdoor space or sheltered seating area would make the courtyard more usable and comfortable for an older person.



10 Key internal and external public realm spaces, North West Cancer Centre, Altnagelvin, Derry, Northern Ireland.

Photo Design Features

- High quality materials, finishes and planting contributing to public realm.
- Integrated design of internal and external spaces tying the hospital together as a whole.

Design Considerations and Awareness

The external and internal public realm of the hospital has been discussed earlier in conjunction with the quality of the connective tissue of spaces which make up the main route or path that take a person from outside the hospital to their destination within the hospital. In addition, the spatial configuration and building form issues; along with wayfinding strategies were also discussed. These elements are composed of, or rely on a sequence of public and semi-public spaces that form the connective tissue of the public realm.

While the role of the hospital public realm has been discussed earlier in terms of circulation, orientation, and navigation, it is also important to examine how the spaces that make up the public realm can provide safe, accessible, calm and legible spaces that support patient mobilisation and activities, and provide positive multisensory stimulation.

These spaces are dealt with in greater detail in Section 3 Campus Design and Circulation, and Section 5 Key Internal and External Spaces; that said, it is important to identify the function of some of the main public realm spaces in terms of the overall hospital performance and the experience of the hospital as a whole.

Paths and Spaces for Patient Mobilisation and Stimulation

One of the Key Design Issues relates to the provision of space and supports for patient mobilisation and activities, including safe and stimulating walking or circulation routes.

The paths and routes that are threaded through the hospital as part of the external and internal public realm should provide opportunities for interesting and stimulating journeys for people within the hospital. The legible, coherent and calm environment required for orientation, navigation and wayfinding, will also provide a supportive setting for patient mobilisation and physical activity.

11 Atrium and hospital street, Naas Hospital, Kildare, Ireland.

Photo Design Features

- Atrium and hospital street providing interesting and stimulating walking space for older patient.
- Balance between activity and uncrowded environment provides opportunity for social interaction in a calm, uncluttered and safe environment.

Photo Design Tip

- Contrast in floor colour may be perceived as a step by people with a visual or cognitive impairment.
- Strong patterns may cause visual disorientation or perceptual distortion.

Space for physical and social activities

The public realm and associated spaces can also be used to support meaningful physical, social activities including activities of daily living (ADLs). Drawing the community and local context into the hospital through the public realm will help provide a lively, less institutional, more easily recognisable, and natural environment for a patient to find respite from the hospital and engage with therapeutic social and physical activities.

Respite and quiet space

The public realm of the hospital will typically contain a wide range of spaces transitioning from public to semi-public spaces. While many of these spaces are public in nature, some will afford a good opportunity to provide respite and change of scene away from a busy ward, outpatients department or emergency ward. In this context consideration should be to smaller enclosures or seating pods within public spaces that balance enclosure and containment with exposure and views to activity.

Integration of outdoor spaces

The integration of landscape and outdoor space with the public realm and interior of the hospital is becoming increasingly important in best practice design of acute hospital

buildings. The benefits of this are multiple; integrating courtyards and fingers of landscape helps to break down the mass and negative impact of large institutional buildings; integrated landscape in the form of courtyards allows for natural light and ventilation to penetrate deep into the building plan; accessible outdoor spaces provide a safe place for patients and visitors to step outside and gain respite from clinical, institutional environments; integration of outdoor space can help to provide meaningful views to the outside from a range of patient areas and greatly support orientation and navigation. All these factors work together to soften the institutional environment and promote a more people-centred atmosphere.



12 Courtyard garden Naas Hospital, Kildare, Ireland.

Photo Design Features

- Pleasant courtyard garden adjacent to atrium and hospital street.
- Variety of planting to provide a multisensory experience.
- Choice of bench and seating with back and arm support.

Photo Design Tip

- Exit from garden (one of which is at the top left of the photograph) should be identified through colour or distinctive physical form so it is clearly legible and supports orientation and wayfinding.

In-between and Transition Spaces

In these guidelines the hospital public realm is considered as the external and internal public and semi-public spaces that provide the spine and connective tissue for the hospital. However, the interaction of these two domains is heavily influenced by the boundary or edge spaces between inside and outside. These edge spaces mediate the relationship between inside and outside, and temper the environmental conditions of natural light, wind, rain, and sound, and therefore impact on a person's experience as they transition between the two spaces. Edge spaces often afford rich natural and social ecology and can provide spaces of interest and interaction. These qualities of transition or edge spaces can be exploited to draw people outside, and make this transition between the inside and outside more comfortable.

Edge spaces and sheltered external in-between spaces can allow a person to 'preview' an activity that may be taking place outside before committing to involvement or participation. These transition spaces also allow a person's eye to adjust to outside lighting levels, or comfort a person who may be anxious about the weather conditions outside. Transition or edge spaces also provide conditions that support natural and social diversity and interactions and can therefore be exploited in dementia friendly design. (Outdoor spaces and edge spaces will be dealt with in more detail in Section 6).

Contact with nature and Biophilic Design

Just as the integration of outdoor space has positive effects and creates more patient centred design, considered landscaping and integration of nature within these spaces further enhances their healthful, positive and people-centred qualities. Nature and landscaping provide a strong counterpoint to the more sterile, clinical nature of spaces which are often required in the acute hospital setting. Landscaping can offer both visual respite and meaningful views from clinical zones, and accessible landscaped areas can help patient re-establish a sense of balance through contact with the outdoors and the elements.

Underpinning many of the benefits associated with nature is the concept of biophilia, defined as humanity's innate connection with nature. In this context biophilic design focuses on how architecture and urban design can be used to reconnect people with nature and natural processes as part of a therapeutic and healthful approach based. While biophilic design is discussed in greater detail in Section 5.6, it is important to consider how nature can be threaded throughout the hospital as a whole to create a more therapeutic and healthful setting.

UD Dementia Friendly Design Guidance

- Provide space and supports for patient mobilisation and activities, including safe and stimulating walking or circulation routes. With this in mind, allow for opportunities for interesting and stimulating journeys for people within the hospital.
- Ensure a legible, coherent and calm environment to provide a supportive setting for patient mobilisation and physical activity.
- Support meaningful physical, social activities including activities of daily living (ADLs).
- Provide spaces for respite and change of scene away from a busy ward, outpatients department or emergency ward. This can be achieved through the provision of smaller enclosures or seating pods within public spaces that balance enclosure and containment with exposure and views to activity.
- Integrate landscape in the form of courtyards to allow for natural light and ventilation to penetrate deep into the building and provide meaningful views to the outside from a range of patient areas and greatly support orientation and navigation.
- Ensure access to outdoor spaces to provide a safe place for patients and visitors to step outside and gain respite from clinical, institutional environments.
- Enable a person to 'preview' an activity that may be taking place outside before committing to involvement or participation through the provision of edge spaces and sheltered external in-between space.
- Provide transition spaces also to allow a person's eye to adjust to outside lighting levels, or comfort a person who may be anxious about the weather conditions outside.
- Ensure nature can be threaded throughout the hospital as a whole to create a more therapeutic and healthful setting.

“Having accompanied her mother on many appointments and visits to the hospital (with regards to her serious illness) she witnessed her mother experience stress and anxiety due to the busy hospital environment.

On these visits, her mother often attended multiple appointments and spent a considerable amount of time in the hospital (during the one-day visit/appointment). One of the things her mother experienced was a level of disorientation and stress associated with multiple appointments in various parts of the hospital.

On these occasions, when possible, she found it helpful to remove her mother from the inside of the hospital to an outside space, where her mother could sit, 'decompress' and orientate herself before the next appointment”.

Grey et al, 2018. Dementia Friendly Hospitals from a Universal Design Approach: Key Research Findings Report



Section 2

Site Location, Approach and Entry



The location, approach, integration, interface, and transition from the community to the hospital are critical in a Universal Design dementia friendly hospital. In this context, the quality of the adjoining public spaces, public access and boundary conditions will greatly determine the accessibility, usability and ease of understanding of the external environment as a person approaches and enters the hospital grounds.

Fiona lives in close proximity to the hospital. She has friends who can drive her to her appointments in the OPD; however, on the off chance that there is no one available to drive her, she can and does walk to the hospital for her appointment.

That said, it is a bit of a walk, but she finds the benches along the street helpful and the entrance to the hospital is very visible and easy to find.



Site Location, Approach and Entry

Overall Design Issues

Accessible location and ease of approach and entry are the starting points for a Universal Design (UD) and Dementia Friendly Hospital. As described in Section 1, the integration, interface, and transition from the community to the hospital is vital part of a supportive public realm for any dementia friendly hospital. In this context, this section provides guidance regarding, location and siting of buildings, the quality of the adjoining public spaces, and the accessibility, usability and easy understanding of the main hospital approach and entry points.

When considering **Site Location, Approach and Entry**, it is also important to think about the following:



Engagement and participation

1. Promote engagement with friends and family, staff and community.
2. Provide space and supports for accompanying persons.
3. Promote a participatory design approach.



Provide a people-centred environment

4. Soften the institutional environment.
5. Familiar or recognizable design that is easily understood and intuitive.
6. Facilitate personalisation and opportunities to add personal belongings.



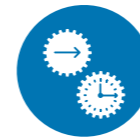
Support patient safety and health

7. Provide a safe environment through unobtrusive safety measures.
8. Support diet, nutrition and hydration.
9. Support meaningful physical and social activities including ADLs.



Balance sensory stimulation

10. Optimise positive sensory stimulation and minimize negative stimulation.
11. Provide indoor and outdoor contact with nature, and access to the outdoors.



Support orientation and navigation

12. Support orientation to date, time, location, and improve spatial cognition.
13. Provide good way-finding that supports navigation.
14. Provide good visibility and visual access.



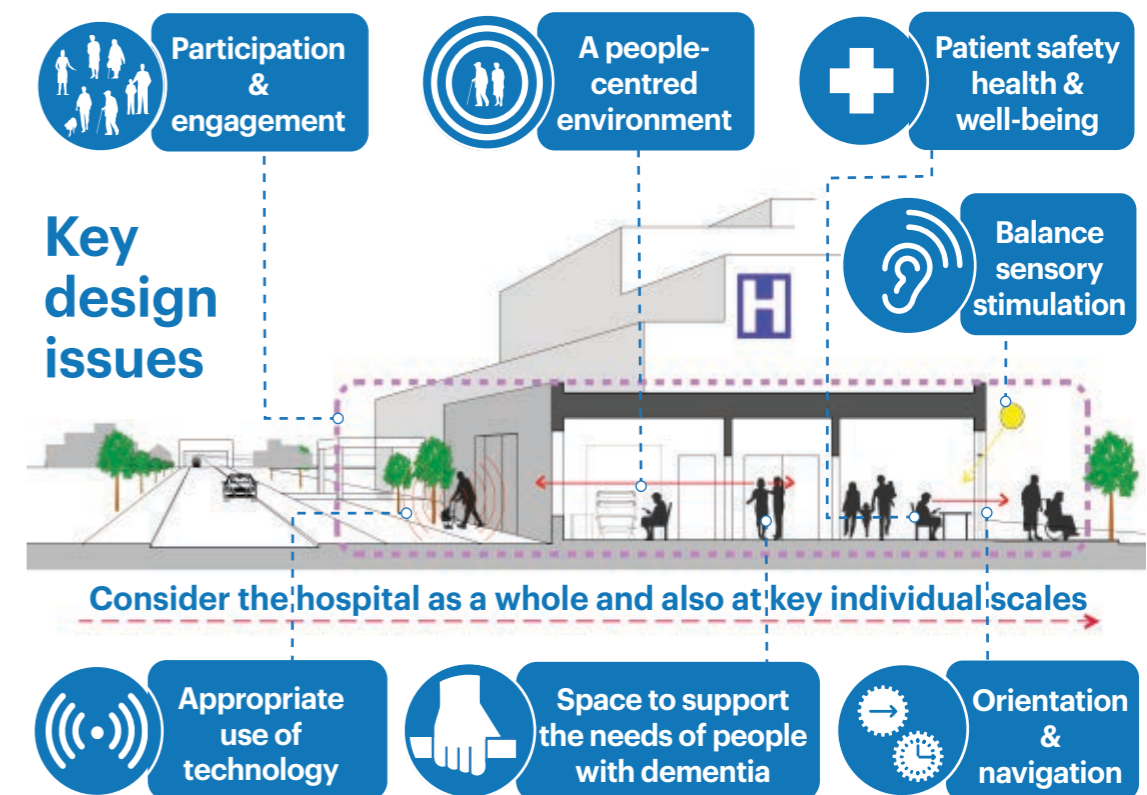
Adequate space to support the needs of a person with dementia

15. Bays or single rooms with space for personal belongings and visitors.
16. Retreat spaces in multi-bed wards or communal areas in single-bed wards.
17. Provide space and supports for patient mobilisation and activities.



Appropriate use of technology

18. Appropriate use of technology for care delivery, safety, therapy, communication, and entertainment.



2.1 Hospital location and ease of access for hospital users



01 Luas light rail stop beside Tallaght Hospital, Dublin 24, Dublin, Ireland.

Photo Design Features

- Light rail stop directly adjacent to hospital provides an accessible and easily used form of public transport to the hospital for all people.
- The Luas public transport stop provides a clear first destination point as part of a person's overall journey to the hospital.

Photo Design Tip

- Ensure there is pedestrian access point close to the public transport stop with an accessible pedestrian route to the main entrance of the hospital.

2.1.1 Location and Siting of Buildings



02 Main Entrance to the Mater Hospital, Dublin 7, Dublin, Ireland.

Photo Design Features

- The hospital interfaces with the main public domain in positive and welcoming manner.
- The main entrance to the hospital directly addresses the public road and is clearly identified and easily located by the public arriving to the hospital.

Design Considerations and Awareness

The location of any public facility such as a hospital influences the feasibility and availability of alternative modes of transport such as walking, cycling or public transport. Considering the various age-related health services a hospital provides, i.e. in addition to attending an emergency department or admission as an inpatient, many general hospitals provide geriatric day services facilities and dedicated age-related outpatient clinics, the hospital often becomes one of the public facilities frequented by older people in the community.

Many older people may be unable to drive for various reasons, and while people with early dementia may be safe drivers, as the condition progresses, the ability to safely drive a vehicle is eventually lost. Furthermore, there is a high probability that some patients and

visitors will not have access to a car, and will depend on others to drive them, use public transport, or arrive on foot. If the hospital is in a location that forms part of an accessible neighbourhood then it will contribute to an age friendly and dementia friendly community.

Given the number of older people using the hospital on a regular basis, it is vital that the hospital is easily accessed for older people and those living with dementia to independently and safely use public health services as an inpatient, outpatient, day hospital user, visitor, or a hospital volunteer. A centrally located hospital will facilitate easier access for the patient, their family and carers. Locating a new hospital near the public thoroughfare also reduces travel distances to the community and enhances passive security to associated access routes.

Consideration should be given to the siting of buildings (for example, Day Services, Emergency Department) to allow them to be easily accessible, visible and identifiable for older persons or persons with dementia and their accompanying persons.

Careful site planning and building orientation should be used to maximise the positive effects natural light and views to nature in the hospital setting and avoid a scenario where adjacent buildings block views or light.

Some people living with dementia may fear getting lost and feel insecure or anxious when out in public places. This may be compounded by concerns for personal safety, or fear of crime and therefore it is important to locate and site a hospital where occupants will feel secure while walking, cycling, and/or driving to or from the hospital campus, and using facilities such as the carpark, particularly at night.

UD Dementia Friendly Design Guidance

- Where possible choose a hospital location close to local services, public transport and local amenity spaces.
- Whether the hospital is in a new development, or along a public road or street, ensure that the site minimises travel distances to nearby facilities and amenity spaces.
- Ensure that the siting of the hospital maximises opportunities for informal social interaction and passive security while at the same time creating a calm environment.
- Avoid locating hospitals close to sources of excessive noise such as train lines or motorways as acoustic disturbance can be a major concern for some people with dementia.
- Finally, in choosing a general location or a specific site within a location it is useful to discuss this with all relevant stakeholders and to involve the person with dementia at all stages. The more familiar or recognisable the setting the better it will be for the person living with dementia.

2.2 Adjacent Public Spaces and Access Points



03 Approach to Navan Road Primary Care Centre, Navan Road, Dublin, Ireland.

Photo Design Features

- Building has an open and integrated relationship with community.
- High quality public entrance plaza.
- Planting and lighting used to define plaza and create welcoming space.

2.2.1

Adjacent Roads, Streets and Pavements

Design Considerations and Awareness

Some people living with dementia may have orientation difficulties in the external environment resulting in confusion or disorientation. Clear signage in urban spaces will enhance wayfinding, as will the provision of a clear circulation hierarchy comprised of distinct and legible spaces and buildings. Good visual access to key urban spaces and facilities will provide visual cues in terms of orientation and will help remind or prompt people regarding their destination.

Where possible and appropriate, urban design can reflect traditional urban patterns such as the typical street and block patterns found in towns and cities around Ireland. This urban form is recognisable to most people, and if designed using the principles of legibility and distinctiveness, it will provide more coherent and easily understood urban spaces for all people.

Some people living with dementia may be fearful of their personal security and safety when out in the community. Greater legibility and a clear circulation hierarchy will help but as referred to previously, other design approaches such as CPTED will also help to reduce opportunities for crime and reduce fear of crime (refer to Appendix C for further reading on CPTED).

Creating a calm urban environment which seeks to minimise visual clutter and excessive noise will be beneficial to people with dementia. Lower vehicle speed or design that creates lower traffic volume will also contribute to calmer urban spaces for all people.

UD Dementia Friendly Design Guidance

- Where possible locate any new patient-buildings adjacent to the public boundary to ensure it is easily identified, located, and accessed by pedestrians and motorists arriving to the hospital.
- Where the building is located at a distance from the public boundary, ensure there is a one clear and easily identified route from the public road to the main entrance of the building.
- Increase spatial legibility by employing a grid-like urban structure composed of well-connected short streets with good visual access to key landmarks and spaces. Greater enclosure formed by clearly visible buildings and spaces with obvious functions and entrances will also aid legibility.
- Use landmark objects or buildings to create urban distinctiveness especially at junctions or important nodes. This will help to create more recognisable spaces and thus enhance wayfinding.
- Consider how urban spaces can engender a sense of familiarity by the provision of human-scale, informal spaces inspired by traditional urban patterns, building design and features. This does not preclude innovative design but instead challenges the designer to employ recognisable spaces, features and functions which are consistent with users' expectations.
- Provide calm spaces that avoid excessive acoustic disturbance through design that reduces traffic volume and speed, and orientates noise generating activities away from hospitals and key amenity spaces.

2.2.2 Public Transport Stops, Street Furniture, and Lighting



04 Approach to Tallaght Hospital – public footpath along Belgard Square West, Tallaght, Dublin, Ireland.

Photo Design Features

- Wide level footpaths along approach areas to hospital.
- Seating to provide rest and an opportunity to stop and orientate.
- Main access clearly identified with roofed entrance gateway.

Design Considerations and Awareness

The urban form can contribute to increased legibility, distinctiveness and familiarity, which helps with orientation and navigation in the public realm. Street lighting and street furniture, such as signage, can reinforce and supplement these design principles to ensure that the street environment is easily understood by people with dementia.

People with dementia, like most older people and individuals who are visually impaired, will often need higher levels of lighting to compensate for vision difficulties, which may be related to both older age and dementia. The design of artificial light should seek to create even illumination, reduce the effects of glare and enhance task visibility.

Good signage and lighting will also help create a safe and secure environment. Street lighting in particular can play an important role, not only in reducing opportunities for crime but also in reducing the fear of crime.

UD Dementia Friendly Design Guidance

- Provide minimal street signage, especially at junctions, which concentrates on key essential information in a legible and familiar format that will be recognisable to people with dementia.
- Ensure all signage uses non-reflective material, provides large easy-to-read graphics and characters and employs contrasting colours to increase legibility of information.
- Beyond signage, other cues such as sound, touch, or smell can be used to reinforce wayfinding to help with orientation and navigation. For instance, plants with distinct smells (such as lavender) may trigger certain memories and may be used at the entrance to a hospital campus to help communicate the function of the space.
- Provide comfortable seating with back and arm rests every 100m to 125m. Arm rests will help a person get in and out of a seat while back rests provide additional support and resting places to lean on as a person walks along a street.
- Provide seating and shelters at bus stops to provide greater comfort and safety for people using public transport.
- Ensure that artificial lighting provides even illumination along exterior paths while highlighting key areas such as building entrances, steps, and ramps. Pedestrian walkways should have an average maintained illuminance of 30 lux, while entrances, steps and ramps should have an illuminance of 100 lux.
- Ensure that any lighting does not produce a glare, or result in excessive reflection or shadows as this may cause confusion or disorientation for some people living with dementia.
- While lighting bollards may be useful for highlighting paths it is important that they do not emit light upwards as the resulting glare may cause difficulties for people with dementia.

“LUAS is a fair distance; thinking of the older person, not great for someone with mobility issues – my dad couldn’t walk to the gate”.

Accompanying Person

2.2.3

Access Points to the Hospital Grounds



05 Main entrance with roofed entrance gateway, Tallaght Hospital, Dublin, Ireland.

Photo Design Features

- Familiar and easily recognizable entrance gateway highlighting a clear point of entry to hospital.
- Wide approach area for pedestrians towards main entry point onto hospital campus.

Design Considerations and Awareness

Similar to many campus-based public facilities (i.e. schools or universities) it is not only the location or the quality of the adjoining public space that determines the accessibility of the campus, but also the permeability of the boundary and the availability and convenience of the public access points.

The quality of the local urban environment leading up to and entering the hospital influences the ease and comfort in which any person can access the hospital. As such, the extent to which the urban environment in which the hospital is located is an accessible, usable, safe and comfortable urban space for older people and people with dementia, and their family members and or carers should be given due consideration.

Walking as a mode of transportation is influenced by proximity of local destinations, connectivity to destinations and walkability. These elements take on an added significance when considering older people who may take 10 to 20 minutes to walk 500m-1km in flat topography, as opposed to 5 to 10 minutes for a younger person.

UD Dementia Friendly Design Guidance

- Create a visually distinct entrance that clearly identifies the main public access point.
- Walking distances for older people with dementia to key facilities or public transport nodes should ideally, not be greater than 500m.
- Paths should be flat, even and sufficiently wide to allow the safe and comfortable passage of groups pedestrians. All surfaces should be non-slip, non-glare, and avoid strong patterns or sharp tonal or colour contrast.
- Provide comfortable seating with back and arm rests every 100m to 125m to offer people rest points and opportunities to stop and orientate themselves.

Section 3

Campus Design and Onsite Circulation



The campus and onsite circulation determines the quality of the hospital's public realm and continues the relationship between the user, community, and the hospital into the heart of the hospital. The campus design sets up the connective tissue of external public spaces that frame the key external circulation routes and social spaces, helps integrate external and internal hospital spaces, and plays a key role in connecting patients, visitors and staff with nature.

In addition to shaping the pedestrian experience, the campus and onsite circulation design sets out the parking and drop-off strategy and therefore determines the accessibility, usability and understanding of the campus for patients and visitors arriving by car.

Mario is 72 years old and attends the Age-Related Day Services in his local hospital. His son usually drives him to the hospital; owing to the lack of parking in close proximity to the Day Services entrance, his son will normally park the car in the carpark at the other end of the hospital campus and then walk with Mario to the Day Services entrance. The distance from the carpark to this entrance is a challenge, however, there are benches for Mario to sit along the way, and signage allows for good, clear wayfinding on campus.



Campus Design and Site Circulation

Overall Design Issues

Campus design and onsite circulation will influence a wide range of broad and detailed planning, landscape and architectural features. The location of key public hospital facilities frequented by older people, such as day services or outpatient clinics should be located for ease of access. Design considerations regarding legibility or comfort are also important, while more detailed issues such as lighting or seating should also be examined to ensure they reflect and are supportive of the needs of persons with dementia and their family members and/or carers. The overall campus character, architectural quality, key external public spaces; pedestrian and vehicular movement; and parking are also important.

When considering **Campus Design and Site Circulation** it is also important to think about the role of all Key Design Issues:



Engagement and participation

1. Promote engagement with friends and family, staff and community.
2. Provide space and supports for accompanying persons.
3. Promote a participatory design approach.



Provide a people-centred environment

4. Soften the institutional environment.
5. Familiar or recognizable design that is easily understood and intuitive.
6. Facilitate personalisation and opportunities to add personal belongings.



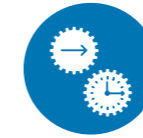
Support patient safety and health

7. Provide a safe environment through unobtrusive safety measures.
8. Support diet, nutrition and hydration.
9. Support meaningful physical and social activities including ADLs.



Balance sensory stimulation

10. Optimise positive sensory stimulation and minimize negative stimulation.
11. Provide indoor and outdoor contact with nature, and access to the outdoors.



Support orientation and navigation

12. Support orientation to date, time, location, and improve spatial cognition.
13. Provide good way-finding that supports navigation.
14. Provide good visibility and visual access.



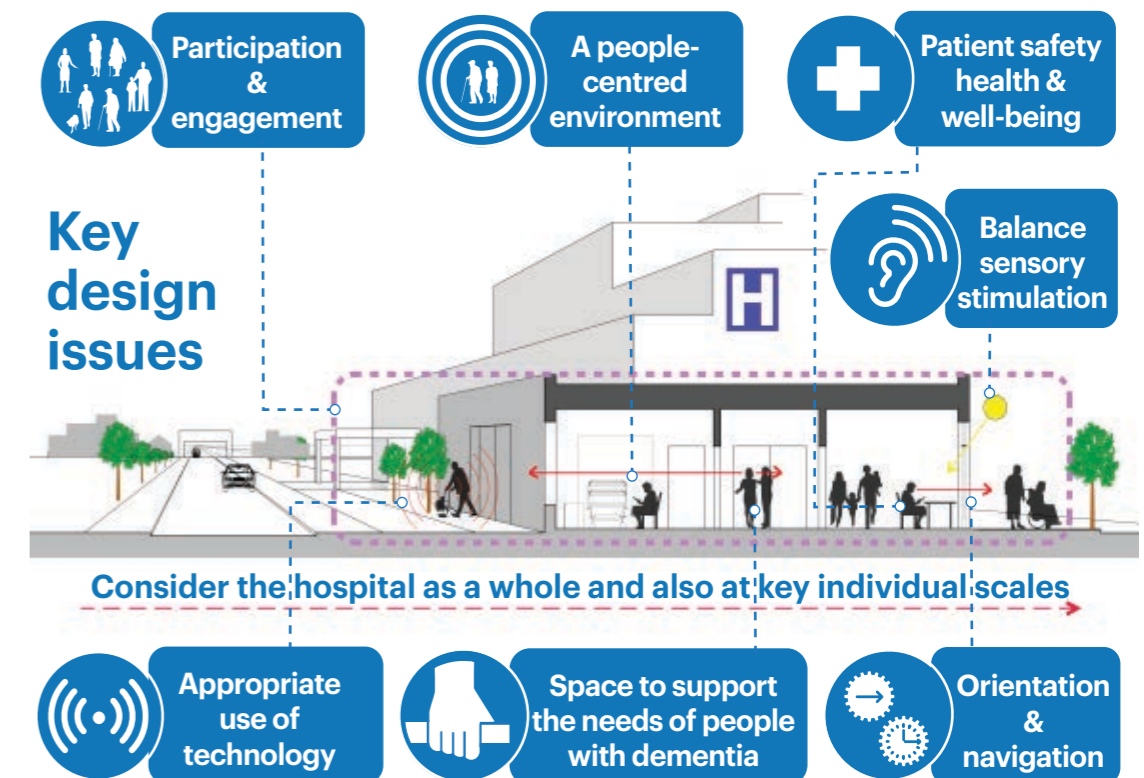
Adequate space to support the needs of a person with dementia

15. Bays or single rooms with space for personal belongings and visitors.
16. Retreat spaces in multi-bed wards or communal areas in single-bed wards.
17. Provide space and supports for patient mobilisation and activities.

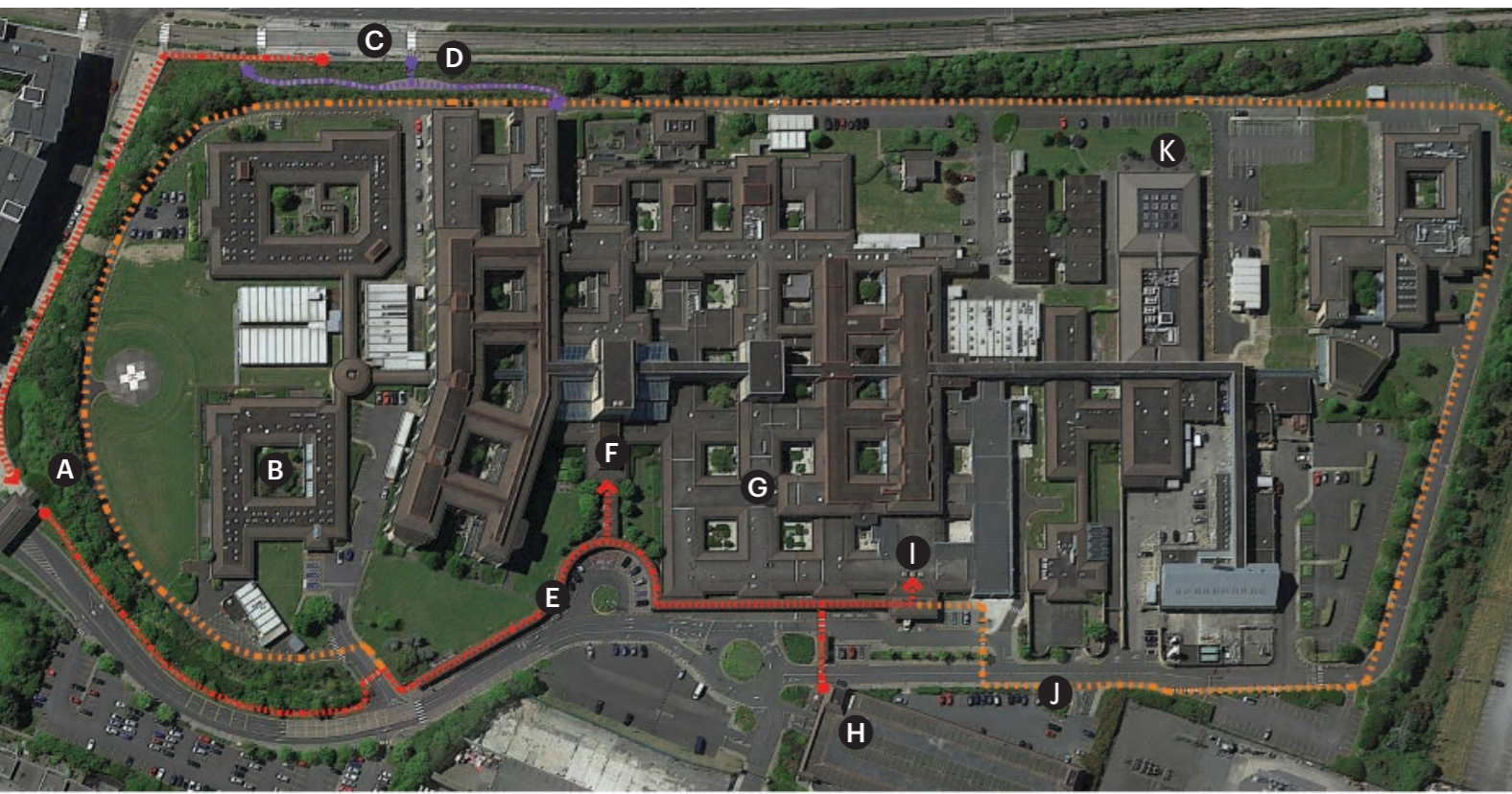


Appropriate use of technology

18. Appropriate use of technology for care delivery, safety, therapy, communication, and entertainment.



3.1 Overall Campus Design



01 Aerial View of Tallaght Hospital, Tallaght, Dublin 24, Ireland.

Photo Design Features

- A. Main entrance gateway in close proximity to Tallaght town centre.
- B. Age-related Day Services near main entrance.
- C. Luas light rail stop directly adjacent to hospital.
- D. Direct route from Luas stop to campus circulation.
- E. Main pedestrian pathway providing clear route through campus grounds.
- F. Main public entrance clearly identified through building form and covered walkways.
- G. Open courtyards bringing natural light into the hospital.
- H. Multi-storey public carpark.
- I. Main public entrance to Emergency Department.
- J. Continuous walking route around the hospital campus perimeter.
- K. Outdoor seating areas adjacent to cafeteria.

3.1.1 Campus Character and Overall Architectural Quality



02 View to natural landscaping surrounding South West Acute Hospital, Enniskillen, Co. Fermanagh, Northern Ireland.

Photo Design Features

- Landscaped areas adjacent to hospital providing calm and attractive spaces that afford good contact with nature.
- Variation in building form and building materials are used to soften the institutional setting.

Design Considerations and Awareness

The overall physical character of the campus or site plays an important role in the design of a hospital. Section 1 discussed many aspects of the overall campus character in terms of the hospital public realm, with specific reference to integration and interface with the community, the main patient route through the hospital and the connective tissue of key spaces experienced along the way. However, given the sensitivity of many people with dementia to their environment, this section considers the campus character and architectural quality in more detail to ensure a better hospital setting for people with dementia.

The physical hospital environment communicates a meaning and this can be used to send a positive message to patients and visitors to support their emotional and psychological wellbeing. Design qualities such as a sense of community, territory, contact with nature, and wayfinding should be carefully considered as part of a positive campus as follows:

- Sense of community: helped by gathering spaces, sitting areas and green spaces strategically located throughout the campus.
- Territory: is about calling a place your own and is helped by distinct spaces.
- Landscape: refers to the provision of natural landscape areas helped by a mixture of legibility (safety) and mystery (opportunity). The presence of water features is a positive attribute, while views to natural landscapes are beneficial to human health and wellbeing.

The design quality of buildings and hard infrastructure on the campus is determined by: building mass; height; scale; fenestration; materials; details and finishes; colour and other related design characteristics. This architectural design quality influences the overall feeling and appearance of the campus and must be carefully considered in the context of a dementia friendly hospital.

Distinctiveness is key to making buildings more comprehensible for people with dementia. Key architectural features to achieve this include:

- Reflecting local character to make new or renovated buildings more familiar and understandable.
- Use of varied building forms to make key locations and parts of the building more identifiable and legible.
- Creation of interesting and understandable outdoor spaces, including gathering and meeting spaces, that help people form or reinforce a mental map of the hospital campus.
- Use of landmarks such as distinctive structures, or specific aesthetic features (i.e. planting or water feature) or practical features (i.e. street furniture or art work) as environmental cues.
- Design that reflects a building's use or function will help make a building more comprehensible and its use more intuitive.

A dementia friendly building should provide a human scale so that people with dementia do not feel overwhelmed or intimidated by the building. A less institutional and compact scale in the hospital can make the environment less confusing, more comfortable, and facilitate better patient monitoring.

How these elements are tied together determines the quality and legibility of the hospital's public realm. The spatial configuration of the site and the building form of the hospital shape the campus character and determine legibility, coherence, proximity and the sensory qualities of the places and spaces within the campus. In turn, the campus character impacts how a person perceives, understands, accesses and uses the hospital campus.

A coherent, legible and orientating public realm underpinned by a distinct movement strategy for pedestrians, cyclists and motorists will help people understand the layout and

navigate to their destination. Providing a strong centre of gravity where the main public entrance acts as a focal point within the site will reinforce campus legibility. In this regard, the main entrance should be conveniently located, easily identified and accessible for those arriving to the hospital on foot, bicycle, car or public transport.

Where public entrances are not visible upon entering the hospital campus, provide wayfinding measures to help a person find their way across the campus and to locate the main entrance.

The campus character and associated levels of user comfort or stress is heavily influenced by perceived or real fears of crime. This is of particular relevance to older people and women who, as research shows, are often most fearful of crime. Hospital settings, particularly those with 24-hour activities are often identified as risky environments in terms of crime with, for example, hospital grounds or parking facilities providing opportunities for criminal behaviour. In response to real and perceived fear of crime, the 'Crime Prevention Through Environmental Design' (CPTED) urban design and architectural approach aims to promote environmental design and management practices that create safer places for inhabitants and discourage criminal activity by increasing passive security and by making targets such as property less attractive for criminals. By designing out spaces that make people feel insecure or vulnerable, CPTED is concerned with reducing fear of crime.

UD Dementia Friendly Design Guidance

- Overall, the campus should create a calm, legible setting with careful use of planting to produce a therapeutic environment both outside and inside the building.
- A good campus wayfinding system will help people find their way and this can be provided through clear, consistent, and easily read signage, and supported by distinct paths or routes, and recognisable visual cues such as building elements, artwork or planting.
- Provide comfortable seating with back and arm rests every 100m to 125m to offer people rest points and opportunities to stop and orientate themselves.
- Create a visually distinct entrance that clearly identifies the main public access point.
- Provide gathering and meeting spaces to help reinforce orientation and create resting points.

3.1.2

Key external public spaces



03 Approach to the Drogheda Department of Psychiatry, Crosslanes, Drogheda, Co. Louth, Ireland.

Photo Design Features

- High quality public realm forming approach area to main entrance.
- Distinct and clearly identifiable entrance create by collanade.
- Seating along entrance route to create resting and orientation point.

Design Considerations and Awareness

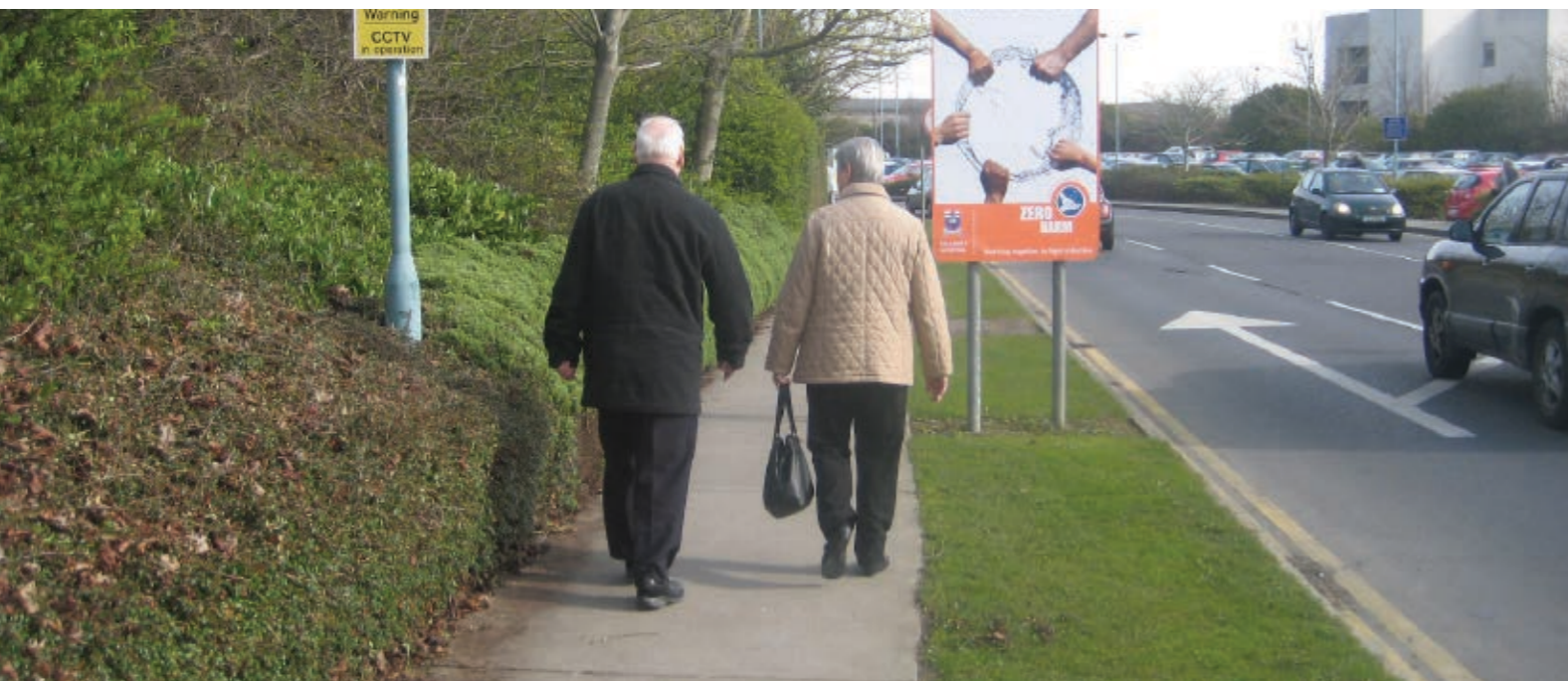
A hospital campus may contain a range of external public spaces, from campus entrance areas or roads and walkways, to building entrance plazas or public campus gardens. As described in Section 1, these external spaces form an important part of the connective tissue that make up the main route within the hospital campus. These spaces function as circulation spaces, social areas, contact with nature, activity zones and as a respite from the hospital.

In addition to these spaces supporting outdoor circulation or activities, it is important to recognize the relationship between the external campus and internal hospital environments. The external campus environment, along with any adjacent lands or neighbourhood adjoining the campus, provides the 'outside world' as viewed from within the hospital. Therefore, the quality of this external environment will greatly influence the quality of the internal environment in terms of views, natural light, access to nature, acoustics, air quality, and a range of other environmental factors.

UD Dementia Friendly Design Guidance

- Create a visually distinct entrance that clearly identifies the main public access point.
- Provide a large covered area to create a transition area between inside and outside, and provide shelter for a person exiting the building to allow them adjust to the external conditions.
- Create an entrance plaza or similar public space adjacent to the main public access point. This strengthens legibility, affords a transition space between inside and outside, and provides a gathering space for social interaction.
- Provide sheltered and shaded seating with back and arm rests to allow a person sit while waiting for an accompanying person who has dropped them off, or simply to rest or orientate themselves before entering, or after leaving the building.

3.2 Onsite Patient Movement



04 Two people walking along pedestrian footpath as they enter Tallaght Hospital.

Photo Design Features

- Pedestrian access to Tallaght Hospital is supported due to proximity to Tallaght Town centre and public transport stops served by the Luas and Dublin Bus.

Photo Design Tip

- The footpath should be wider to allow the safe and comfortable passing of pedestrians without having to step onto the grass which may result in a slip or fall.
- Seating should be placed along the entrance road to provide a rest point or the opportunity to stop and orientate.

3.2.1 Main Pedestrian Circulation Routes



05 Covered pedestrian route forming approach to main entrance of Tallaght Hospital.

Photo Design Features

- Covered pedestrian path provides shelter for patients and accompanying persons.
- Covered pedestrian path provides clear route to the hospital entrance.

Photo Design Tip

- Seating should be placed along the entrance road to provide a rest point or the opportunity to stop and orientate.

Design Considerations and Awareness

Section 1.2 addressed many aspects of pedestrian movement in relation to the main external and internal patient route, and the importance of a coherent, legible and orientating public realm to help people navigate to their destination.

Given the scale and complexity of many acute hospitals, travel distances can become problematic for many older people, or people with physical or sensory impairments. Where feasible external pedestrian travel distances should be minimised by locating the main public facilities, and building entrances as close as possible to public roads or public transport stops. While this reduces pedestrian travel distances it also helps to integrate the hospital with the local community as argued in Section 1.1.

Excessive travel distances can be compounded by the need to cross busy junctions, particularly service routes or ambulance routes and access roads leading to the Emergency Department where vehicles may be traveling at higher speeds. In this regard, the external pedestrian circulation path should be segregated from emergency vehicles and service traffic.

To ensure these pedestrian routes are accessible and usable for all people, they should be flat, even and sufficiently wide to allow the safe and comfortable passage of groups of pedestrians. In addition, surfaces should be non-slip, non-glare, and avoid strong patterns or sharp tonal or colour contrast.

Furthermore, where footpaths transverse vehicle routes ensure there are appropriate pedestrian crossing points with dropped curbs, blister tactile paving surface, and road crossing markings to safely guide people across the road. Careful consideration should be given to the use of pedestrian barriers and railings as these can be obstacles and sometimes force or misdirect people on to the road.

UD Dementia Friendly Design Guidance

- Overall, the campus should create a calm, legible setting with careful use of planting to produce a therapeutic environment both outside and inside the building.
- Consider how urban spaces can engender a sense of familiarity by the provision of human-scale, informal spaces inspired by traditional urban patterns, building design and features. This does not preclude innovative design but instead challenges the designer to employ recognisable spaces, features and functions which are consistent with users' expectations.
- Provide calm spaces that avoid excessive acoustic disturbance through design that reduces traffic volume and speed, and orientates noise generating activities away from patient and key amenity spaces.
- Consider how external pedestrian circulation paths can be segregated from emergency vehicles and service traffic.
- Ensure pedestrian routes are accessible and usable for all people, by ensuring they are flat, even and sufficiently wide to allow the safe and comfortable passage of groups of pedestrians. In addition, surfaces should be non-slip, non-glare, and avoid strong patterns or sharp tonal or colour contrast.
- The wayfinding strategy should extend into the building from the campus and provide clear, consistent, and easily read signage, and supported by distinct paths and internal spaces, along with recognisable visual cues such as colour, building elements, artwork or planting.

3.2.2 Wayfinding



06 Hospital Wayfinding, James's Hospital, Dublin, Ireland.

Photo Design Features

- Signage placed in visible location and unobstructed by planting or other objects.
- Colour coding, graphics and symbols used to reinforce wayfinding.

Design Considerations and Awareness

Good wayfinding is central to a circulation system that is accessible, understandable and easy to use. Section 1.2 covers many of the key wayfinding issues relevant to external pedestrian movement. In this regard, the Building Block Model and the use of high quality directories and site maps, signage, graphics and symbols will be crucial to a Universally Designed dementia friendly hospital campus. Furthermore, use of the concept of Progressive Disclosure to ensure that wayfinding information is presented at the right time and in the right place, will help avoid information overload and confusion, especially for those with cognitive or visual impairments.

UD Dementia Friendly Design Guidance

- Clear signage on the hospital campus will enhance wayfinding, as will the provision of a clear circulation hierarchy composed of distinct and legible spaces and buildings.
- Ensure all signage uses non-reflective material, provides large easy-to-read graphics and characters and employs contrasting colours to increase legibility of information.
- The wayfinding strategy should extend into the building from the campus and provide clear, consistent, and easily read signage, supported by distinct paths and internal spaces, along with recognisable visual cues such as colour, building elements, artwork or planting.
- Beyond signage, other cues such as sound, touch, or smell can be used to reinforce wayfinding to help with orientation and navigation. For instance, plants with distinct smells (such as lavender) may trigger certain memories and may be used at the entrance to a garden or park to help communicate the function of the space.
- Use landmark objects or buildings to create urban distinctiveness, especially at junctions or important nodes. This will help to create more recognisable spaces and thus enhance wayfinding.
- Good visual access to key hospital facilities and spaces should provide visual cues in terms of orientation and help remind or prompt people regarding their destination.
- Increase spatial legibility by employing a grid-like urban structure composed of well-connected short streets with good visual access to key landmarks and spaces. Greater enclosure formed by clearly visible buildings and spaces with obvious functions and entrances will also aid legibility.
- Provide easily located and identifiable main entrance door that is accessible, easily operated and understood.

3.2.3 External Lighting and Street Furniture



07 View to entrance area of North West Cancer Centre, Altnagelvin Hospital, Derry, Northern Ireland.

Photo Design Features

- Natural landscaping at entrance.
- Ample lighting used for illumination and wayfinding leading to entrance.
- Covered entrance provides a sheltered area and helps with legibility.

Design Considerations and Awareness

The overall spatial configuration and building form of the hospital campus can contribute to increased legibility, distinctiveness and familiarity, which helps with orientation and navigation in the hospital public realm. External lighting, furniture, and signage, can reinforce and supplement these design principles to ensure that the public realm is easily understood by people with dementia.

People with dementia, like most older people, will often need higher levels of lighting to compensate for vision difficulties, which may be related to both older age and dementia. The design of artificial light should seek to create even illumination, reduce the effects of glare and enhance task visibility and illuminate the ground plane.

Good signage and lighting will also help create a safer environment. External campus lighting in particular can play an important role, not only in reducing opportunities for crime but also in reducing the fear of crime.

External seating as resting or orientation points in the campus will benefit many users. The provision of seating at 100m to 125m intervals is pertinent on large hospital campus, particularly in situations where the public entrance is at a distance from the main road, or where public transport does not enter the site.

UD Dementia Friendly Design Guidance

- Provide comfortable seating with back and arm rests every 100m to 125m. Arm rests will help a person get in and out of a seat while back rests provide additional support and resting places to lean on as a person walks along a street.
- Provide seating and shelters at bus stops to provide greater comfort and safety for people using public transport.
- Provide dedicated lighting to key features such as paths and entrances to provide additional visual cues for wayfinding.
- Be careful with automatic lighting or sensor-activated lighting as this may startle or cause confusion if a person is unaware of the automatic function. In some cases, this may lead them to believe that another person has activated the light.
- Ensure that artificial lighting provides even illumination along exterior paths while highlighting key areas such as building entrances, steps, and ramps. Pedestrian walkways should have an average maintained illuminance of 30 lux, while entrances, steps and ramps should have an illuminance of 100 lux.
- Ensure that any lighting does not produce a glare, or result in excessive reflection or shadows as this may cause confusion or disorientation for some people living with dementia.
- While lighting bollards may be useful for highlighting paths, it is important that they do not emit light upwards as the resulting glare may cause difficulties for people with dementia.

3.2.4 Ramps, Steps, Landings, and Handrails



08 Pedestrian path providing a direct route onto Tallaght Hospital, Dublin, Ireland.

Photo Design Features

- Low gradient ramp with handrail for support.
- Concrete surface providing non-slip and low glare finish.

Photo Design Tip

- Handrail on both sides would create a more accessible and usable route.
- External lighting would make this path usable and safer at night.

Design Considerations and Awareness

Some people living with dementia may have difficulties perceiving certain 3-dimensional objects or may not fully understand certain functions and therefore a number of cues may be needed to make them aware of ramps, steps and landings. The logical location of external ramps and steps, achieving good visual contrast, providing multiple cues and adequate warnings, will all contribute to a dementia friendly circulation.

In the context of dementia, handrails can act as a wayfinding device and provide an additional visual cue to remind people about where ramps or stairs are located or how they should be used. Providing a handrail that contrasts visually with the background, by using distinct colours or tones, will help a person see a handrail more clearly.

UD Dementia Friendly Design Guidance

- Provide good lighting, signage, and dedicated clearly delineated paths which guide a person to and from the hospital entrance(s).
- Provide ramps in locations that are obvious and convenient and which are clearly visible along the circulation route so they provide a usable and easily understood alternative to steps.
- Avoid convoluted ramp designs by ensuring that ramps are laid out in a logical manner where their use is intuitive and clearly understood. Ensure that entry and exit points are clearly visible and adjacent to the main circulation route.
- Use a handrail design that will be familiar to most people and will be consistent with their expectations.
- Use colour and tone so that the handrail stands out clearly from its background.
- Where possible, use some feature to clearly indicate where a handrail ends, as this will help provide a better signal to the user that the handrail is ending and thus give them a chance to adjust accordingly.
- Handrails should be provided on both sides of ramps and steps and should be continuous to the full length of the flight and around intermediate landings.
- Handrails should be positioned with the upper surface 900 to 1000mm above the ramp slope and 900 to 1100mm above landings.
- The provision of a second lower handrail, with the upper surface positioned 600 to 750mm above the ramp and landing surface is desirable and will benefit people of different heights.
- Handrails should extend 300mm beyond the top and bottom of a ramp or steps to provide support to people as they move from a level surface onto a slope and vice versa.

3.2.5 Planting



09 Outdoor garden space, Phoenix Care Centre, Grangegorman, Dublin 7, Ireland.

Photo Design Features

- Attractive outdoor space directly accessible to patients, visitors, and staff.
- Windows to rear illustrate good visual access to the garden from inside.
- Bench seating to provide resting and orientation points with the courtyard.

Design Considerations and Awareness

Section 1.3 discussed how landscaping and the integration of nature within the campus will enhance the healthful, positive and people-centred qualities of the hospital. However it is important to reiterate the beneficial role of planting when it is threaded throughout campus.

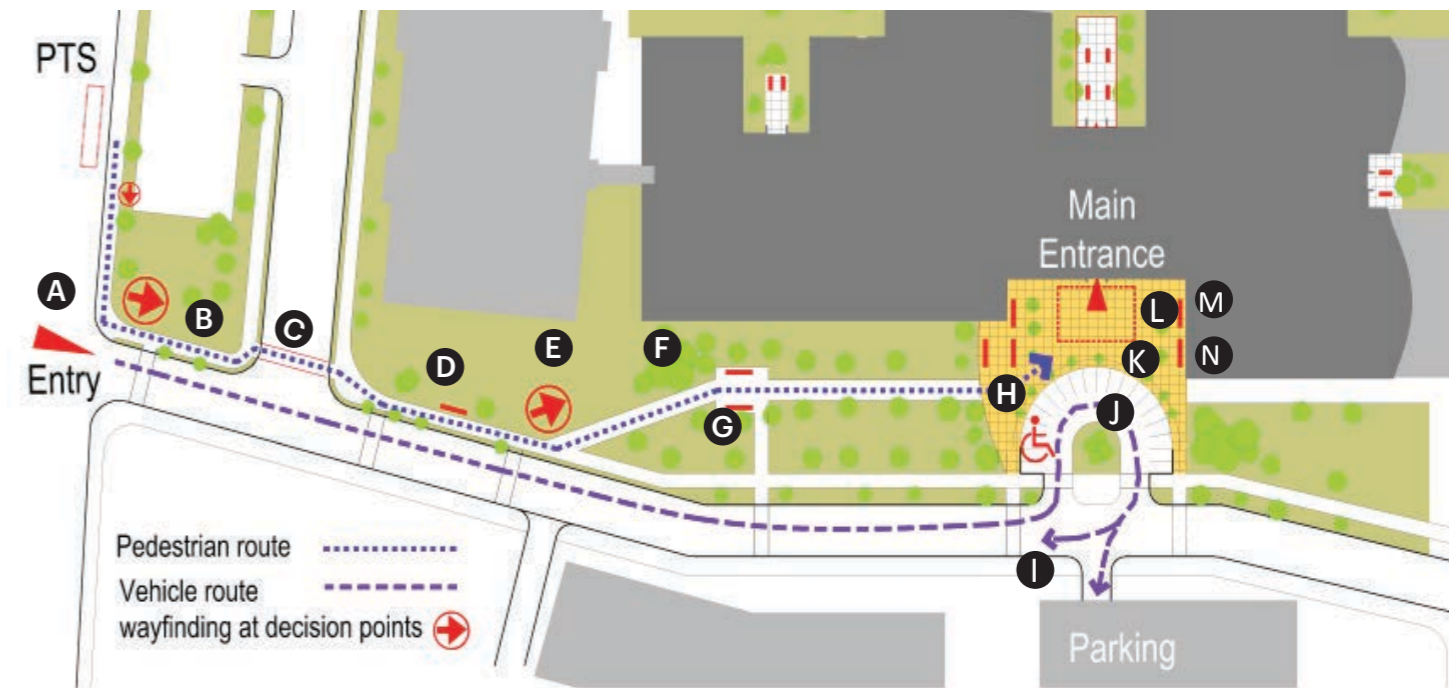
At a site scale landscape and planting can create landmarks, nodes and focal points for orientation and wayfinding. In terms of a dementia friendly hospital, planting can be used to make approach routes and entry points more recognisable, create opportunities for personalisation, and help mediate against external negative stimuli, such as glare and noise. Planting can also be used to create multisensory cues providing visual, smell, and tactile experiences that can help with orientation and wayfinding.

UD Dementia Friendly Design Guidance

- Overall, the campus should create a calm, legible setting with careful use of planting to produce a therapeutic environment both outside and inside the building.
- Use planting that is familiar and recognizable to the person with dementia to personalise entrances and pathways.
- Use colourful and distinctive planting in strategic locations and destinations to create visual landmarks to help with wayfinding.
- In line with the creation of visual landmarks, use fragrant planting to reinforce wayfinding by providing aromas in certain key locations such as entrances or junctions along approach paths.
- Ensure planting does not cause excessive shadows on the ground which may be perceived as a step or cause other difficulties for people with dementia.
- Avoid plants that irritate the skin or are toxic if ingested.
- Carefully locate trees that shed excessive fruit or leaves so that these do not cause slipping or tripping on paths. Maintain planting to keep pathways clear.

Technical Sketch 1

Indicative campus showing key campus design and onsite circulation issues



- A.** Locate the main site entrance so it is easily identified, located, and accessed from the public realm. Where possible, locate entrances close to public transport stops (PTS) so they are easily identified and to reduce travel distances for those with mobility impairments. Provide simple and clear signage at the site entrance to identify the hospital on approach. Ensure that the natural path to the site entrance is not broken by railings or barriers.
- B.** Where the main building entrance is located at a distance from the site entrance ensure there is a clear and easily identified pedestrian route from site entrance to the building entrance.
- C.** Where the onsite pedestrian route crosses a road ensure there are appropriate pedestrian crossing points with dropped curbs, Tactile Walking Surface Indicators (TWSIs), and road crossing markings to safely guide people across the road.
- D.** Pedestrian routes should be flat, even and sufficiently wide to allow the safe and comfortable passage of groups of pedestrians. All surfaces should have good drainage, be non-slip, non-glare, and avoid strong patterns or sharp tonal or colour contrast.
- E.** Good campus wayfinding will help people find their way and this can be provided through clear, consistent, and easily read signage; supported by distinct paths or routes, and recognisable visual cues such as seating, building elements, artwork or planting. Provide simple and clear signage that communicates the relative positions of buildings and facilities within the site.

- F.** Overall, the campus should create a calm, legible setting with careful use of planting to support wayfinding and produce a therapeutic environment within the site.
- G.** Provide comfortable seating with back and arm rests every 100m to 125m to offer people rest points and opportunities to stop and orientate themselves.
- H.** Provide designated accessible car parking spaces as close as possible to the main building entrance (the number of spaces will depend on the size of the facility). Designated parking should also be provided as required in other parking areas or multi-storey car parks.
- I.** The location and proximity of the main car parks should take into account the mobility difficulties that may be experienced by many patients and visitors, particularly older people or those with a disability. Provide sheltered walkways where possible.
- J.** Provide enough set-down areas and associated meeting areas where a patient or visitor can be dropped off close to the main entrance. The entrance should be clearly identifiable and easily accessed from the drop-off point so that when a person is dropped off they can make their way to the entrance without difficulty. For a person with dementia or a cognitive impairment, there may be some particular difficulties associated with drop-off zones and expecting a person to make their way to the entrance.
- K.** Create an entrance plaza or similar public space adjacent to the main public access point. This strengthens legibility, affords a transition space between inside and outside, and provides a gathering space for social interaction.
- L.** Provide a large covered area to create a transition area between inside and outside, and provide shelter for a person exiting the building to allow them to adjust to the external conditions.
- M.** Ensure that artificial lighting provides even illumination with an average maintained illuminance of 30 lux for approach, while entrances, steps and ramps should have an illuminance of 100 lux. The use of LED lighting should be carefully considered as the quality of the light may cause issues
- N.** Provide sheltered and shaded seating with back and arm rests to allow a person sit while waiting for an accompanying person who has dropped them off, or simply to rest or orientate themselves before entering, or after leaving the building.

3.2.6 Vehicle Circulation, Set-down and Parking



10 Main entrance to Tallaght Hospital, Dublin 24, Ireland.

Photo Design Features

- Dedicated set down areas provided close to main public entrance.
- Covered pedestrian path provides shelter for patients disembarking from vehicles.
- Pedestrian path provides clear route to the hospital entrance.

Photo Design Tip

- Provide designated parking for certain hospital users that require direct access to the main entrance such as certain people with dementia or certain accompanying persons.
- Provide a hospital valet system for certain patients or visitors who may need temporary or additional assistance following drop-off.

Design Considerations and Awareness

Vehicle Circulation

Creating a calm campus environment that minimises excessive vehicle activity and noise will be beneficial to people with dementia, while site design that lowers traffic volume and vehicle speed will contribute to calmer spaces for all people. Where feasible the segregation of emergency vehicles and service traffic away from public routes will help in this regard.

Public Parking

While the provision of sufficient designated accessible car parking spaces adjacent to the hospital entrance will be covered by various standards and legislation, parking for many people with dementia and older or frail people in the hospital can be problematic. In this regard the location and proximity of the main car parks should consider the mobility difficulties that may be experienced by many patients and visitors. In some cases, it may be appropriate to provide more parking spaces than the standard requirements to provide supportive conditions for patients and their accompanying persons.

In addition to proximity, pedestrian paths from the carparking to the main entrance should avoid crossing busy carriageways, especially emergency vehicle routes or roads leading to the emergency department.



11 Main entrance to Schull Community Hospital, Cork, Ireland.

Photo Design Features

- Parking close to main public entrance.
- Covered entrance clearly identifies main access point.

Set down areas

It is important to provide enough set-down areas where a patient or visitor can be dropped off close to the main entrance. The entrance should be clearly identifiable and easily accessed from the drop-off point so that when a person is dropped off they can make their way to the entrance without difficulty.

For some people with dementia or a cognitive impairment, making their own way to the entrance, or even waiting in the drop-off area for the driver to return, may not be appropriate or safe. On the other hand, walking back to the entrance with the driver once the car is parked may not be feasible if the patient is ill or frail. In this regard, such parking demands can negatively impact the ability of one accompanying person to handle this situation, thereby resulting in the need for multiple carers to accompany the person with dementia to the hospital. This not only puts additional strain on families and carers, but has knock-on effect in terms of increasing the occupant load within the hospital.

The drop-off and parking area design must take the above into consideration. In these situations, it may be possible to provide dedicated parking close to the entrance for a designated accompanying person.

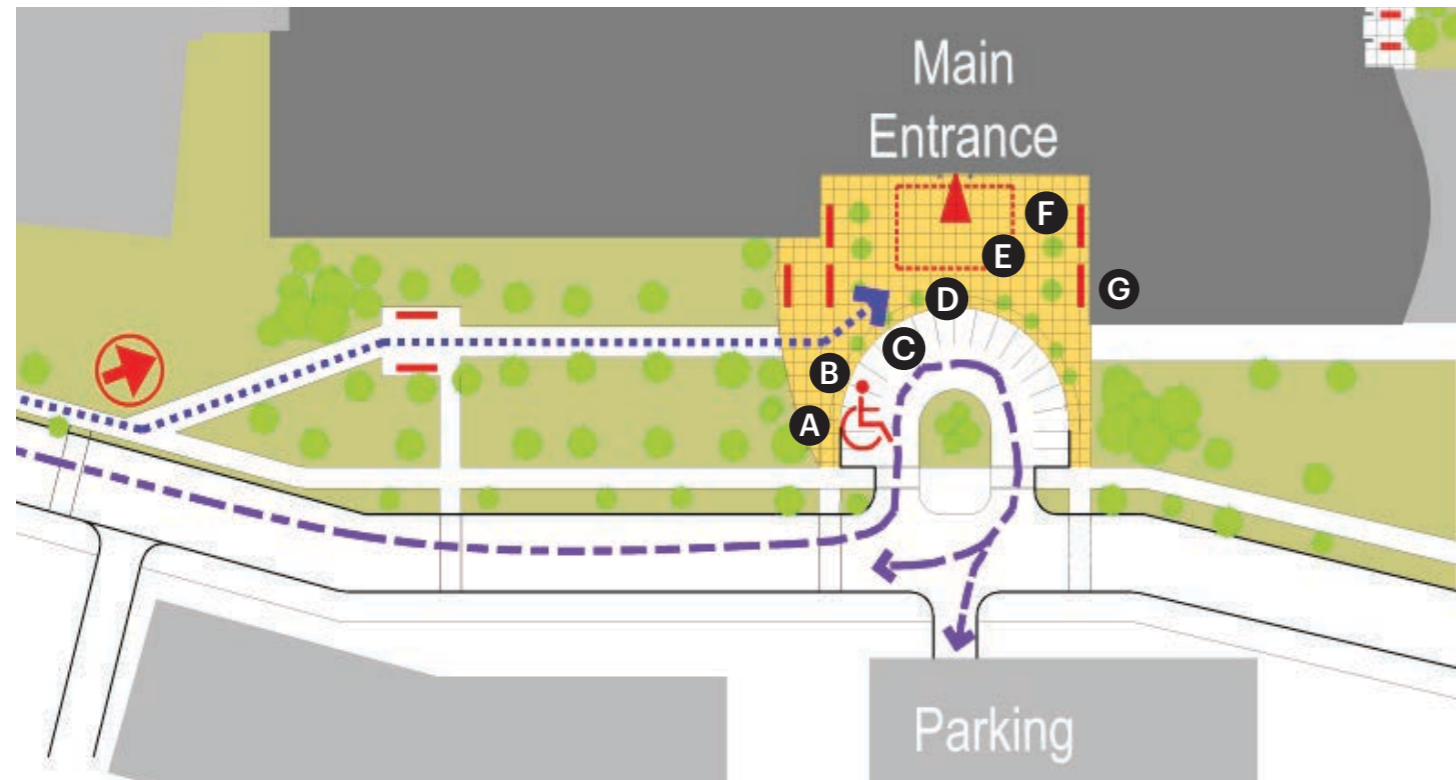
Note: Some form of valet service could be provided where the patient can be escorted to a supervised waiting area while the accompanying person parks the car. Additionally, some hospitals are trialling, a 'Butterfly meet-and-greet parking', or valet parking approach, where upon arrival a staff member parks the car. Afterwards, when leaving, the car is returned to the visitor.

UD Dementia Friendly Design Guidance

- Create a calm environment which seeks to minimise visual clutter and excessive noise. Lower traffic volume and vehicle speed will contribute to a calmer more easily understood hospital environment for all people.
- Provision of sufficient and adequate drop-off facilities at the entrance of the hospital.
- Dedicated accessible parking should be provided close to the entrance for those who need it, while convenient set-down areas should also be provided so that an accompanying person can drop-off a patient, park close by and return quickly to escort the patient to their appointment hospital.
- Provide designated accessible parking bays close to the entrances serving the hospital (main entrance, day services entrance, etc) which can be used by family carers who may have a person with dementia as a passenger.
- Provide sheltered and shaded seating with back and arm rests to allow a person sit while waiting for an accompanying person who has dropped them off, or simply to rest or orientate themselves before entering, or after leaving the building.
- Provide good lighting, obvious signage and dedicated clearly delineated paths to guide a person to and from any underground parking facilities.

Technical Sketch 2

Indicative campus showing key parking and set-down issues

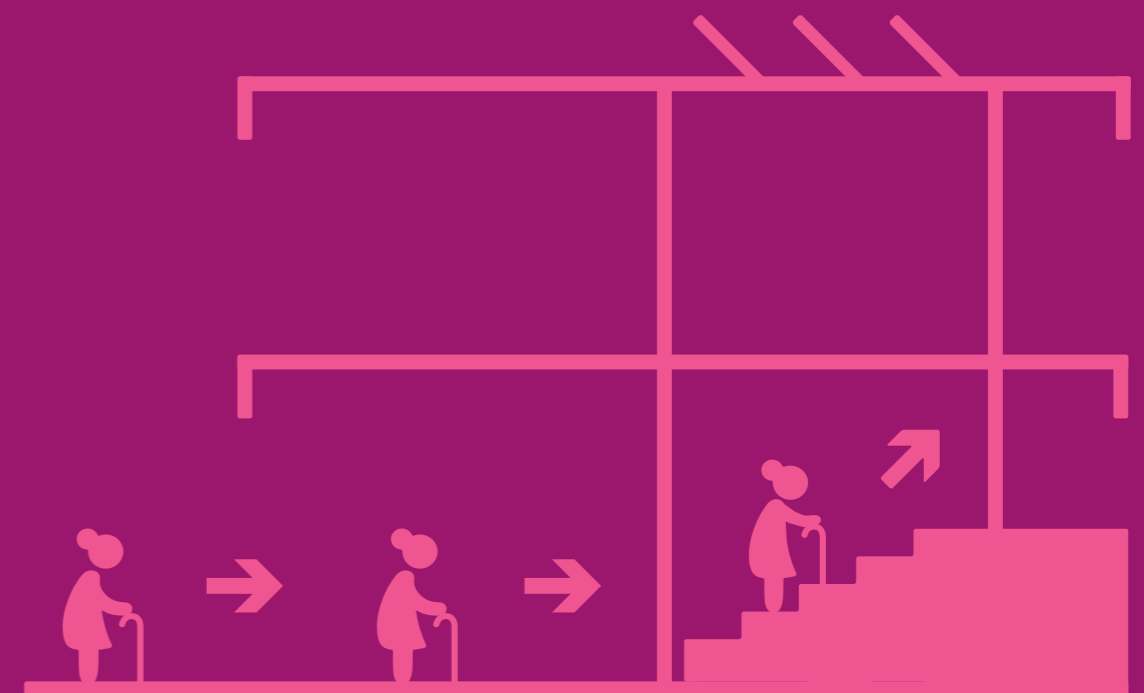


- A.** Provide designated accessible car parking spaces as close as possible to the main building entrance (the number of spaces will depend on the size of the facility). Designated parking should also be provided as required in other parking areas or multi-storey car parks.
- B.** The location and proximity of the main car parks should account for mobility difficulties that may be experienced by many patients and visitors, particularly older people or those with a disability.
- C.** Provide enough set-down areas where a patient or visitor can be dropped off close to the main entrance. The entrance should be clearly identifiable and easily accessed from the drop-off point so that when a person is dropped off they can make their way from to the entrance without difficulty. For a person with dementia or a cognitive impairment, there may be some particular difficulties associated with drop-off zones, and leaving a person to make their way to the entrance.
- D.** Create an entrance plaza or similar public space adjacent to the main public access point. This strengthens legibility, affords a transition space between inside and outside, and provides a gathering space for social interaction.
- E.** Provide a large covered area to create a transition area between inside and outside, and provide shelter for a person exiting the building to allow them to adjust to the external conditions. This also provides a sheltered area for a person to disembark from a vehicle or wait for the return of a driver following a drop-off.

- F.** Ensure that artificial lighting provides even illumination with an average maintained illuminance of 30 lux for approach, while entrances, steps and ramps should have an illuminance of 100 lux.
- G.** Provide sheltered and shaded seating with back and arm rests to allow a person sit while waiting for an accompanying person who has dropped them off, or simply to rest or orientate themselves before entering, or after leaving the building.

Section 4

Building Entry and Internal Circulation



The entry and main internal circulation areas of the hospital carry the public realm into the hospital, and through a strong and coherent connective tissue of spaces can help manage the scale, complexity and busy-nature of a typical acute hospital. This can frame the patient journey and link the various external and internal spaces, departments, and wards within the hospital. In this regard, clearly legible spatial and formal elements such as clear paths or routes; strong edges and containment; distinct zones; strong nodes such as squares or junctions for orientation; and clear landmarks, will provide a sense of orientation and help with wayfinding throughout the hospital.

Colm and Eileen are 66 years old. Their daughter has been a patient in the hospital for the past 6 days. They have come to visit her every day, but before this had never been to the hospital before. While it is a large and busy hospital, the central hospital street and clear wayfinding, that includes signage, colour-coding, and planting, have made it easy for them to get around.



Building Entry and Internal Circulation

Overall Design Issues

This section of the guidelines describes several issues, ranging from entrance doors to internal circulation, common areas, stairs and lifts. For people with dementia, entering and navigating successfully around a large complex building such as a hospital is critical to their independence, well-being and safety. It is also important to remember these elements are not only about circulation, but provide many of the main social spaces vital to a supportive public realm within any dementia friendly hospital.

When considering **Building Entry and Internal Circulation** it is important to think about the role of all Key Design Issues:



Engagement and participation

1. Promote engagement with friends and family, staff and community.
2. Provide space and supports for accompanying persons.
3. Promote a participatory design approach.



Provide a people-centred environment

4. Soften the institutional environment.
5. Familiar or recognizable design that is easily understood and intuitive.
6. Facilitate personalisation and opportunities to add personal belongings.



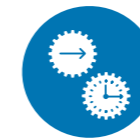
Support patient safety and health

7. Provide a safe environment through unobtrusive safety measures.
8. Support diet, nutrition and hydration.
9. Support meaningful physical and social activities including ADLs.



Balance sensory stimulation

10. Optimise positive sensory stimulation and minimize negative stimulation.
11. Provide indoor and outdoor contact with nature, and access to the outdoors.



Support orientation and navigation

12. Support orientation to date, time, location, and improve spatial cognition.
13. Provide good way-finding that supports navigation.
14. Provide good visibility and visual access.



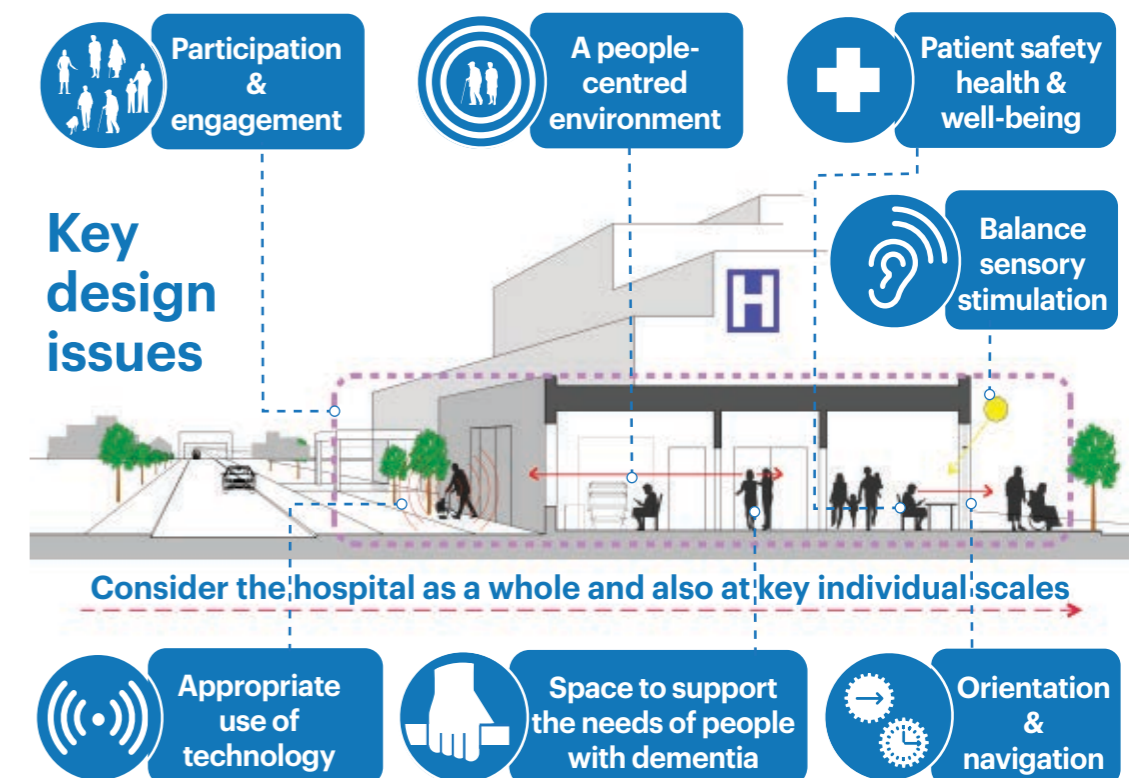
Adequate space to support the needs of a person with dementia

15. Bays or single rooms with space for personal belongings and visitors.
16. Retreat spaces in multi-bed wards or communal areas in single-bed wards.
17. Provide space and supports for patient mobilisation and activities.



Appropriate use of technology

18. Appropriate use of technology for care delivery, safety, therapy, communication, and entertainment.



4.1 Building Entry



01 Ballyfermot Primary Care and Mental Health Centre, Ballyfermot, Dublin 10, Ireland.

Photo Design Features

- Bright and highly visible entrance makes it easy to find.
- Covered area providing shelter and transition area at the entrance.
- Doors set back from main façade make the entrances easier to see and identify.
- Seating at entrance provides resting and orientation point.
- Landscaping to entrance softens building and makes it more welcoming.

Photo Design Tip

- Reflective signage may be difficult to read for people with a visual impairment.

4.1.1 Entrance and Covered Areas



02 Main public entrance to Naas Hospital, Naas, Co. Kildare.

Photo Design Features

- Large clearly visible entrance canopy creating obvious visual cue.
- Sheltered waiting or transition area for hospital users as they enter or leave the building.
- Bright, coloured columns supporting the canopy reinforce the legibility and public function of the canopy.

Photo Design Tip

- A larger entrance area or some form of entrance plaza would create a more comfortable and usable waiting or social area.
- Location of street furniture blocking full width of path.
- The provision of seating would provide a rest point for older people or those with mobility issues as the enter or leave.

Design Considerations and Awareness

Entrance location and entrance design: The main entrance area forms a key part of the hospital public realm and one of the most important thresholds along the main patient route. In this regard, it should provide a strong centre of gravity and a focal point within the site. This entrance should be conveniently located, easily identified and accessible for those arriving to the hospital on foot, bicycle, car or public transport. The entrance should form part of a legible site layout and be set within a clear movement hierarchy that is supported by good wayfinding to help hospital users navigate to the entrance. If this main public entrance is placed close to the public road or street, it will help integrate the hospital with the adjacent community and also reduce travel distances within the campus.

The creation of an entrance plaza or similar public space adjacent to the main public entry will strengthen legibility, afford a transition space between inside and outside, and provide a gathering space for social interaction. Key design issues relating to softening the institutional environment through human-scale and familiar design, and balancing sensory stimulation, can also be used to make the main entrance a pleasant, calm, and welcoming space. This space should be large enough so that people occupying the space do not obstruct other users entering and leaving the hospital.

Covered Entrance Areas

A covered entrance area performs a number of functions for the hospital. Firstly, it creates a strong visual cue and landmark for orientation and wayfinding. It also provides a sheltered waiting area for people entering or leaving the hospital, or when a person disembarks from a vehicle. It can also act as a transition area between inside and outside allowing a person who is exiting to adjust to the external conditions.



03 Main public entrance to Farnogue Residential Healthcare Unit, Co. Wexford, Ireland.

Photo Design Features

- Large clearly visible entrance canopy creating obvious visual cue.
- Sheltered waiting or transition area for building users as they enter or leave the facility.
- Covered area extends out to accessible parking area to provide shelter for people arriving by car.

Signage, Lighting and furniture

Section 3 discussed the value of clear signage and good levels of even lighting to enhance wayfinding as a person approaches the entrance. Ensure that artificial lighting provides even illumination with an average maintained illuminance of 30 lux for approach, while entrances, steps and ramps should have an illuminance of 100 lux.

Seating adjacent to the main entrance or within the entrance plaza allow a person sit while waiting for an accompanying person who has dropped them off, or simply to rest or orientate themselves before entering or leaving the building. A variety of seating types will provide a choice for users but some of this seating should have back and arm rests as this is more supportive for many people who are frail, ill, or living with mobility impairments.

UD Dementia Friendly Design Guidance

- Locate the entrance area in a logical location and ensure it is easily visible upon entering and exiting the site.
- Provide an entrance area and associated furniture that is intuitive and simple to use and that is familiar to the extent that it is consistent with the occupant's expectations around appearance and function.
- Use an entrance canopy, covered area or similar to reinforce the location and function.
- Use colour and tone to make the entrance area stand out from the background and distinguish it from adjacent surroundings.
- Provide good lighting, obvious signage and dedicated clearly delineated paths which guide a person to and from the entrance area.
- Be careful with automatic lighting or sensor-activated lighting as this may startle or cause confusion if a person is unaware of the automatic function. In some cases, this may lead them to believe that another person has activated the light.
- Ensure all walking surfaces are flat and even and sufficiently large to allow the safe and comfortable passage of groups of people as they enter or leave the hospital. All surfaces should be non-slip, non-glare, and avoid strong patterns or sharp tonal or colour contrast.

4.1.2

Main Entry Doors



04 Main entrance door to Tallaght Hospital, Dublin, Ireland.

Photo Design Features

- The choice of automatic revolving door or standard swinging doors on either side provide options for people with various needs.
- The automatic door is fitted with controls to allow the user to slow the rotation.

Photo Design Tip

- Many people find revolving doors difficult to operate and their use should be carefully considered.
- The swinging doors to the side are difficult to operate due to their weight and size and would be more usable if they were automated or power assisted.

Design Considerations and Awareness

Many hospitals contain large glazed entrances with glazed doors set into glazed screens. Within this arrangement the location and operation of the door may not be that obvious. This may cause confusion and anxiety for a person with dementia or a visual impairment.

Therefore, the entrance door should be in a logical place that is consistent with a person's expectations, highlighted with colour or a clear form, is easily distinguished from the

adjoining glazed screen or an adjacent entrance. If there are any adjacent non-public entrances, these can be visually down-played to ensure it doesn't attract the attention of the public as they approach.

While current standards demand a level threshold, it is important to avoid a protruding lip at the threshold, or a change of colour or appearance of the threshold that might be mistaken as a step.

Opening and closing the door should involve familiar actions, and where remote or automatic door opening systems are provided these should be simple and intuitive to use. Furthermore, the weight and stiffness of doors could make it difficult for person with dementia, particularly if they also have mobility issues and/or require a wheelchair, to open and manoeuvre through them comfortably and/or with ease.

Some people with dementia may need higher levels of lighting and this should be taken into consideration at the entrance to ensure even illumination with enhanced task visibility where possible. Uneven natural lighting can also cause issues for people with dementia, so it is important that the entrance is designed to reduce excessive shadows or shaded areas to ensure safe transition and access.

UD Dementia Friendly Design Guidance

- Locate the entrance in a logical location so that it is clearly visible on approach to the hospital building from the hospital campus.
- Provide an entrance door that is intuitive and simple to use and that is familiar to the extent that it is consistent with the patients' expectations around appearance and function.
- Use colour and tone to make the entrance door stand out from the background.
- Use a level threshold but ensure that there is not an excessive visual contrast between the threshold and the floor so that it is not perceived incorrectly as a step.
- Use clear signage and graphics to identify the entrance doors.

“Can't hold the doors and push the wheelchair, and yet, you can't use the rotating door either. Very awkward”.

Accompanying Person

“Dad couldn't find the door, but mum could”.

Family Member

4.2 Entrance Lobby, Main Circulation Areas and Associated Spaces



05 Entrance atrium to Naas Hospital.

Photo Design Features

- Double height space clearly expresses the function of the space.
- Admission of natural light creates bright and welcoming spaces.
- Atrium provides a common space for café, reception and seating areas.

Photo Design Tip

- Patterned floors and strong shadows from the glazing may cause confusion for many people with cognitive or visual impairments.
- Reception area (to the right of photo) should be more clearly identified with colour, signage, or a landmark to act as a visual cue.

Design Considerations and Awareness

The main lobby and circulation spine of a hospital is one of the most frequented spaces within the hospital as it provides the primary movement route and contains or provides access to many important elements such as the reception, waiting areas, public toilets, cafes, and shops.

However, given the scale, complexity and busy nature of many acute hospitals, these spaces can be crowded, heavily trafficked, have a lot of activity, and therefore can present many challenges for a person experiencing disorientation in terms of time and place. For people with dementia who might have spatial cognition difficulties, visual hallucinations, and visual perceptual disturbance, not to mention potential disorientation due to delirium, illness or medication, such spaces can be unsettling and hard to comprehend.

In this context, a strong and coherent internal circulation strategy is central to a dementia friendly hospital. Section 1 outlined the overall experience of the hospital and the role of a strong connective tissue of public spaces forming a legible and supportive public realm. To provide higher levels of support for a person with dementia, the spatial environment should balance formal massing (building form, height, mass); differentiation of appearance (size, shape, colour, or architectural style); visual access (the visibility of one part of a building or space from various locations); and layout complexity (i.e. level of spatial articulation, number of separate spaces etc.) to ensure the space is easy to comprehend and remember.

The hospital circulation strategy can help manage the scale and complexity of the hospital through the creation of a calm and orientating movement spine that frames the patient journey and links the internal spaces, departments, and wards within the hospital. Clearly legible spatial and formal elements such as: clear paths or routes; strong edges and containment; distinct zones; strong nodes such as squares or junctions for orientation; and clear landmarks, will provide a sense of orientation and help with wayfinding throughout the hospital.

It is also important to remember that the circulation spine provides an important space for patient mobilisation and activities, including safe and stimulating walking or circulation routes. The legible, coherent and calm conditions required for orientation, navigation and wayfinding, will also provide a supportive and therapeutic setting for patient mobilisation and physical activity.

In addition to the spatial and formal elements described above, the quality of materials, finishes, lighting, seating, planting, art work, and other details will enhance the hospital public realm and provide valuable orientation and navigation cues.

The hospital circulation strategy should use and integrate the external and the natural environment to create a calm, therapeutic and orientating setting for patients as they circulate throughout the hospital.

To examine the main components of the internal hospital circulation, the following areas are discussed in more detail: Entrance Lobby and Main Circulation Spine; Reception, Waiting Areas, and Public Facilities within the Circulation Space, and the Main Public Horizontal and Vertical Circulation areas.

4.2.1 Entrance Lobby and Main Circulation Spine



06 Atrium, Brunel Building, Southmead Hospital, Bristol, UK.

Photo Design Features

- Atrium provides a clear circulation route and organising space.
- Variety of seating options dispersed within the circulation area.
- Planting within the atrium brings nature into the hospital while also providing a landmark or visual cue.

Design Considerations and Awareness

To provide a coherent and legible circulation strategy, many hospitals use a single central public space which establishes the organisational and circulation principle for the entire complex. This can take the form of a hospital street, a full height public concourse, or a large atrium space. This dominant public space presents patients and visitors with a legible element around which the rest of the building is arranged and broken down into blocks. This central space creates both an internal public realm, and a hierarchy of scale within the building, allowing visitors, patients and staff to navigate more intuitively.

To be successful the overall circulation strategy should be obvious upon entry and key public facilities such as reception or information desks, toilets, shops and cafes should be clearly identified and readily accessible from the main entrance area. The wayfinding system should be continued from outside and provide the right amount of information in the right locations to lead people to their destinations.

Lobby areas

In some hospitals the entrance lobby may be contained directly within the main hospital street, and where this is the case there should be a clear, legible and accessible connection between these two spaces. Important public facilities such as the reception, toilets, or café, or shops should be easily accessible either within the lobby or in close proximity.

The lobby area forms an important transition zone between inside and outside. As such, it needs detailed consideration as it involves crossing thresholds and entering into or departing from the hospital; this transition is challenging for people with dementia. Within the building there is often a large number of people and a high level of activities going on. It is also an area where the hospital needs to present a large amount of information including wayfinding, hospital regulations, statutory notices (including fire panels). Infection control requires sanitising gels to be displayed and often in a prominent position to reduce the number of persons entering the building without sanitising their hands. In some hospitals, carpark ticket machines are also located in the lobby. Several desks are often required for staff providing information and meet & greet services as well as for security and portering personnel. The challenge for the design is to accommodate all of the information and equipment in a coordinated manner to reduce any negative impact on hospital users.

Configuration of the circulation spine

The main circulation spine in a hospital is often a highly trafficked area, and therefore it is important that this circulation is wide enough to create a comfortable pedestrian environment, to avoid overcrowding at peak times, and to allow resting and orientation spaces along the route. The circulation spine is also an important place for providing information on the hospital, including any historical context that can contribute to a sense of place.

Considering the scale of many acute hospitals, it is important that the circulation spine is not excessive in length as this may cause issues for a person who is ill, frail, or experiencing mobility difficulties.

In large scale circulation areas, it may be useful to provide a range of medium and small scale social or seating areas as part of the interior hospital public realm. These will act as resting and orientation points, and contribute to wayfinding within the hospital.

Spatial orientation

Many of the macro design features that support the circulation spine as a key orientating structure within the hospital have been described earlier. Spatial orientation within this

space can be reinforced through contrasting colours or tones to distinguish the floor from the walls, or through contrasting colour skirting boards to provide a visual break between the walls and the floors to ensure greater visual contrast.

Floor finishes within this area should be non-slip, non-glare, and avoid strong patterns or sharp tonal or colour contrast. The avoidance of contrast is very important at door thresholds to prevent those with visual or cognitive impairments misinterpreting this contrast as a step.

Wayfinding

The wayfinding strategy should extend into the building from the campus and provide clear, consistent, easily read signage and bold graphics, and it should be supported by distinct paths and internal spaces, along with recognisable visual cues such as colour, building elements, artwork or planting. Wayfinding information should be provided progressively within the circulation area to avoid information overload. The provision of the right information, at the right time, in the right locations, such as key decision points (i.e. upon entry, or at circulation junctions) will make the wayfinding information clearer and more easily understood.

Colour coding of floors, or key departments, along with floor plan maps placed at major decision junctions can be used to underpin the wayfinding strategy.



07 Atrium, Mater Hospital, Dublin 7, Ireland.

Photo Design Features

- Atrium provides a clear orientation and meeting space.
- Visually striking artwork creates a sense of place and supports wayfinding.

Internal environmental conditions

The provision of natural light into the main circulation area will define it as a key organising space, help with temporal and spatial orientation, and provide good levels of light for better visual conditions and visual access to important features or visual cues. However, glare, excessive reflections, patterns from shadows, and solar thermal gain must be controlled to maintain comfortable environmental conditions.

The acoustic conditions within the main circulation space is another important consideration for a dementia friendly approach. Due to the need for durable and hard surfaces within the main circulation area, sound reflection and reverberation may be increased, which can in turn, create uncomfortable acoustic conditions for many users. As such, the use of sound absorbing materials, in addition to the reduction of internal sources of noise (such as equipment of public announcement systems) will enhance the acoustic environment.

UD Dementia Friendly Design Guidance

- Provide legible and logical circulation within all common areas of the building to ensure ease of navigation from the main building entrance to other areas of the hospitals.
- Provide direct visual access along the circulation route to key spaces such as stairs or elevators, and toilet facilities.
- Provide external windows to circulation areas, and where possible, provide natural light and views to external landmarks to help with orientation within the building. Be aware that an external window at the end of a corridor may cause glare and disorientation.
- Use colour and tone to make key doors along the circulation route stand out from the background.
- Use contrasting colours or tones to distinguish the floor from the walls. In a similar manner, use contrasting colour on the skirting boards to provide a visual break between the walls and the floors to ensure greater visual contrast.
- Provide a continuous floor finish with as little change in material as possible. Where there is a change in material make sure there is minimum colour contrast, particularly at door thresholds.
- Avoid strong patterns on floor finishes and provide plain coloured, matt finishes which will help reduce glare or shine in brightly lit conditions.
- Provide clear signage and bold graphics to enhance wayfinding. These should be carefully located in obvious positions using non-reflective materials.
- Where required, handrails fixed to walls along circulation routes can be used for support while walking and also help with navigation. Use colour and tone so that the handrail stands out clearly from its background.
- Ensure the structure of any walls where handrails may be required at a future date will allow secure fixing of handrail fittings.
- Ensure high levels of even, natural and artificial lighting within circulation areas to help those with visual difficulties.

4.2.2

Reception, Waiting Areas, and Public Facilities within the Circulation Space



08 Main reception desk in the North West Cancer Centre, Altnagelvin Hospital, Derry, Northern Ireland.

Photo Design Features

- Free standing reception is clearly visible and identifiable within the main entry space.
- Admission of daylight provide a bright and welcoming space that also supports good visual conditions and visual access.
- Reception counter providing varied height counter to cater for people standing, in wheelchairs, of shorter stature, or children.

Photo Design Tip

- Reflection and shadows on the floor surfaces may cause visual issues for certain hospital users.

Design Considerations and Awareness

Public facilities such as reception desks, toilets or shops are essential components of a hospital. These areas must be clearly visible upon entry, and should be accessible, understandable and easy to use. Like other parts of the hospital, good levels of natural light, colour or tonal contrast will help with orientation. Colour and other visual cues such as landmarks or nodes, supported by clear signage, can also be used for wayfinding.

In line with the main circulation areas, floor finishes within these areas should be non-slip, non-glare, and avoid strong patterns or sharp tonal or colour contrast. In this regard, the avoidance of contrast is very important at door thresholds to prevent those with visual or cognitive impairments misinterpreting this contrast as a step.

Reception

A good reception area will ideally provide patients and accompanying persons with a good starting point from which to navigate the internal hospital environment. A good reception area is also important, in terms of orientation and information and for affording a welcoming feeling for patients and their carers. The supervision provided by a reception also provides a sense of safety and calm with regards to the internal hospital environment, particularly in public spaces. The desk should be seen as a meet-and-greet point; that said, these guidelines acknowledge that portering and security services may also need to be accommodated within this area.

Waiting and seating areas

As described earlier, the main circulation area and associated public spaces provide important meeting, social, and activity areas within the hospital. In this regard waiting and seating areas should be designed as an integral part of the hospitals internal public realm.

Waiting or seating areas should be in an obvious and visible location within the circulation area, with good visual access to public toilets, the relevant reception desk and other relevant adjacent facilities such as the café or shop. The spatial configuration of these areas should allow a person to leave their seat and go to the toilet or nearby shop without losing their way, or losing sight of the person they are with.

These areas should be spacious and welcoming and use materials, finishes, furniture, planting, and artwork to create a more human-scale and less clinical environment. The waiting areas should be adjacent to outdoor space to provide views, a positive distraction, contact with nature, and the admission of nature light.

The seating layout within the waiting area should represent a more informal arrangement with space for wheelchairs and buggies, and seating of varying heights to suit a range of needs.



09 Department reception desk and waiting area in the North West Cancer Centre, Altnagelvin Hospital, Derry, Northern Ireland.

Photo Design Features

- Colour contrast to lower section of counter and adjacent floor area help to locate and identify the reception area.
- Waiting area with less formal seating and views to outside.

Cafes, shops and other facilities within the main circulation area

Areas such as cafes and shops are important for ADL purposes, and as a destination where families and friends can bring a patient. In addition, they also act as good gathering and meeting points for social interaction. As such, these areas must be clearly visible upon entry, and should be accessible, understandable and easy to use. If it is an enclosed or separate space, the entrance should be easily located and identifiable, along with being clearly highlighted and clearly differentiated from adjacent non-public spaces through the use of colour or other visual cues. Any access doors should be accessible, easily operated and understood.

UD Dementia Friendly Design Guidance

- Provide ample space, not only in terms of creating a calm environment, but also in terms of providing space for accompanying persons who may assist the person with dementia.
- Provision of ample and comfortable seating in the waiting area.
- Use of consistent flooring and a furniture that contrasts with the floor.
- Sound absorption, plentiful light, good signage, and a pleasant view are also helpful.
- Waiting areas should have visual access to nature, as nature scenes are therapeutic.

4.2.3

Secondary and Tertiary Circulation Areas



10 Inpatient ward corridor, Connolly Hospital, Dublin, Ireland.

Photo Design Features

- Doorways are painted in a contrasting colour and are more easily identifiable.
- Lack of visual clutter on the walls, and clutter along the corridor facilitate wayfinding and allow for ease of movement along the corridor.

Photo Design Tip

- Widening of passage ways allow seating and recesses without creating obstacles.

Design Considerations and Awareness

While the main circulation space provides the key movement element, it also sets up the hierarchy that supports secondary circulation routes that can hang off this main spine. In terms of public circulation, many hospital departments are largely self-contained, with only one or two public access points to the main hospital circulation area. In this context the secondary and tertiary routes between or within a department should establish a hierarchy of scale, with a legible and easily understood graduation from the larger-scale public areas, through medium-scale semi-public (i.e. within department or ward) and down to smaller

and more fine-grained private circulation within departments.

If this circulation hierarchy is distinct and legible, it will help orientate users and support wayfinding for both patients and visitors. It should also be reiterated that these secondary and tertiary routes are also important patient mobilisation and activity areas and provide therapeutic functions in addition to patient, visitor and staff circulation.

Spatial orientation within this secondary and tertiary circulation will be reinforced through contrasting colours or tones to distinguish the floor from the walls, or contrasting colour skirting boards to provide a visual break between the walls and the floors to ensure greater visual contrast.

The wayfinding strategy employed in the main circulation areas should extend into the secondary and tertiary routes to provide clear, consistent, and easily read signage, supported by recognisable visual cues such as colour, building elements, artwork or planting. The provision of the right information, at the right time, in the right locations, such as key decision points (i.e. upon entry, or at circulation junctions) will make the wayfinding information clearer and more easily understood

Colour coding of floors, or key departments, along with floor plan maps placed in key arrival points or major decision junctions within the department will underpin the wayfinding strategy.

Floor finishes within these areas should be non-slip, non-glare, and avoid strong patterns or sharp tonal or colour contrast. The avoidance of contrast is very important at door thresholds to prevent those with visual or cognitive impairments misinterpreting this contrast as a step.

UD Dementia Friendly Design Guidance

- Establish a hierarchy of scale, with a legible and easily understood graduation from the larger-scale public areas, through medium-scale semi-public down to smaller and more fine-grained private circulation within departments.
- Ensure the wayfinding strategy employed in the main circulation areas extends into the secondary and tertiary routes to provide clear, consistent, and easily read signage, supported by recognisable visual cues such as colour, building elements, artwork or planting.
- Underpin the wayfinding strategy by colour coding floors, or key departments, along with floor plan maps placed in key arrival points or major decision junctions.
- Ensure circulation hierarchy is distinct and legible, as this will help orientate users and support wayfinding for both patients and visitors.
- Provide space for therapeutic functions, patient mobilisation, and area for activities, in addition to patient, visitor and staff circulation.
- Floor finishes should be non-slip, non-glare, and avoid strong patterns or sharp tonal or colour contrast.
- Avoid contrast at door thresholds to prevent those with visual or cognitive impairments misinterpreting this contrast as a step.

4.3 Vertical Circulation



11 Atrium, Brunel Building, Southmead Hospital, Bristol, UK.

Photo Design Features

- Vertical circulation shaft clearly identifiable and easily located within hospital atrium.
- Good balance of artificial and natural light throughout atrium space.

4.3.1 Stairs



12 Internal stairs in North West Cancer Centre, Altnagelvin Hospital, Derry, Northern Ireland.

Photo Design Features

- Stairs located in obvious and easily accessed location within the public space of the hospital
- Good level and balance between artificial and natural light.

Photo Design Tip

- Contrasting colour or tone on handrail would make it more visible and easier to understand and use.
- Provide second, lower handrail for people of shorter stature and children.

Design Considerations and Awareness

Most people will use stairs on a daily basis, whether this is at home or out and about in the community. Therefore, they offer a familiar and easily understood way of travelling from one building floor to another in the hospital setting for a mobile person. Walking up and down stairs also provides exercise, represents an activity of daily living, and preserves skills that may be required when they depart the hospital.

In many hospitals many internal stairs are designed as a fire escape and are therefore enclosed and can only be accessed through fire doors that must remain closed when not in use. Consequently, while they will be clearly identified with fire exit signs, the stairs themselves may be hidden from direct view and out of easy reach for those who are unfamiliar with the building.

In this context it would be helpful to provide more open and publicly used stairs in addition to the primary fire stairs. To make these stairs accessible and easily understood, they should be in a logical location and clearly visible from the main public area within the hospital. In some cases, it may be possible to provide glazing to the stairs and therefore make them visible from the main circulation space.

While stairs may be beneficial, their use may represent difficulties for people living with dementia, especially those with mobility difficulties. Contrasting colours between the steps of the stairs, the stringer, and the walls can help a person with dementia to identify steps and changes in level or gradient, thereby simplifying the visual environment. This is also beneficial for older caregivers with age-related vision difficulties. Lighting is also very important on internal stairs so that they can be used safely at all times.

Where stairs are enclosed, access doors must be easy and intuitive to use while lighting and signage will make these entrances easy to locate and use.

UD Dementia Friendly Design Guidance

- Stairs should be considered a good opportunity to provide mobility, exercise and activities of daily living for mobile patients who are capable of using them.
- Stairs should be in obvious locations and clearly visible from the main public space.
- Access doors to stairs should be well lit and clearly distinguishable from their background by using a different colour or tone.
- Provide a continuous floor finish and colour from the corridor into the stairs. Where there is a change in material make sure there is minimum colour contrast, particularly at door thresholds.
- Use colour or tonal contrast to help a person identify the stairs.
- Provide colour contrasting nosing strips to the top and bottom of the flight of stairs to highlight the changes in level.
- In addition to the above, providing colour contrasting nosing strips to all steps will provide greater legibility for the user.
- Use a handrail design that will be familiar to most people and will be consistent with their expectations.
- For the stairs use a contrasting colour or tone so that the handrail stands out clearly from the background.
- Where possible, use some feature to clearly indicate where a handrail ends, as this will help provide a better signal to the user that the handrail is ending and thus give them a chance to adjust accordingly.
- Ensure high levels of even, natural and artificial lighting within circulation areas to help those with visual difficulties.

4.3.2

Lifts



13 Passenger lift, MISA Building, St. James's Hospital, Dublin, Ireland.

Photo Design Features

- Colour contrast between lift doors and lift-shaft walls make the lift clearly visible.

Photo Design Tip

- The colour and strong graphics of the hygiene signage on the lift door may be confused with wayfinding signage.

Design Considerations and Awareness

In a dementia friendly hospital, the passenger lift should be in a logical location and should be clearly visible upon entering and moving about the hospital. Lift controls must be easy and intuitive to use while lighting and signage will make the entrance to the lift easy to locate and use.

The entrance area to the lift or the lift lobby is often a key circulation and orientation node within the hospital and therefore needs to be provided with good orientation and wayfinding signage, floor directories, and hospital maps, where appropriate. As a key decision junction, colour coding symbols and signage should be clearly visible when a person is approaching and exiting the lift, to make it clear what floor they are leaving or arriving to, and what direction they go upon exiting the elevator.



14 Wayfinding signage opposite passenger lift, MISA Building, St. James's Hospital, Dublin, Ireland.

Photo Design Features

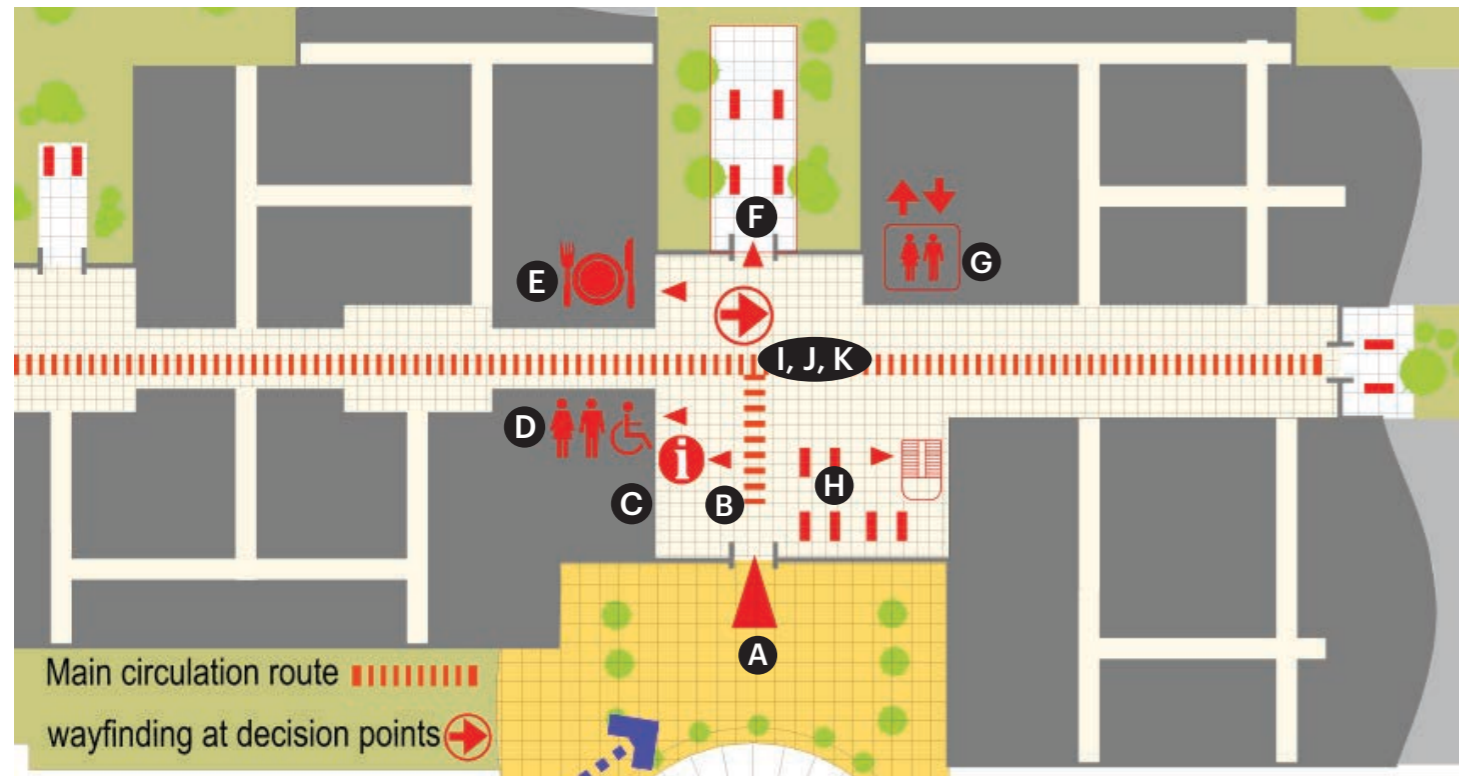
- The bright colour coding unique to each floor provides a strong visual cue regarding floor location upon entering and leaving the lift.
- Large format floor numbering and directional arrow provide clear navigational guidance.
- Consistent symbols and department titles provide coherent wayfinding throughout the hospital.

UD Dementia Friendly Design Guidance

- Access doors to stairs should be well lit and clearly distinguishable from their background by using a different colour or tone.
- Provide a continuous floor finish and colour from the corridor into the stairs. Where there is a change in material make sure there is minimum colour contrast, particularly at door thresholds.
- Lift controls should be in a logical position adjacent to the lift where their function and operation is obvious. They should be simple and intuitive to use for a person with dementia.
- Consideration should be given to the use of mirrors within lifts as these may cause confusion. Similarly, care must be taken with lift announcements to ensure they do not startle or confuse a person with dementia.
- The entrance area to the lift or the hospital lift lobby should include good orientation and wayfinding signage, floor directories, and hospital maps, where appropriate.

Technical Sketch 3

Indicative entrance area and main circulation spine



- A.** Provide an easily located and identifiable main entrance door that is accessible, easily operated and understood.
- B.** Provide a clearly articulated and legible circulation spine that provides a continuous, well defined, and identifiable path throughout the hospital. Successful examples include generously sized hospital streets or full height atria that extend throughout the length of the hospital. These spaces help to manage the size and complexity of the hospital by allowing various departments to be clearly expressed as a collection of buildings, and at the same time connecting them with a coherent public realm.

The circulation strategy should also establish a hierarchy of scale with a legible and easily understood graduation from the large-scale and public areas, to smaller and more fine-grained internal circulation within departments. Use visual cues and memorable features as part of this strategy.
- C.** Ensure the reception area is within close proximity to the entrance and easily visible from the entrance area
- D.** Provide public toilets that are easily located upon entry, and that are accessible, understandable and easy to use.
- E.** Ensure key public facilities such as shops and cafes are easily located upon entry. These facilities should be accessible, understandable and easy to use.

- F.** Provide visual and physical links to external spaces to support time and location-based orientation. This also provides contact with nature and access to therapeutic outdoor space.
- G.** Place key public vertical circulation elements such as lifts and stairs so they are easily located from main the entrance space. On all floors, ensure these stairs and lifts are easy to locate, accessible, understandable and easy to use.
- H.** Provide comfortable seating areas within the main entrance area to provide a resting and orientation point when people are entering and leaving the hospital.
- I.** The wayfinding strategy should extend into the building from the campus and provide clear, consistent, and easily read signage, supported by distinct paths and internal spaces, along with recognisable visual cues such as colour, building elements, artwork or planting.
- J.** Provide wayfinding information progressively when necessary to avoid information overload. Provide the right information, at the right time, in the right locations, such as key decision points (i.e. upon entry, or at circulation junctions).
- K.** As part of the wayfinding strategy consider colour coding of floors, or key departments, along with floor plan maps placed at major decision junctions.

Section 5

Key Internal and External Spaces



The scale and complexity of many acute hospitals means that they contain a wide range of public, semi-public, and private spaces. These include general public facilities such as restaurants, cafes and shops, and also distinct departments or wards. These spaces are often connected by main a internal circulation spine of the hospital and are typically quite contained with only one public link to the main hospital. This configuration helps to manage the size and complexity of the hospital by allowing various departments to be clearly expressed as a building, and at the same time connected with a coherent public realm.

To help with orientation, legibility and wayfinding, these key spaces should be in a logical location and clearly identifiable from the main public space. Internally they should have a legible circulation strategy with a clear hierarchy of internal spaces and routes.

Florence is 86 years old and is living with dementia. Following a fall at home, she was admitted to one of the general inpatient wards. She is in a single room, with a large window that allows for ample light and views to a small garden area. Her family visits her every day, and they have brought in photos which she keeps on the locker next to her bed. There is a family area in her room, with a small table and chairs which allows her family to be with her for meals, and to keep her company.



Key Internal and External Spaces

Overall Design Issues

This section discusses key public hospital facilities such as restaurants, cafes and shops, and also areas dedicated to individual departments or wards. These spaces are often connected by the main internal circulation spine of the hospital, but are typically self-contained with a limited number of public links to the main hospital. In terms of a Universal Design (UD) dementia friendly hospital, this section will look primarily at entrances, internal circulation, issues around materials, finishes and relevant technology. Given the importance of access to outdoor spaces and contact with nature, this section also contains specific guidance regarding hospital gardens and similar patient and visitor dedicated outdoor spaces.

When starting to consider **Key Internal and External Spaces**, it is important to think about the role of all Key Design Issues:



Engagement and participation

1. Promote engagement with friends and family, staff and community.
2. Provide space and supports for accompanying persons.
3. Promote a participatory design approach.



Provide a people-centred environment

4. Soften the institutional environment.
5. Familiar or recognizable design that is easily understood and intuitive.
6. Facilitate personalisation and opportunities to add personal belongings.



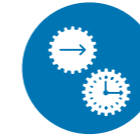
Support patient safety and health

7. Provide a safe environment through unobtrusive safety measures.
8. Support diet, nutrition and hydration.
9. Support meaningful physical and social activities including ADLs.



Balance sensory stimulation

10. Optimise positive sensory stimulation and minimize negative stimulation.
11. Provide indoor and outdoor contact with nature, and access to the outdoors.



Support orientation and navigation

12. Support orientation to date, time, location, and improve spatial cognition.
13. Provide good way-finding that supports navigation.
14. Provide good visibility and visual access.



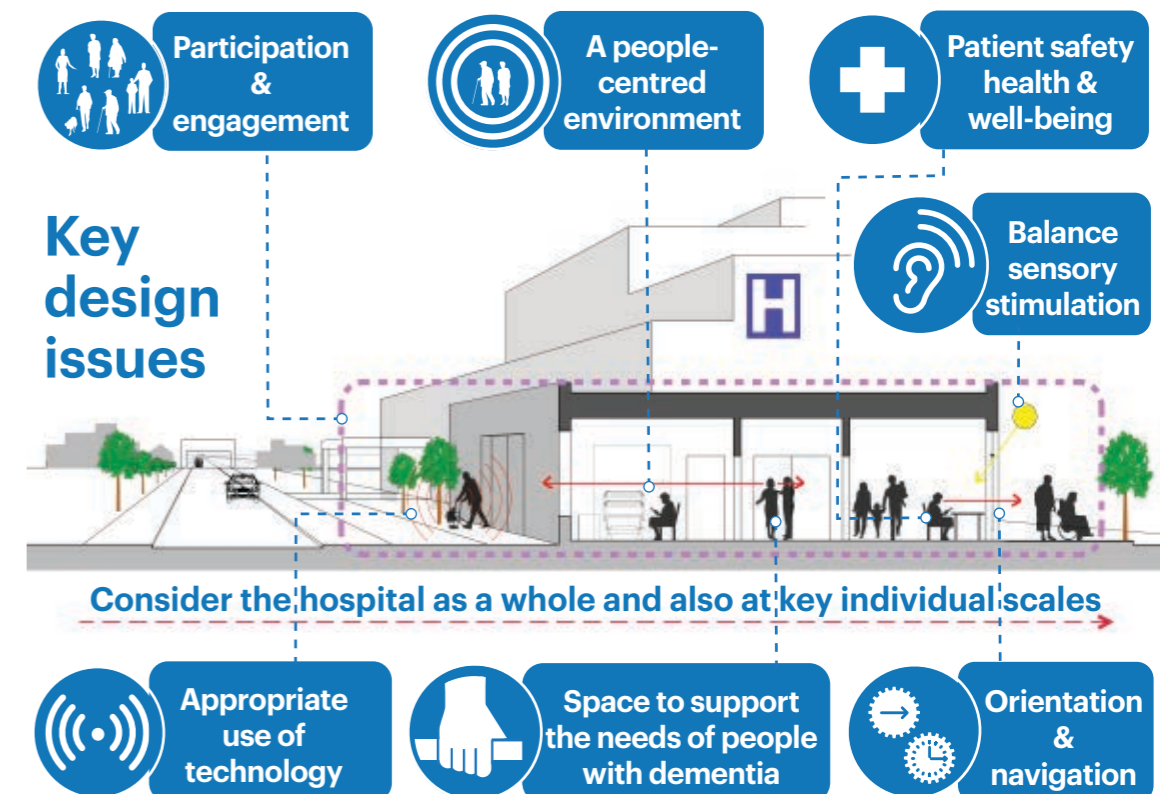
Adequate space to support the needs of a person with dementia

15. Bays or single rooms with space for personal belongings and visitors.
16. Retreat spaces in multi-bed wards or communal areas in single-bed wards.
17. Provide space and supports for patient mobilisation and activities.



Appropriate use of technology

18. Appropriate use of technology for care delivery, safety, therapy, communication, and entertainment.



5.1 Public Common Areas



01 Entrance Atrium, Mater Hospital, Dublin 7, Ireland.

Photo Design Features

- High levels of glazing create good visibility and lighting conditions.
- The double height space provides a clear spatial hierarchy and orientation point.
- Art installation/light-weight timber structure creates a point of interest, softens the hospital setting, and provides a sense of place .
- Public escalator in easily located and identifiable position within the atrium. The escalator is also visible from outside, this reinforces orientation and legibility as a person approaches the building.
- Plentiful and easily located seating within the atrium .

5.1.1 Café, Restaurants and Shops



02 Pay counters, Café, Tallaght Hospital, Tallaght, Dublin, Ireland.

Photo Design Features

- Bright and spacious café area providing good visibility and visual access.
- Good colour contrast between counter top and floor.

Photo Design Tip

- Sharp colour contrast on floor (red stripe) could cause difficulties for people with visual or cognitive impairments.
- Edges of till counter could hurt people of smaller stature or children.

Design Considerations and Awareness

Cafés, restaurants, shops and other public areas within the hospital are some of the most frequented spaces in the hospital. Beyond their obvious role of selling food or goods, they provide valuable places for patients, visitors, and staff to socialise, enjoy activities of daily living, or simply get away from the ward environment.

Cafes and Restaurants

In some larger hospitals, restaurants and cafes are at a distance from patient rooms and may be difficult to locate. These spaces are often heavily trafficked, provide multiple food counters and checkouts or tills, and contain busy seating areas that may be confusing for person with dementia.

Creating more supportive hospital cafes and restaurants involves a number of external and internal measures. Firstly, cafes and restaurants should be in a central location, clearly visible from the main public spaces. The wayfinding strategy should provide direction to these areas and also extend into the spaces from the main circulation area, provide clear, consistent, and easily read signage that is supported by landmarks, artwork or planting.

The entrance should be easily identifiable, and clearly highlighted and differentiated from adjacent non-public spaces through colour or other visual cues.

The use of glazed doors or glazed walls will help make the function and presence of these spaces more visible from the main circulation area. Any access doors should be accessible, easily operated and understood. Ensure permanent markings are used on any glazing so that its presence is clearly apparent to people at a range of eye levels.

Upon entry, key areas such as food counters and checkout tills should be visible, accessible, and easily used. Clearly defined and clutter free routes should help a person navigate to these areas and then onto the main seating area. In addition, an adequate number of accessible toilets should be provided within easy reach of these spaces and the main seating area.

Within the main seating an open plan arrangement will create maximum visual access, however, this should be balanced with the provision of calm and distinct seating areas for people who are sensitive to a lot of movement and activity. Such spaces can be created using high-backed seating booths or partially enclosed seating pods.

Colour and tonal contrast can be used to distinguish walls from floors and to highlight doors or objects you want to draw attention to, on the other hand, non-public areas can be disguised. Floor finishes should be a consistent and uniform in colour, while good levels of evenly distributed natural and artificial light will help those with visual difficulties.

Restaurants and cafes will also benefit from views to the outside, while directly connected safe outdoor spaces that are accessible, understandable and easy to use, will provide outdoor eating areas, spaces to socialise and direct contact with nature.

Cafes and restaurants can become noisy and this can be challenging for many people with dementia. Due to the need for durable and hard surfaces within these areas, sound reflection and reverberation may be increased, which can in turn, create uncomfortable

acoustic conditions for many users. In this regard, the use of sound absorbing materials and the reduction of internal sources of noise such as equipment, will enhance the acoustic environment.

Shops

Most of the same design considerations outlined above also apply to hospital shops or newsagents. These facilities should be clearly visible from the main public circulation and should have an internal layout that is accessible, understandable and easy to use. Glazed doors or glazed frontage will make the function and presence of the shop more apparent.

Payment or checkout areas should be clearly visible and spacious enough to not feel crowded when people are queuing. The till counter should provide space for a person to rest a bag or similar while retrieving their wallet or purse.



03 Café, Naas Hospital, Co. Kildare., Ireland.

Photo Design Features

- Café is clearly visible and accessible from the main hospital foyer.
- Food counter in accessible location and directly visible to a person approaching from the foyer.

UD Dementia Friendly Design Guidance

- Cafes, restaurants, and shops should be in a central location and clearly visible from the main public space.
- The wayfinding strategy should provide direction to these areas and extend into the spaces from the main circulation area. Signage should be clear, consistent, and easily read and should be supported by landmarks, artwork or planting.
- All entrances should be easily identified, and clearly highlighted and differentiated from adjacent non-public spaces through colour or other visual cues.
- Upon entry, key areas such as payment areas, food counters or checkout tills should be visible, accessible, and easily used.
- Provide an adequate number of accessible toilets within easy reach of the tills and the main seating area.
- Use colour and tonal contrast to distinguish walls from floors and to highlight certain doors or objects. Non-public areas should be disguised.
- Floor finishes should be consistent and uniform in colour.
- Provide good levels of evenly distributed natural and artificial light.
- Use sound absorbing materials and reduce internal noise such as equipment or public announcement systems.
- Provide views to the outside and direct access to safe outdoor space that are accessible, understandable and easy to use.

5.1.2 Public Toilets



04 Public toilet in Naas Hospital, Naas, Co. Kildare, Ireland.

Photo Design Features

- Contrasting colour used on door frames highlights the toilet and differentiates it from other non-patient areas along the corridor .

Photo Design Tip

- Wall mounted projecting signage would help identify the toilet for those approach at a right angle to the door.
- Consider symbols instead of, or in addition to words, on signage.

Design Considerations and Awareness

Public toilets must be easily reached and clearly visible upon entry into the hospital. Toilets should also be located in other key areas of the hospital such as restaurants and waiting areas within each department or ward. The hospital wayfinding should provide clear directions to the nearest toilet and toilet doors should be visible and easily identified upon approach through the use of colour and signage.

The internal layout, whether this relates to general shared toilets, or single accessible toilets, should ensure that it is accessible, understandable and easy to use. This includes the provision of adequate space to allow a person with mobility difficulties to manoeuvre, or be assisted by an accompanying person.

Toilets should use recognisable features and colour contrast effectively. Familiar design, a calm, easily interpreted space, good visual access, and the use of unobtrusive safety measures, will contribute to a secure and supportive space for people with dementia and carers alike.

Colour and tonal contrast can be used to distinguish walls from floors and to highlight doors or objects you want to draw attention to. Floor finishes should be a consistent and uniform in colour, while good levels of evenly distributed natural and artificial light will help those with visual difficulties.

Fully accessible toilets with a range of supports for people with dementia (i.e. hoists, changing benches, space for carers etc) will be required in certain locations and these should take on board the design considerations outlined above.



05 Accessible toilet in Tallaght Hospital, Tallaght, Dublin, Ireland.

Photo Design Features

- Spacious and well-lit room helps with manoeuvring and visibility.

Photo Design Tip

- Better colour contrast between the floor and sanitary ware fittings would help people with cognitive impairments or visual difficulties.
- Consider a contrasting colour for toilet seat, to make it stand out more.

UD Dementia Friendly Design Guidance

- Toilets should be centrally located with ease of access from all parts of the hospital.
- Windows should be large enough and located to provide maximum daylight for the hospital toilet facilities.
- The doors to the toilets should be visually distinct through the use of colour or tone to make it clearly visible within the hospital.
- Minimise or eliminate, where possible, any threshold between the bathroom floor and the main hospital circulation areas.
- Use signage on the toilet door to make it easily recognisable.
- Artificial lighting should be designed to provide high levels of even lighting with spot lights or similar feature lighting, such as downlighters or concealed strip lights, used to highlight specific areas or key objects such as sinks or WCs.
- Provide adequate levels of mechanical ventilation.
- Install anti-scald taps to washroom sinks to prevent scalding.
- Assistive technologies such as movement sensors or emergency pull-chords can help in the case of a fall. Telecare and ambient assisted living (AAL) technologies should be considered in this context.

5.2 Outpatients Departments



06 Outpatients Department, Naas Hospital, Naas, Co. Kildare, Ireland.

Photo Design Features

- Bright spacious waiting area with room for patients in wheelchairs.
- Reception desk clearly visible to people in waiting area.

Photo Design Tip

- Varied and more comfortable seating would provide greater seating options and supportive conditions for patients and accompanying persons.
- Volume of television could contribute to the overall noise in the environment.
- Sharp colour contrasts on floor could cause difficulties for people with visual difficulties.

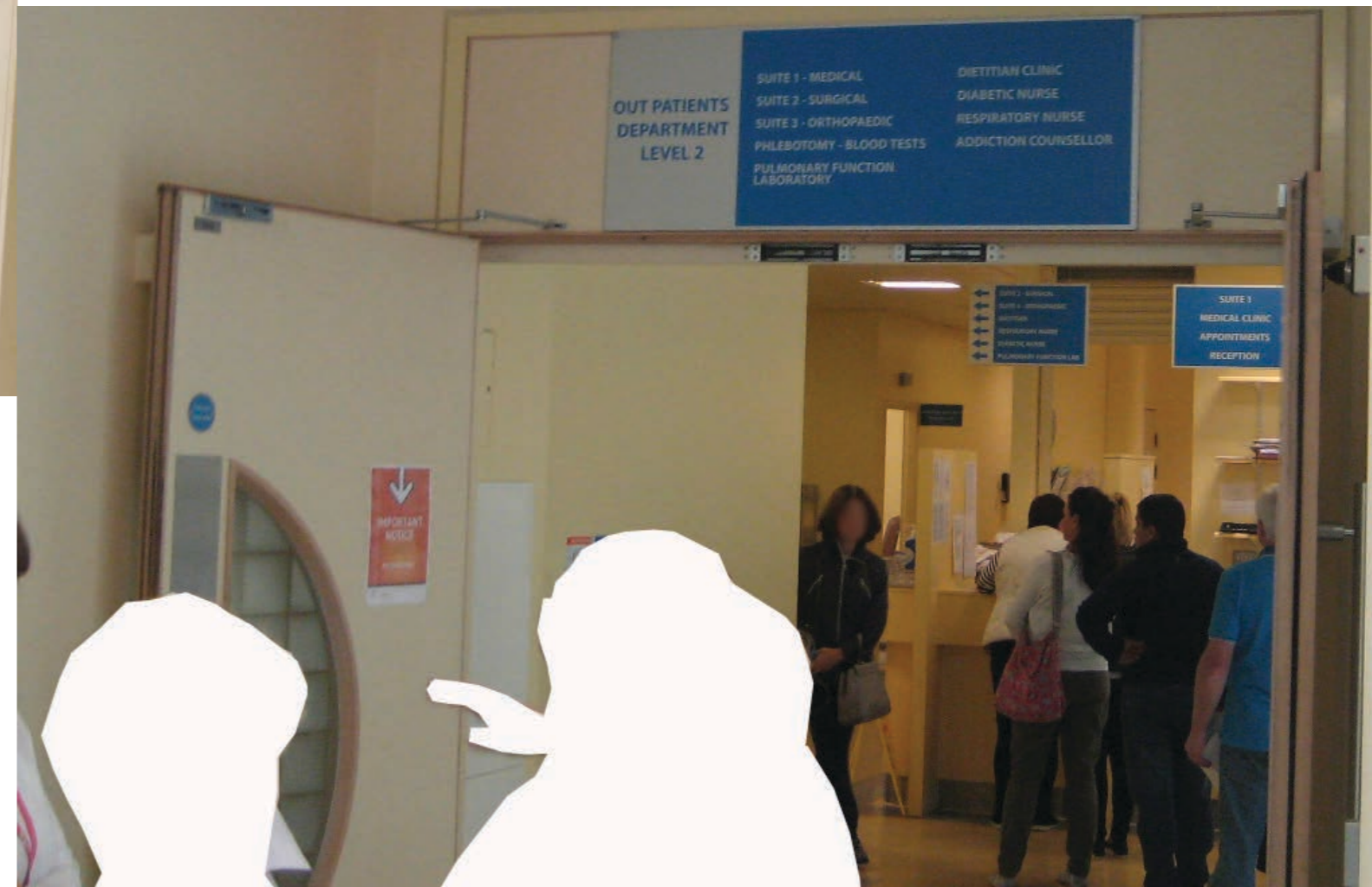
Design Considerations and Awareness

Many older people will have regular visits to the Outpatients Department (OPD) and therefore the environment of the OPD must be responsive to their needs, while also supporting accompanying persons and staff in their caring role. Creating more supporting environments involves a number of external and internal measures as outlined below.

Approach, entry and internal circulation

Firstly, given the wide public use of the OPD it should be in a central location, and clearly visible from the main public spaces. The wayfinding strategy should provide direction to the OPD and also extend into the space from the main circulation area. Wayfinding should involve clear, consistent, and easily read signage that is supported by landmarks, artwork or planting that helps a person navigate to the main OPD entrance from the main hospital circulation area. The entrance should be identifiable, and clearly highlighted and differentiated from adjacent spaces through colour or other visual cues.

Glazed doors or glazed walls to the reception or entrance lobby of the OPD will help make the function and presence of the OPD more visible on approach. Any access doors should be accessible, easily operated and understood.



07 Entrance to OPD, Naas Hospital, Naas, Co. Kildare, Ireland.

Photo Design Features

- Directory Signage above door.
- Reception and further wayfinding signage visible upon entry.

Department configuration and internal circulation

Overall, the internal spatial configuration should provide a legible and easily navigated space. Long, uninterrupted and monotonous corridors with dead-ends should be avoided, while at the same time directional changes should be kept to a minimum to reduce the number of decision-making points. The use of landmarks, views to the outside, daylight, and clear lines of vision will help orientate and attract a person in a certain direction. In addition, if patient destinations within the OPD are clearly visible this will also help a person find their way around.

Upon entering the OPD, the reception should be visible, accessible, and easily used. Clearly defined and clutter free routes should help a person navigate to the reception and then onto the main waiting area or consulting room. It is important to provide an adequate number of accessible toilets within easy reach of the reception and the main waiting area.

Where possible the OPD should have at least one direct access point to a safe and enclosed outdoor space that is accessible, easily used and understood. This might take the form of a ground level garden, or a balcony or roof terrace on upper levels. The location of this access point depends on the OPD configuration, but careful consideration should be given to visual access and ease of movement from the circulation area (See Section 5.6 for detailed guidance around outdoor space).

Reception and Waiting Areas

A good reception provides orientation and information while affording a welcoming feeling for patients and accompanying persons. The supervision provided by a reception also provides a person who might be anxious or disorientated with a sense of safety and calm.

Photo Design Features

- Large format signage giving directions to the toilets.
- Wide and uncluttered circulation area.

Photo Design Tips

- Colour or tonal contrast to the reception counter would make it more visible.
- Sharp colour contrast to floor border may cause difficulties for people with visual difficulties.
- Inconsistent presentation of information and proliferation of signs may be confusing for certain users.
- Colour contrast between handrails and walls would make them more visible and usable.

Waiting areas should be in an obvious and visible location within the OPD, with good visual access to public toilets and the reception desk. The spatial configuration of these areas should allow a person to leave their seat and go to the toilet, reception or consulting room without losing their way, or losing sight of the person they are with.

These areas should be spacious and welcoming and use materials, finishes, planting, and artwork to create a more human-scale and less clinical environment. The waiting areas should be adjacent to outdoor space to provide views, a positive distraction, contact with nature, and the admission of nature light.



08 Reception desk and circulation area, OPD, Naas Hospital, Naas, Co. Kildare, Ireland.



09 Waiting area, Primary Healthcare Clinic, Dublin, Ireland.

Photo Design Features

- Informal and comfortable seating.
- Paint colour used to create feature wall.

Photo Design Tips

- Sharp colour contrast to floor border may cause difficulties for people with cognitive impairments and/or visual difficulties.

The seating layout within the waiting area should represent a more informal arrangement with space for wheelchairs and seating of varying heights to suit a range of needs. Furniture that contrasts in colour or tone from background walls or floors will help those with visual difficulties. Waiting can become noisy at peak times and this can be challenging for many people with dementia. In this regard, the use of sound absorbing materials and the reduction of internal sources of noise such as equipment, or public announcement systems, TVs or radios, will enhance the acoustic environment.

Colour and tonal contrast can be used to distinguish walls from floors and to highlight doors or objects where you want to attract attention, while at the same time non-public areas can be disguised. Floor finishes should be a consistent and uniform in colour, while good levels of evenly distributed natural and artificial light will help those with visual difficulties.

The OPD will also benefit from views to the outside, while directly connected safe outdoor spaces that are accessible, understandable and easy to use, will provide outdoor seating areas where patients can get a break from the hospital interior, or spend a few minutes in contact with nature.



10 Foyer and reception, Farnogue Residential Healthcare Unit, Co. Wexford, Ireland.

Photo Design Features

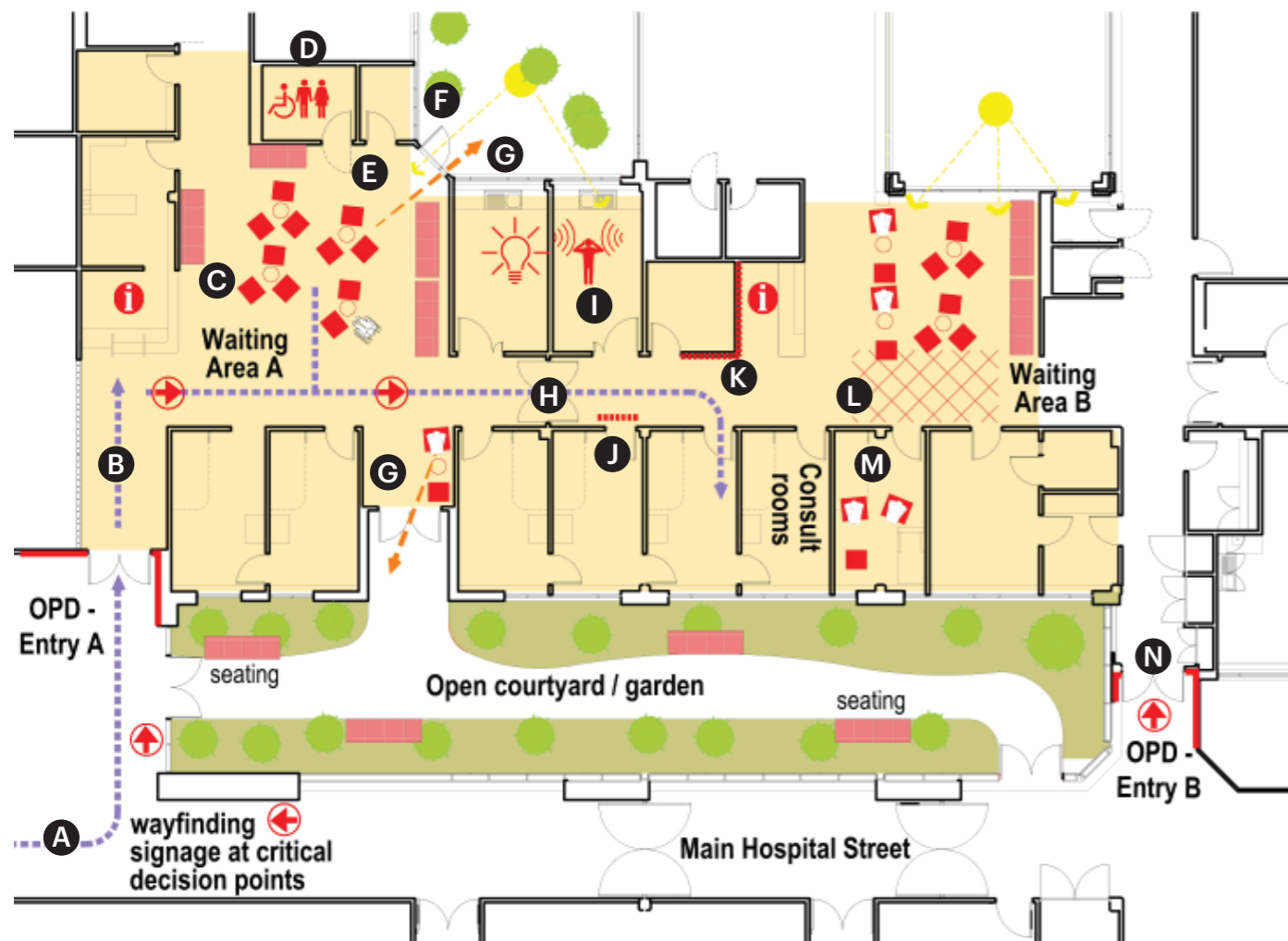
- Bright and spacious foyer creates a calm and legible space.
- Good colour contrast between the stairs, furniture, and reception desk, and the floor.
- Central location of stairs makes it easily located and identified.

Consulting rooms

The OPD consulting rooms should be within easy reach of the waiting areas and their entrance doors should be clearly visible and identifiable for patients with cognitive or visual impairments. Internally these rooms should be spacious and provided with ample and evenly distributed natural light. As per the waiting area, the appropriate use of colour, contrast, and uniform floor finishes should be used for spatial orientation.

Technical Sketch 1

UD Dementia Friendly Outpatient Department



UD Dementia Friendly Design Guidance (see Technical Sketch 1 above)

- A. Approach to the OPD from the main hospital entrance should consist of a legible route leading to a clearly identifiable and easily located entrance. Where more than one clinic may be in session, provide clear and consistent signage and information to facilitate orientation and navigation.
- B. Ensure the reception area is directly visible from the entrance area and is accessible, easily understood and used.

- C. Provide a spacious waiting area with generous circulation area and clearance between seating. Consider a less institutional seating layout and more comfortable furnishing in a less austere environment (i.e. consider a combination of lounge seating or soft benches with coffee tables, to create a more home-like and less clinical environment).
- D. Locate toilets so that they are easily identified upon entry, and are accessible and easy to use. Provide enough toilets throughout the OPD so that they are within easy reach of the patients within the waiting area and the consulting rooms.
- E. Provide views to calm exterior spaces, or internal artwork to help create a more calming and therapeutic environment. If possible provide direct access to an outdoor space where patients can step outside to get some fresh air, take a break from the hospital environment, or reorient themselves between appointments.
- F. Provide natural light to orientate patients to the time of day and season.
- G. Careful use of artificial lighting and the reduction of noise through sound absorbing materials can help mitigate environmental stress within a busy OPD.
- H. Use distinct and contrasting colours on door frames, doors, or wall reveals to identify patient areas or rooms, while simultaneously disguising non-patient rooms by painting doors or frames to match background.
- I. Use contrasting colours or tones to distinguish the floor from the walls. Similarly, use contrasting colour on the skirting boards to provide a visual break between the walls and the floors to ensure greater visual contrast.
- J. All floor finishes should be non-slip, non-glare, and avoid strong patterns or sharp tonal or colour contrast. The avoidance of contrast is very important at door thresholds to prevent those with visual or cognitive impairments misinterpreting this contrast as a step.
- K. A patient will often be accompanied to the OPD by a family member or carer and therefore it is important to provide space and supports for an accompanying person throughout the OPD. This may simply consist of sufficient seating in the waiting area, or enough space and a seat within consulting rooms so that an accompanying person can remain by the patient's side without getting in the way of the medical staff.

5.3 Emergency Departments



11 ED bays, Naas Hospital, Naas, County Kildare.

Photo Design Features

- Direct observation of the cubicles from nurse's station.

Photo Design Tip

- Sharp colour contrast on floor finish may cause difficulty for people with visual difficulties.
- Greater colour contrast between walls and floors would help with spatial orientation.

Design Considerations and Awareness

Research identifies the emergency department (ED) as a particularly challenging environment for a person with dementia, and that there are often poor clinical outcomes as a result. Key problems specific to the ED include: chaotic nature of waiting areas at peak times; the highly clinical nature of the environment; observation difficulties due to the fast-pace of activities; lack of space for accompanying persons, and the overall fact that EDs are very busy environments with multiple routines and activities.

For EDs to perform as more supportive settings for people with dementia, careful consideration must be given to measures that will create a calm, legible and supportive space for people who may not only be experiencing disorientation and stress, but may also be at their most vulnerable due to injury or illness. This involves measures both outside and within the ED.

Approach and entry

The typical ED has an independent entrance directly accessed from the hospital grounds, and this forms another main public access point to the hospital, along with the main general public entrance. This entrance is likely to be very busy with a considerable amount of activity. In this regard the wayfinding strategy should provide direction to the ED from the campus and then extend into the ED. Wayfinding should involve clear, consistent, and easily read signage that is supported by landmarks, artwork or planting that helps a person navigate to the main ED entrance. The entrance should be identifiable, and clearly highlighted and differentiated from adjacent entrances, such as the ambulance staff entrance through colour or other visual cues. Access doors should be accessible, easily operated and understood.



12 ED approach and entrance, Naas Hospital, Naas, Co. Kildare, Ireland.

Photo Design Features

- ED entrance clearly visible on approach through use of entrance canopy.
- Wayfinding signage (right of photo) providing directional guidance.

Ward configuration and internal circulation

For many people the ED can be a distressing place where they may experience confusion and a lack of control. This is compounded by the complex nature of the space and the multiplicity of specialist treatment rooms. And while a patient will often be escorted by staff within the ED, it is still important to have an internal spatial configuration that provides a legible and easily navigated space that gives patients a sense of coherence and orientation.

Reception and waiting areas

The ED reception provides the main orientation and information point upon entering the ED and should be located in a central and clearly visible area. Clearly defined and clutter free routes should help a person navigate to the reception, to the main waiting area, and on into the central ED area. It is important to provide an adequate number of accessible toilets within easy reach of the waiting area.



13 ED reception and waiting, Naas Hospital, Naas, Co. Kildare, Ireland.

Photo Design Features

- Reception (right of photo) directly visible upon entry.
- Toilets, with colour contrasting frames, directly visible and accessible from waiting room.

Photo Design Tip

- Less clutter on reception would make it clear and more legible and welcoming.
- Sharp colour contrast on floor finish may cause difficulty for people with visual difficulties.

The layout of the waiting area should allow a person to leave their seat and go to the toilet, or to the reception without losing their way, or losing sight of the person they are with.

Considering that the ED waiting area can become a hectic place at certain times, a distinct seating area with some level of separation may be appropriate. Such a space would give a person who is more sensitive to environmental stress, such as noise or excessive activity, some respite in a busy ED.

Given the often-challenging nature of these waiting areas, it is even more important to provide spacious and welcoming area that uses materials, finishes and artwork to create a more human-scale and less clinical environment. It would also help if the waiting areas are adjacent to an outdoor space to provide views, a positive distraction, contact with nature, and the admission of nature light.

Colour and tonal contrast can be used to distinguish walls from floors and to highlight doors or objects where you want to attract attention, while at the same time non-public areas can be disguised. Floor finishes should be a consistent and uniform in colour, while good levels of evenly distributed natural and artificial light will help those with visual difficulties.

Central ED area and main nurses station

While the interior of the ED is typically a complex setting, providing a clearly articulated and legible main circulation route may provide patients with some sense of comprehensibility and manageability. Within this area the location of toilets should be clearly visible, these toilets must be accessible, easily understood and used. The nurses station should be centrally located and clearly visible for patients to help provide a sense of security.

ED bays

Certain ED bays should be designated for distressed or disoriented patients. These bays should provide a balance, in as much as possible between: good visual access and observation from the main nurse's station, proximity to a toilet, and a calm location.



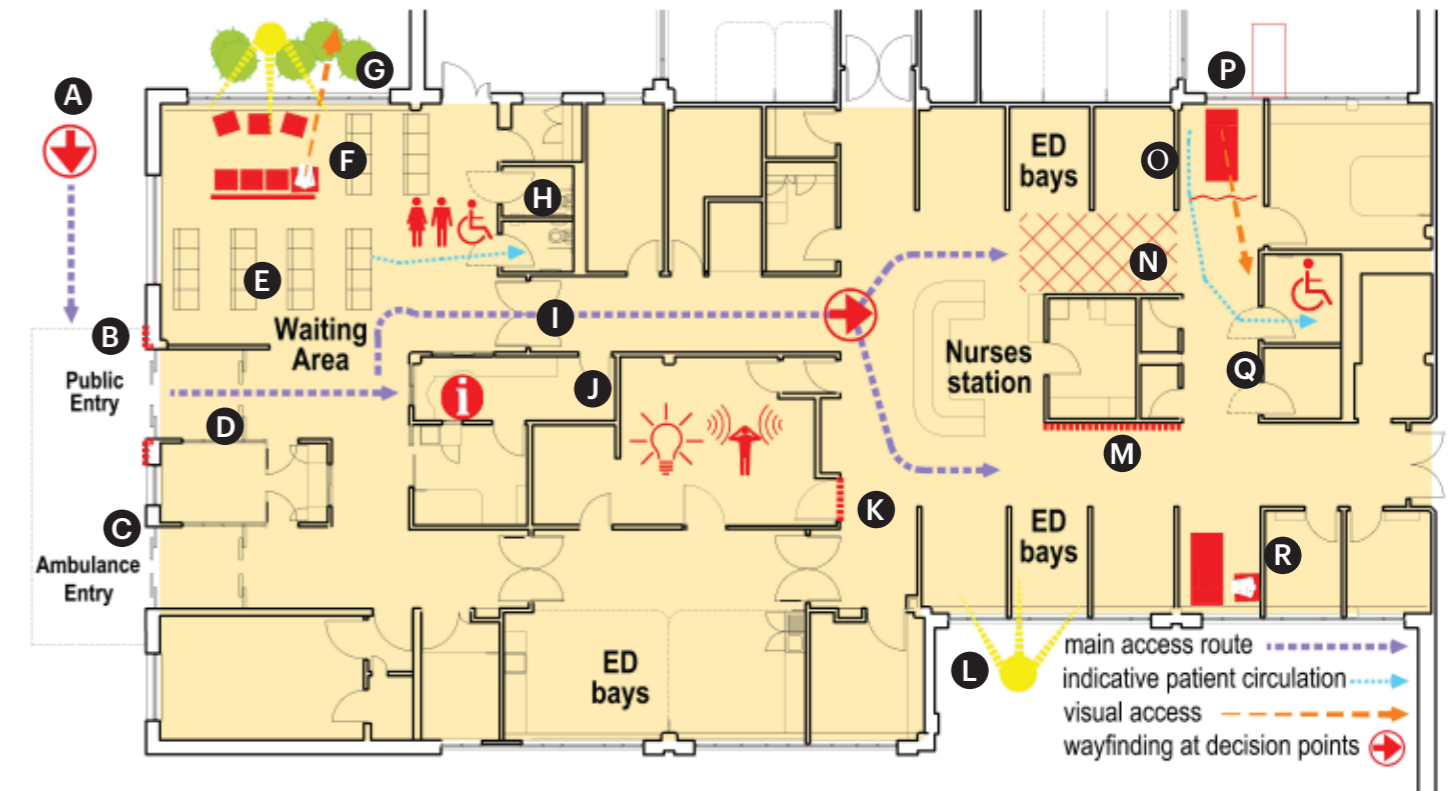
14 Before (left) and after (right) images showing retrofit of ED bay in St. James's ED.

Photo Design Features

- The retrofit bay (right) has been decluttered and obsolete or rarely used equipment has been removed.
- Colour backsplash removed from staff sink so it blends in.
- Folding screen replaces curtain to give higher levels of visual and acoustic privacy.
- Time and date clock installed to orientate patients.
- Gentle blue colour to soften visual quality of space, while darker blue lower section helps to spatially define floor and walls.

Technical Sketch 2

UD Dementia Friendly Emergency Department



UD Dementia Friendly Design Guidance (see Technical Sketch 2 above)

- The approach to the ED entrance should consist of a legible route leading to a clearly identifiable and easily located entrance space. This strengthens legibility, affords a transition space between inside and outside, and provides a gathering space that may be a welcome respite from the ED.
- Provide an easily located and identifiable public entrance to the ED. This entrance should be highlighted and clearly differentiated from the ambulance entrance through the use of colour or other visual cues. Provide a door that is accessible, easily operated and understood.
- At the same time the ambulance entrance can be visually down-played to ensure it doesn't attract the attention of the public as they approach the ED.
- Ensure the reception area is directly visible from the entrance area and is accessible, easily understood and used.
- Provide a spacious waiting area with generous circulation area and clearance between seating.

- F. Consider a distinct seating area with some level of separation where a person who is more sensitive to environmental stress such as noise or activity can find some respite in a busy ED waiting area.
- G. Provide views to the calm exterior spaces and artwork to help create a more calming environment.
- H. Locate public toilets so that they are easily identified upon entry, and that are accessible and easy to use.
- I. While the interior of the ED is typically a complex setting, provide a clearly articulated and legible main circulation route for patients. This may provide patients with a better sense of comprehensibility and manageability in a situation that is largely out of their control.
- J. While the ED is often unavoidably hectic due to emergency situations, careful use of artificial lighting and the reduction of noise through sound absorbing materials can help mitigate environmental stress.
- K. Use distinct and contrasting colours on doorframes, doors, or wall reveals to identify patient areas or rooms, while simultaneously disguising non-patient rooms by painting doors or frames to match background.
- L. Provide natural light within the core of the ED to help orientate patients to the time of day and if possible provide views to the exterior to help relieve the intensity of the ED experience.
- M. Use contrasting colours or tones to distinguish the floor from the walls. Similarly, use contrasting colour on the skirting boards to provide a visual break between the walls and the floors to ensure greater visual contrast.
- N. All floor finishes should be non-slip, non-glare, and avoid strong patterns or sharp tonal or colour contrast. The avoidance of contrast is very important at door thresholds to prevent those with visual or cognitive impairments misinterpreting this contrast as a step.
- O. Select ED bays that can be designated for distressed or disoriented patients. These bays should provide a balance, as much as possible, between good visual access and observation from the main nurse's station, proximity to a toilet, and a calm location.
- P. The designated bays should be uncluttered, provided with seating for an accompanying person, and if possible fitted with a privacy screen to provide some level of acoustic separation from the ED floor.
- Q. Provide enough toilets and locate them so that they are within easy reach of the patients within the ED bays.
- R. The ED may be a confusing and stressful place for a person with dementia, which might be alleviated through the accompaniment of a familiar and trusted person. Therefore, space and supports for an accompanying person throughout the ED will have benefits for both the patient and for staff. This may simply consist of sufficient seating in the waiting area, or enough space and a seat within an ED bay so that an accompanying person can remain by the patient's side without getting in the way of medical staff.

5.4 Age Related Day Services



15 Age Related Day Services, Naas, County Kildare, Ireland.

Photo Design Features

- Projecting entrance makes access more visible and helps it stand out from the main building.
- Signage above door to identify the Day Services.

Photo Design Tip

- Covered entrance area would provide shelter and greater emphasis to the entrance.
- Sharp colour contrast at threshold may cause difficulty for people with visual difficulties.

Design Considerations and Awareness

Many acute hospitals provide age-related day services facilities that are often physically linked or adjacent to a geriatric inpatient ward. Most patients attend the day services on a regular basis and could spend up to 5 or 6 hours in the unit. Some will arrive independently or be dropped off by a family member, others will attend with an accompanying person, who will remain with the patient in the day services throughout the visit. During the visit the patients will be taken to various treatment or assessment rooms within the day services, or travel to the main hospital for diagnostic tests. However, most of their time is spent within the day services day room.

An age-related day service is one of the most important places within the hospital; here a patient will receive care and support from specialist nursing staff, geriatricians, occupational therapists, dieticians, speech therapists, physiotherapists, and other clinical and medical social staff. The day service also acts as an important social space where patients can interact in a more casual way with staff, accompanying persons, other patients, and other visitors. In this regard the day service dayroom forms the heart of the day service and often becomes the venue for lively social events, the celebration of festivals such as Christmas, or birthday parties.

For many patients the day service can become a big part of their life, and bearing in mind the complex and multi-layered services that a day services provides, it is imperative that the design of a day service carefully considers the Key Dementia Friendly Design Issues contained in these guidelines. It is also important to consider how placemaking can help to create a coherent and familiar place that is distinct, but nevertheless, clearly reflects and is part of the community in which it is located.



16 Day Service approach and entrance, Tallaght Hospital, Dublin 24, Ireland.

Photo Design Features

- Day Service entrance clearly visible on approach through use of entrance canopy.
- Accessible parking provided close to entrance.

Approach and entry

The typical Day Service has an independent entrance directly accessed from the hospital grounds, and for many hospitals this forms another key public access point, in addition to the main general public entrance and the ED access. In this regard the wayfinding strategy should provide direction to the Day Service from the campus and then extend into and throughout the unit. Wayfinding should involve clear, consistent, and easily read signage that is supported by landmarks, artwork or planting that helps a person navigate to the main Day Service entrance. In this regard it is important to clearly distinguish the age-related day service from other day services or day wards (such as day surgery wards) within the campus to avoid confusion. The external entrance from the campus and the internal entrance from the hospital circulation spine should be identifiable, and clearly highlighted and differentiated from adjacent entrances. Access doors to the day service should be accessible, easily operated and understood.

Many patients arrive to the day service by taxi or private car, and parking or drop-off can become a problem at peak arrival or departure times. Many of the same parking issues discussed in relation to the main hospital entrance are also relevant to the day service. For some people with dementia or a cognitive impairment, making their own way to the entrance, or even waiting in the drop-off area for the driver to return, may not be appropriate or safe. On the other hand, walking back to the entrance of the day service with the driver once the car is parked may not be feasible if the patient is ill or frail. In these situations, it may be possible to provide dedicated parking close to the entrance for a designated accompanying person, or some form of valet service where the patient can be escorted into the day service while the accompanying person parks the car.



17 Day Service approach and entrance, Naas Hospital, Naas, Co. Kildare, Ireland.

Photo Design Features

- Day Service entrance clearly visible on approach through use of porch.

Photo Design Tip

- Insufficient accessible parking or drop-off areas at Day Services can cause issues for patients and accompanying persons.

Day Service configuration and internal circulation

Overall, the internal spatial configuration of the Day Service should provide a legible and easily navigated space. Upon entering the Day Service, the reception should be visible, with clear and legible routes leading from the reception to the main day room, and other key parts of the unit.

Considering the lengthy period spent by many patients within the Day Service, the corridors must not only work as access routes to key rooms, but also provide walking paths and supportive space for patient mobilisation. Corridors should allow patients to comfortably and safely walk or move around in a wheelchair, independently or with another person. In this regard, the width of the corridor should allow two people to walk side by side, while allowing another person to pass comfortably. In some situations, a circular or looped circulation route, that passes through or runs adjacent to the day room, may be appropriate as this provides continuous walking routes that return a person to their starting point. This arrangement also avoids a dead-end, and the exit seeking behaviour that a dead-end can sometimes attract.



18 Day room in Day Service, Tallaght Hospital, Dublin 24, Ireland.

Photo Design Features

- Use of whiteboard as an orientation tool.
- Day Room used to celebrate social occasions and religious festivals such as Christmas.

Whether a circular route is appropriate or not, long, uninterrupted and monotonous corridors with dead-ends should be avoided. At the same time, directional changes should be kept to a minimum to reduce the number of decision-making points. The use of landmarks, views to the outside, daylight, and clear lines of vision will help orientate and attract a person in a certain direction. In addition, if patient destinations within the Day Service are clearly visible this will also help a person find their way around.

Places of interest or nodes can be created along the corridors for orientation, or to act as attractors or resting points. These can take the form of small seating areas or alcoves, and can be reinforced by planting, artwork, colour or graphics. Artwork, graphics, or photographs can also be used strategically to encourage movement, spark conversations, or support reminiscence. These will have additional resonance and reinforce familiarity and orientation if they portray local scenes or reflect the local context.

In general, good visual access throughout the unit, signage, large format clocks and calendars will help with navigation and orientation to time and place. Colour and tonal contrast can be used to distinguish walls from floors and to highlight doors or objects where you want to attract attention, while at the same time non-public areas can be disguised. Floor finishes should be consistent and uniform in colour, while good levels of evenly distributed natural and artificial light will help those with visual difficulties.

Where possible the Day Service should have at least one direct access point to a safe and enclosed outdoor space that is accessible, easily used and understood. This might take the form of a ground level garden, or a balcony or roof terrace on upper levels. The location of this access point depends on the Day Service configuration, but it may make sense to locate this access point within the day room as it forms the heart of the Day Service. Regardless of its location, careful consideration should be given to visual access and ease of movement from the circulation area, and staff supervision. (See Section 5.6 for detailed guidance around outdoor space).



19 Day room in Day Service, Naas Hospital, Co. Kildare Ireland.

Photo Design Features

- Day Room with direct access to secure and enclosed outdoor area.

Reception

A good reception provides orientation and information while affording a welcoming feeling for patients and accompanying persons. The reception should be clearly visible upon entering the Day Service, accessible, and easily used. Clearly defined and clutter free routes should help a person navigate to the reception and then onto the main day room. It is important to provide an adequate number of accessible toilets within easy reach of the reception and the main day room.

Dayroom

Day rooms should be located centrally within the unit so they can perform as an anchor and pivot point within the day service. Day rooms should use a variation of lounge seats and different configurations of tables and chairs to avoid an overly institutional ambience, as well as provide opportunities for different types of activities. A kitchen counter with a sink and a dining table will provide space for activities such as dining or just making tea. A retreat area within the room such as a small side space, alcove, or window bench, will provide a breakaway space with a sense of protection or enclosure where a person can sit alone or with another person, particularly if the room is very busy.

Careful consideration should be given to artwork or photographs within the day room. As discussed previously, the portrayal of local scenes or the local context will have additional resonance and help reinforce familiarity and orientation for a patient with dementia or a cognitive impairment.

The day room should lead directly to a safe and enclosed outdoor space that is accessible, easily used and understood (See Section 5.6 for detailed guidance around outdoor space). This space should also be clearly visible from within the day room, while views and the admission of daylight should be maximised through low-level window sills or floor-to-ceiling glazing. At the same time glare and excessive heat gain should be avoided through the use of internal blinds or similar window dressing, or external shading devices.

Consulting or treatment rooms

The Day Service consulting and treatment rooms should be within easy reach of the day room and their entrance doors should be clearly visible and identifiable for patients with cognitive or visual impairments. Internally these rooms should be spacious and provided with ample, evenly distributed natural light. The appropriate use of colour, contrast, and uniform floor finishes should be used for spatial orientation within these spaces.

Technical Sketch 3:

UD Dementia Friendly Age Related Day Service.



UD Dementia Friendly Design Guidance (See Technical Sketch 3 above)

- A.** The approach to the Day Service entrance should consist of a legible route leading to a clearly identifiable and easily located entrance space. Provide covered entrance to strengthen legibility and affords a transition space between inside and outside.
- B.** Provide an easily located and identifiable public entrance to the Day Service. This entrance should be highlighted and clearly differentiated from adjacent entrances through the use of colour or other visual cues. Provide a door that is accessible, easily operated and understood. Ensure there is ample space for drop-offs and collections.

- C.** Locate toilets so that they are easily identified upon entry, and are accessible and easy to use. Provide enough toilets throughout the Day Service so that they are within easy reach of the patients in the day room and the treatment or consulting rooms.
- D.** Ensure the reception area is directly visible from the entrance area and is accessible, easily understood and used.
- E.** Provide a spacious waiting area with generous circulation area and clearance between seating. Consider a less institutional seating layout and more comfortable furnishing to create a more homelike environment.
- F.** Provide a clearly articulated and legible main circulation route for patients. Provide clear and consistent signage and information to facilitate orientation and navigation. If appropriate provide a looped route to provide an internal walking area for people who may be restless or who need to be mobilised.
- G.** Provide views to calm exterior spaces and natural light to relax patients and orientate them to the time of day and season.
- H.** Provide direct access to an outdoor space where patients can step outside to get some fresh air, or sit out to dine or socialise.
- I.** Consider the creation of covered outdoor space directly adjacent to garden access. This will provide a sheltered seating area and a transition zone between inside and outside.
- J.** Create a comfortable layout with differentiated spaces for dining or group activities, sitting together, or alone.
- K.** Provide large format clocks and calendars to help with orientation to time.
- L.** Use distinct and contrasting colours on doorframes, doors, or wall reveals to identify patient areas or rooms, while simultaneously disguising non-patient rooms by painting doors or frames to match background.
- M.** Use contrasting colours or tones to distinguish the floor from the walls. Similarly, use contrasting colour on the skirting boards to provide a visual break between the walls and the floors to ensure greater visual contrast.
- N.** All floor finishes should be non-slip, non-glare, and avoid strong patterns or sharp tonal or colour contrast. The avoidance of contrast is very important at door thresholds to prevent those with visual or cognitive impairments misinterpreting this contrast as a step.
- O.** Careful use of artificial lighting and the reduction of noise through sound absorbing materials can help create a more supportive environment.

5.5 Inpatient Ward



20 Inpatient ward, Naas Hospital, Naas, Co. Kildare, Ireland.

Photo Design Features

- Good daylight admission and views to outside.
- Low reflectance and uniform floor finish.

Photo Design Tip

- Provide space at the bedside for patients to keep personal belongings.
- Colour coding or images to the bed-head area in each bay would help differentiate patient areas.

5.5.1

Overall Ward Design

Design Considerations and Awareness

A typical acute hospital will contain a variety of inpatient wards, ranging from specialised wards such as renal care or intensive care, to general non-surgical wards for less acute patients. Many hospitals will also contain an age-related or geriatric ward providing care for patients who are typically over 65 years of age. The UD dementia friendly guidance contained in this current section is applicable across all these ward settings.

While single patient rooms are becoming standard provision in new-build hospitals and hospital extensions, most acute hospitals in Ireland will have inpatient wards that contain shared or multi-bed inpatient rooms, along with single-bed rooms. These shared rooms must be carefully considered as part of any retrofit project; therefore, this section is applicable to both existing wards with shared patient rooms, and more contemporary wards with single patient room provision.

Depending on the nature or speciality of the inpatient wards, a patient's length of stay will vary. However, for many older patients an extended length of stay up to 3 weeks and more, would not be unusual. Furthermore, people with dementia, will often experience increased length of stays due to complications associated with their condition. Considering that the typical hospital presents a very challenging environment for a person with dementia, often resulting in health deconditioning and immobility, it is vital that the inpatient ward is as supportive as possible, within the bounds of the acute setting.

In this context, the inpatient wards, in association with the key public hospital spaces, become important sites for patient mobilisation and physical exercise, social interaction, activities of daily living, access to the outdoors and contact with nature. On the other hand, the inpatient rooms must provide space for rest and recovery, good quality sleep, privacy and personal hygiene care, and more intimate social interaction with visitors.

To perform these functions, careful consideration must be given to the provision of a calm, legible and supportive space for people who may not only be experiencing disorientation and stress, but also injury or illness. This is important where the ward is being shared with others and there is reduced or a lack of privacy

The inpatient ward must also support accompanying persons, families, and visitors, who are all critical for the well-being of a patient with dementia. This support can be afforded in ways including: comfortable seating areas within the patient rooms; a family or dayroom, and easy access to an outdoor space to get some respite from the hospital setting. It is also important to remember that a visitor may be living with dementia, or may be older or a person with a disability, and therefore would greatly benefit from a Universal Design and dementia friendly hospital.

A dementia friendly inpatient ward is dependent on both external and internal design issues. These should be considered at a number of spatial scales, moving from issues regarding location and approach, down to detailed issues such as materials or finishes. These issues are now outlined in the following sections.

Approach and entry to ward

Each inpatient ward will usually have a main dedicated entrance from a main corridor. The wayfinding strategy should provide clear directions to this entrance from within the hospital, and again as you approach the ward from the hospital corridor or similar circulation space. Wayfinding should involve clear, consistent, and easily read signage that is supported by landmarks, artwork or planting that helps a person navigate to the ward entrance. The entrance should be identifiable, and highlighted on approach, and should be clearly differentiated from adjacent wards through signage, colour, graphics, images or other visual cues. Access doors should be accessible, easily operated and understood.

Ward spatial configuration and circulation

The layout or spatial configuration of the ward is influenced by the medical function of the ward and the mix of single and shared patient rooms. However, there are many overlapping design considerations that can be considered to ensure the inpatient ward is supportive of people living with dementia.

Overall, the internal spatial configuration of the ward should be legible and easily navigated. Long, uninterrupted and monotonous corridors with dead-ends and without visual cues should be avoided as these can cause confusion and anxiety for some people with dementia. This can be exacerbated when non-patient related exit doors, or emergency only exits are placed at the end of a corridor, these can encourage exit-seeking behaviour that may not be possible in certain locations.

In some situations, a circular or looped circulation route may be appropriate as this provides continuous walking routes that return a person to their starting point. This arrangement also avoids a dead-end, and the exit seeking behaviour that a dead-end can sometimes attract.



21 Inpatient ward, South West Acute Hospital, Enniskillen, Co. Fermanagh, Northern Ireland.

Photo Design Features

- Looped circulation route provides a continuous walking area.
- Uniform and low reflectance floor finish.

In all cases, excessive directional changes should be avoided to reduce complexity and minimise the number of decision-making points. The use of landmarks and nodes (orientating spaces and junctions), views to the outside, daylight, and clear lines of vision, will help orientate and attract a person in a certain direction. In addition, if patient destinations within the ward are clearly visible this will also help a person navigate within the space.

The arrangement and location of key spaces within the ward must also be carefully considered. Locating a family room or common room away from the nurse's station may help create a quiet and calm space, but may cause difficulties in terms of staff observation. A balance must also be struck in terms of patient mobilisation, a family or common room placed at a distance from the majority of patients has the benefit of creating a destination point that encourages exercise; however, on the other hand proximity may be important for patients with limited mobility.

Provide corridor space where patients can safely and comfortably walk or move around in a wheelchair, independently or with another person. In this regard, the width of the corridor should allow two people to walk side by side, while allowing another person to pass comfortably. Circulation space within the ward plays an important role in patient mobilisation, social interaction, accessing key spaces such as the nurses station or a family room, or simply providing space for a patient to take a walk.



22 Photographs along corridor in St. Mary's Ward, Mercy University Hospital, Cork.

Photo Design Features

- Historic photographs of local scenes in Cork to create interest, prompt conversation, and support reminiscence.
- Colour contrast used to highlight handrails.
- Natural looking floor finish with low reflectance and minimal patterns or colour change.

The wayfinding strategy employed in the main circulation areas should extend into the ward to provide clear, consistent, and easily read signage, supported by recognisable visual cues such as colour, building elements, artwork or planting.

Colour and tonal contrast can be used to distinguish walls from floors and to highlight doors or objects where you want to attract attention, while at the same time non-patient areas can be disguised. Floor finishes should be a consistent and uniform in colour, while good levels of evenly distributed natural and artificial light will help those with visual difficulties.

Finally, where possible the circulation area should provide access to a safe and enclosed outdoor space dedicated to the ward that is accessible, easily used and understood. This might take the form of a ground level garden, or a balcony or roof terrace on upper levels. The location of this access point depends on the ward configuration, but careful consideration should be given to visual access from the circulation area and staff supervision (See Section 5.6 for detailed guidance around outdoor space).

Nurses station

The nurses station provides the main orientation and information point upon entering the ward and should be located as close to the entrance as possible, and in a clearly visible area. The nurses station also acts as an important spatial anchor and reference point for patients within the ward, and care must be taken to ensure it is a calm, welcoming, and accessible area, something that is often hard to achieve in a busy ward with multiple staff.



23 Nurses station in St. Mary's Ward, Mercy University Hospital, Cork.

Photo Design Features

- Uncluttered nurses station creates a calm and legible space.
- Good colour contrast between walls and floor.
- Natural looking floor finish with low reflectance and minimal patterns or colour change.
- Large format clock to help with orientation to time.

Note:

While there is evidence that traditional centralised nurse's stations are beneficial in terms of staff communication and collaboration, there has been a movement in certain hospitals towards decentralised nurse's stations distributed throughout the ward. This is often in response to the increased provision of single rooms and elongated circulation areas that can often result in increased travel distances for staff and reduced patient observation, especially at night.

In terms of a dementia friendly hospital, a balance must be struck between the benefits of a central nurse's station that provides a strong focal point that helps with orientation and gives a sense of comfort to patients; and the benefits of decentralised stations that increase staff-patient interactions and avoid an over-crowded and noisy central nurse's station.

Patient room as a homebase

The most important connection for a person with dementia when staying in hospital is with the room in which they are staying; whether it is a single or multi-bedded room, there needs to be a trigger to orientate a person and help them identify their room. There are many approaches to legibility and orientation including use of colour, graphics, artwork, and photographs. It is important to trigger this association for a patient with dementia; as such, balance needs to be reached between each room being different and easily identifiable, with the need for consistency within a ward. Similarly an identifiable uniqueness is required for each bay within a multi-bedded room.

Sameness or monotony can be very confusing for people with dementia. As an approach, subtle devices should be favoured within the patient room to create a calm environment. These might include small areas of colour, graphics, or different fittings rather than excessively contrasting elements, or bold graphics, which may be appropriate elsewhere but could add visual noise or clutter in a room that is supposed to be very calm and restful.

5.5.2 Single Patient Rooms



24 Single Room North West Cancer Centre, Altnagelvin Hospital, Derry, Northern Ireland.

Photo Design Features

- Family zone adjacent to window creates a comfortable space for an accompanying person to sit and rest.
- Good views to outside and high levels of natural light.
- Uniform colour and low reflectance floor.

Design Considerations and Awareness

Sleep disturbance is a factor for some people with dementia and can result in insomnia, nocturnal restlessness and wandering. In this regard, the bedroom must be designed to firstly help a person get a good night's sleep, and secondly to provide a safe environment at night when a person wakes up to use the toilet, or to move around in their room.

The bedroom is also central to ADLs such as dressing, walking and grooming. The design of the bedroom can provide supports for these activities by making sure that the room is properly lit, and has wardrobes or dressing tables where the contents are fully visible and usable.

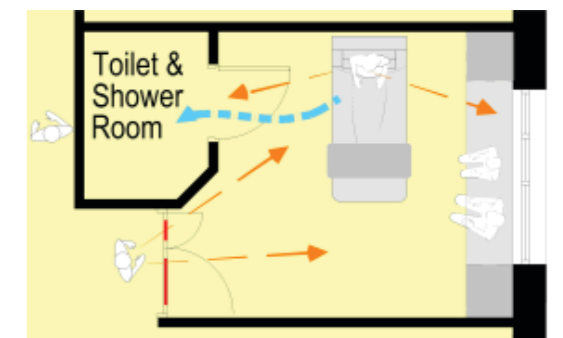
Single rooms with enough space for bedside lockers or similar to display personal belongings will help with familiarity and personalisation. While space for over-bed tables, and patient and visitor seating, will support activities and social interaction.

Single rooms with adequate space may also provide the flexibility for at least two bed positions, depending on the medical needs of the patient. However, consideration must be given to the location of bedhead trunking and its appearance. A larger room also provides space for fitting and using ceiling mounted lifts and hoists.

A single room can also prove supportive for the accompanying person where a reclining chair, fold-away bed or couch can be provided. The creation of a 'family zone' is a recent development in this regard and involves a specific area, typically beside the window, fitted with a seating bench that in some cases can double as a bed. These family zones sometimes contain a designated visitor wardrobe or storage area that acknowledges the fact that an accompanying person may need to spend a considerable amount of time in the hospital, and that this supporting role is valued by the hospital and staff.

In single rooms with an ensuite bathroom, the spatial relationship between the two rooms must be carefully considered; views to the toilet door, a short walking distance, handrails for support, and the use of ceiling mounted lifts and hoists, will play a key role. In this context there are three bathroom-ensuite configurations that are typically used in many hospitals and these include Inboard, Outboard and Interstitial (or nested) layouts. In terms of dementia friendly design these arrangements are illustrated and briefly discussed below.

- An Inboard layout consists of a bathroom located along the interior wall, between the patient room and the corridor, similar in layout to many hotel rooms. This layout frees up space along the exterior wall for windows and a family zone, while also providing an acoustic buffer to the corridor. It also provides direct access (with the possibility of support through handrails or balancing against lockers or the wall) and good visibility to the bathroom door. The main disadvantage is that this layout reduces visibility between staff in the corridor and the patient. Also, this layout does not provide an opportunity for light and ventilation directly from the exterior to the bathroom.



Inboard bathroom

5.5.3 Multi-Bed Patient Rooms



25 Patient bay, Inpatient ward, Naas Hospital.

Photo Design Features

- Space for seating and locker area for personal belongings.

Photo Design Tip

- Use of colour, graphics, or images to the bed-head area would help differentiate the patient bay from adjacent bays.

Design Considerations and Awareness

While single bed provision is becoming the norm in new building hospitals, most existing acute hospitals in Ireland will contain multi-bed rooms containing up to six beds. This can result in a very busy environment due to the presence of multiple patients, visitors, and staff, particularly around visiting times, meal times, or medical rounds. The importance of the patient room for sleep, personal hygiene, social interaction, and other essential everyday activities has been previously identified in relation to single patient rooms. However, supporting many of these functions is more difficult in a multi-bed room.

In this regard, it is essential that these spaces are carefully considered so that they provide a supportive environment for all patients. Striking a balance between privacy and calmness, observation, and social interaction is important. Carving out sufficient space for visitors or for the patient to sit out comfortably beside their bed is difficult, but small measures such as a bedside locker for personal items, or colour variations to each bay can help with familiarity, personalisation, and orientation.

Good visual access, signage and proximity to toilets will benefit patients, while views to the outside and large format clock and calendars will help with orientation to time and place. Where possible the provision of an armchair or small dedicated seating area within the ward, preferably removed from the patient bays and beside a window with a view, will create a breakaway space for patients or accompanying persons.

Colour and tonal contrast will help patients to distinguish walls from floors and to highlight doors or objects where you want to attract attention. Floor finishes should be a consistent and uniform in colour, while good levels of evenly distributed natural and artificial light will help those with visual difficulties.

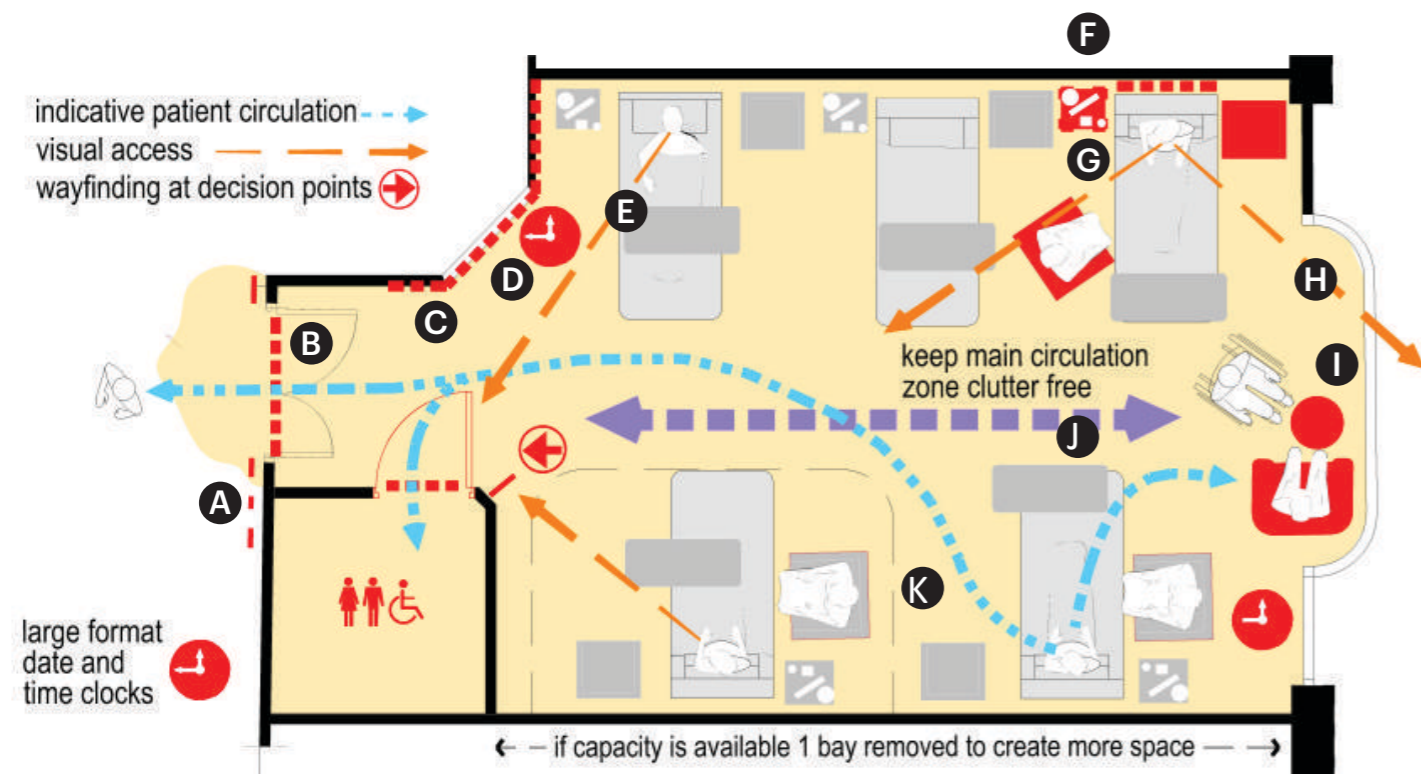
Notwithstanding the measures outlined above, and depending on the size of the room, it may not be possible to provide a suitable environment in some six bedded wards. In these situations, and where bed numbers within the hospital allow, consideration can be given to reducing the number of bed-bays in a multi-bedded ward. This reduces traffic in the room and will free-up space for seating, bedside lockers for personalisation and more room to create unique and easily identified bed-bays for each patient. In addition, it is consistent with infection control guidelines.

Note:

While there are many benefits accruing from single-bed rooms, there are also some advantages to a multi-bed room that are worth considering. These include greater levels of observation and social interaction with other patients. This also provides opportunities for a person with dementia to see staff and other visitors, and possibly reduce the anxiety of feeling alone or isolated. This may be of relevance for some people who enjoy the company and social interaction in a shared environment.

Technical Sketch 6:

UD Dementia Friendly Shared Inpatient Room (Existing)



- G. Provide space beside beds for locker with personal belongings, a comfortable patient chair, and space for visitors.
- H. Remove clutter from windows to ensure patients have a clear view to the outside.
- I. If possible provide seat by window as a small break-out space within the room.
- J. Provide uncluttered, safe and comfortable space for patient mobilisation in the room.
- K. To achieve adequate space and a calmer environment, consider, where feasible, reducing the number of bays within a shared patient room.

UD Dementia Friendly Design Guidance (see Technical Sketch 6 above)

- A. The approach to the room should consist of a legible route leading to a clearly identifiable door to the room. This can be achieved using large format signage, colour coding, or images to identify room entry on approach.
- B. All floor finishes should be non-slip, non-glare, and avoid strong patterns or sharp tonal or colour contrast. The avoidance of contrast is very important at door thresholds to prevent those with visual or cognitive impairments misinterpreting this contrast as a step.
- C. Provide good colour or tonal contrast between floors, walls and doors to improved spatial perception for patients.
- D. Provide large format date and time clocks to improve temporal orientation and place them within view of the patients.
- E. Ensure key spaces such as toilets are clearly visible and easily identified.
- F. Ensure each patient bay is easily identified and located through subtle visual cues behind each bed.

5.5.4 Day Rooms and Family Rooms



26 Day room in Mercy University Hospital, Cork, Ireland.

Photo Design Features

- Relaxing and homely décor.
- Combination of comfortable couch and dining table provide support different activities within the room.

Design Considerations and Awareness

Day Rooms and Social Areas

The provision of space for retreat in multi-bed wards, and communal areas in single-bed wards to allow social interaction, is one of the most important key design issues identified in these guidelines. Family and visitor areas or day rooms can provide dedicated space to breakaway from a busy ward, or to engage in activities such as dining, reading, or simply watching TV. While these rooms can provide a quiet space, they can also function as a social area to engage with family, visitors, staff, or other patients.

The location of these rooms within the ward should be carefully considered. Placing them away from the nurse's station may help provide a quiet and calm space and help create a destination point to encourage exercise. However, this distance may restrict staff observation and cause difficulties for patients with limited mobility.

In order to avoid an overly institutional feeling, these rooms should use a variation of lounge seats and different configurations of tables and chairs. A kitchen counter with a sink will provide space for activities such as dining or making tea/coffee. A retreat area within the room such as a small side space, alcove, or window bench, will provide a breakaway space with a sense of protection or enclosure where a person can sit alone or with another person, particularly if the room is being used by other patients or visitors.

These rooms should have views to outside and where possible should lead directly to a safe and enclosed outdoor space that is accessible, easily used and understood (See Section 5.6 for detailed guidance around outdoor space). Views and daylight should be maximised through low-level window sills or floor-to-ceiling glazing. At the same time glare and excessive heat gain should be avoided by internal blinds or similar window dressing, or external shading devices.

Finally, good visual access, signage, large format clocks and calendars will help with navigation and orientation to time and place. Colour and tonal contrast will help patients to distinguish walls from floors, and to highlight doors or objects where you want to attract attention. Floor finishes should be a consistent and uniform in colour, while good levels of evenly distributed natural and artificial light will help those with visual difficulties.

Family Rooms and Overnight Facilities

In rare cases, the main day room may also serve as an overnight facility for an accompanying person if there is not enough space within the patient room. However, a better solution where space is available is the provision of a dedicated family room to be used when the patient is in a critical condition or nearing the end of their life. These rooms do not need to be that large but should ideally provide a comfortable couch that can double as a bed, a small table and some tea/coffee making facilities, and wardrobe or storage area. Ideally this room should also have an ensuite bathroom.

For more information regarding the design of spaces to support patients and families at end of life, please refer to the Irish Hospice Foundation Design & Dignity Project and associated resources such as the Design and Dignity Style Book (www.hospicefoundation.ie/design-dignity/).



27 The Sanctuary, William Stokes Unit, Tallaght Hospital

Photo Design Features

- Family room providing couch and tea/coffee making facility (left).
- Ensuite bathroom providing toilet and shower facilities (right).
- Both spaces designed to create a relaxing and less institutional-like space.

UD Dementia Friendly Design Guidance

- Ensure location of day or family room provides a calm space, creating a destination point to encourage exercise. At the same, the location should take into account staff observation (i.e. need for day or family room to be in close proximity to nurses' station).
- These rooms should use a variation of lounge seats and different configurations of tables and chairs. In addition, a kitchen counter with a sink will provide space for activities such as dining or just making tea.
- Provision of a retreat area within the room such as a small side space, alcove, or window bench, will create a breakaway space with a sense of protection or enclosure where a person can sit alone or with another person, particularly if the room is being used by other patients or visitors.
- Ensure views to outside and where possible, these views should lead to a safe and enclosed outdoor space that is accessible, easily used and understood (See Section 5.6 for detailed guidance around outdoor space).
- Views and the admission of daylight should be maximised through low-level window sills or floor-to-ceiling glazing. At the same time glare and excessive heat gain should be avoided by internal blinds or similar window dressing, or external shading devices.
- Good visual access, signage and large format clocks and calendars will help with navigation and orientation to time and place.
- Provide colour and tonal contrast to help patients to distinguish walls from floors, and to highlight doors or objects where you want to attract attention. Floor finishes should be consistent and uniform in colour, while good levels of evenly distributed natural and artificial light will help those with visual difficulties.
- Where an overnight facility for an accompanying person or family member is required, consider the provision of a dedicated family room (i.e., when the patient is in a critical condition or nearing the end of their life). These rooms do not need to be that large but should ideally provide a comfortable couch that can double as a bed, a small table and some tea/coffee making facilities, and wardrobe or storage area. Ideally this room should also have an en-suite bathroom.

5.6 External Spaces



28 Access to centrally located external space, South West Acute Hospital, Enniskillen, Co. Fermanagh, Northern Ireland.

Photo Design Features

- Easy access to outdoor space from main circulation area
- Attractive and well planted external area to provide respite and contact with nature.

Overall Design Considerations and Awareness

Dementia Friendly Design from a Universal Design Approach argues that the built environment should play a more active and positive role in providing supportive, healthful, and therapeutic places and spaces for people with dementia in the hospital setting. In this regard, one of the key design issues focusses on the provision of indoor and outdoor contact with nature, and access to outdoor space to support active and passive therapeutic activities.

Direct contact with nature and access to outdoor space is an important feature for people with dementia. If a person with dementia is admitted to a hospital for an extended period, access to nature and outdoor space is a crucial factor in relation to their health and wellbeing. If the space is readily accessible and safe, it makes it easier for people with dementia to go outdoors independently, to enjoy nature, socialise, or carry out gardening. All of these activities have been shown to be therapeutic for people with dementia and are therefore an important part of dementia friendly design in acute hospitals.

While there are many benefits accruing from access to outdoor space and human contact with nature, the following are just some of the main benefits in the hospital context:

▪ **Respite from the hospital environment:**

A person living with dementia may spend considerable time in the hospital as an inpatient, outpatient, or day services patient, and therefore an outdoor space provides a welcome change of scene, or a break from the internal environment.

▪ **Exposure to nature:**

Connection with nature and natural processes is good for our health and wellbeing. Contact with plants, wildlife, and natural elements such as a breeze or sunshine, can provide gentle multi-sensory stimulation and relaxation. Indeed, evidence is mounting regarding the deep connection between humans and nature. This connection is referred to as 'Biophilia', meaning an innate affinity and reliance on nature and other living organisms for our overall wellbeing. Stemming from this research is a design approach referred to as 'Biophilic Design', or the design of the built environment to incorporate nature in a way that helps people connect and relate to nature and natural processes. It is important to consider how this approach can support the hospital as a more active, positive, healthful, and therapeutic place for treatment and healing.

▪ **Outdoor activities as a form of therapy:**

Outdoor activities such as pottering around, dead-heading flowers or potting plants, offer cognitive stimulation, while at the same time providing familiar tasks and opportunities for reminiscence.

▪ **A supportive space to engage with others:**

When outdoor activities are carried out with others they provide a relaxed shared experience that supports both verbal and non-verbal engagement.

▪ **Outdoor activities as physical exercise:**

Going outside and carrying out activities is an obvious form of physical exercise. However, the additional benefit is that these are pleasant experiences that many of us will undertake without thinking about it as a chore.

▪ **Views to the outside world:**

Outdoor spaces, especially roof terraces, often offer a vantage point to watch the world go by. This can be very therapeutic for a patient who may be feeling confined.

▪ **Exposure to natural light and fresh air:**

Natural light not only provides vitamin D, but also helps to regulate circadian rhythms and therefore aids better sleep patterns. Access to fresh air offers a break from the indoor hospital environment for patients, staff and visitors and helps promote a sense of vitality.

- **Spiritual wellbeing:**

For many people contact with nature or natural events such a sunrise or a sunset resonates on a spiritual level. For some this may have religious meaning, such as lilies or daffodils at Easter, for others it may be just about mindfulness or a peaceful place to meditate.

- **Orientation to place and time:**

Access and views to outside can reinforce the time of day. It can also provide orientation to season and time of year through seasonal plants that bloom, change colour, or lose their leaves depending on season. Outdoor spaces and objects can also provide good landmarks and spatial anchors for us to recognise where we are, and help us get from one place to another.

- **Restoring and supporting attention:**

Attention is one of the cognitive functions affected by dementia. A well-designed garden can provide elements that support attentional restoration, such as a distinct space, a coherent experience, and a level of fascination and engagement that helps a person focus on the experience or task at hand.

A successful hospital will integrate landscape and outdoor space with the public realm and interior of the hospital. Integrating courtyards and fingers of landscape will help to break down the mass and negative impact of large institutional buildings, while integrating landscape in the form of courtyards allows for natural light and ventilation to penetrate deep into the building plan. Accessible outdoor spaces will provide a safe place for patients and visitors to step outside and gain respite from clinical, institutional environments, or carry out meaningful activities. Outdoor spaces can also help to provide meaningful views to the outside from a range of patient areas and greatly support orientation and navigation. All these factors work together to soften the institutional environment and promote a more people-centred atmosphere.

5.6.1 Gardens and Courtyards



29 Courtyard garden in a nursing home, Dublin.

Photo Design Features

- Bright colourful planting to create attractive, multi-sensory experience.
- Bright coloured handrails providing physical support and wayfinding.
- Uniform, non-slip ground finishes.

Design Considerations and Awareness

As outlined above, outdoor space and landscape can be integrated into the hospital in a number of ways. This section however focuses on dedicated outdoor spaces such as hospital gardens and courtyards that are accessible to patients, staff and visitors. These spaces are typically accessed directly from the main hospital circulation area, or indirectly through specific wards or departments. While these outdoor spaces may be dedicated to different users or have varying levels of public or semi-private access, the design considerations and issues outlined below are largely applicable to most circumstances.

A successful UD dementia friendly hospital garden must firstly establish a few overall design criteria. Then secondly, and like other key areas with the hospital, a dementia friendly garden must respond to both external and internal design issues. These should be considered at a number of spatial scales, moving from issues regarding location and approach, down to detailed issues such as materials, finishes and planting. These overall design criteria and external and internal issues are outlined in the following sections.

Overall design criteria

Indoor and outdoor spaces should be designed as a unified whole at the same time to insure integration and coherence. The design, detailing and planting should be appropriate to context and culture to reinforce familiarity, and for orientation to place. In this context native and seasonal plants will help with orientation to time of day and time of year. The garden should provide opportunities for people to carry out activities and get involved with gardening or just pottering about. The space should be legible and provide a coherent experience for people, utilising clear paths, strong edges, nodes or areas of interest, distinct sections, and strong landmarks. If possible, it should provide a number of different kinds of spaces and seating areas to offer a variety of experiences depending on the needs of the people in the garden. Finally, if safety is a concern, the garden should be enclosed with a secure but unobtrusive boundary.

Location, approach and entry and exit

The garden must be located in close proximity to its intended users, or within easy access of the main circulation area. The wayfinding strategy should provide clear directions to the garden, and it should be clearly visible as you approach from the hospital corridor or similar circulation space. The entrance should be identifiable and highlighted using signage, colour, graphics, images. There should be a level threshold with no sudden colour or tonal changes, and access doors should be accessible, easily operated and understood. If possible, a single-entry door should be provided as this acts as a landmark to make returning indoors easier.

Garden layout and circulation

Overall, the layout of the garden should be legible and easily navigated. A circular or looped path will provide a continuous walking route that returns a person to their starting point. This arrangement also avoids a dead-end and the exit-seeking behaviour or confusion that a dead-end can sometimes instil. Where feasible, the whole garden should be visible from inside for observation and safety purposes. The provision of handrails and lean-rails in strategic locations throughout the garden will provide support and wayfinding. The materials and finishes to the paths and patio areas should provide safe and comfortable walking surfaces.

Where an enclosed garden is required for security or safety reasons, it is important that the boundary is unobtrusive and well screened with planting. Areas where you want patients or visitors to go should be clearly highlighted to attract attention. Emergency exits or service gates or doors should be disguised through planting, or by blending these elements into the background using colour or materials.



30 Dementia friendly show garden, Dublin, Ireland.

Photo Design Features

- Variety of colourful planting to provide a multisensory experience.
- Accessible planter allowing a wheelchair, seated or standing user to work with or touch planting
- Sheltered seating area immersed in planting.
- Vertical garden to rear wall to provide easy access to plants.
- Raised flower beds in a number of locations to make planting more accessible.
- Small tool shed with clear glazed front to make contents visible.
- Use of strong orange colour to highlight vertical grab rails and handles to toolshed.

Activity areas

Raised flower beds, accessible planters or potting tables will enable activities for people with physical, sensory or cognitive impairments. Level, open areas constructed of non-slip and non-reflective surfaces will provide opportunities for one-to-one and group activities. Ideally, the garden should provide a range of seating areas and seating types to accommodate the needs of a diversity of people in the garden. A variety of sheltered and more uncovered seating areas will offer a choice of experiences and exposure to the elements, depending on the weather conditions.

Planting and garden objects

Planting should be chosen to provide multi-sensory experiences and opportunities to reminisce. Colourful and fragrant planting can be used as part of wayfinding by providing distinct visual landmarks and aromas. Planting can also be used to reinforce spatial and temporal orientation by including local and native species that strengthen the sense of place, and offer cues as to the time of year through seasonal flowers or foliage. It is also important to avoid toxic plants or those that might present a slip or trip hazard through the shedding of leaves or fruit.

Lighting

Illuminating routes within the garden, along with key features and trees, will make the space more accessible and usable in the evenings. It will also allow it to be viewed from inside when it is dark.

Covered outdoor spaces, verandas and edge spaces

For many older people and people with dementia, outdoor conditions such as wind, rain or strong sunshine can prove challenging. Sometimes the idea or threat of these conditions can act as a disincentive to going outside. Additionally, as we get older our eyes take longer to adjust to sudden changes in light levels, and therefore going from lower internal light levels to intense sunlight can be uncomfortable and disorienting for many people. Finally, the direct movement from inside to outside, or from a quiet internal environment to an active external environment, where for instance a group activity is taking place, can prove disconcerting for some people and may prevent someone from using the garden.

Photo Design Features

- Sheltered seating area providing transition between inside and outside.
- Entrance doors highlighted with yellow rendered band around the door opening.
- Raised beds to make planting more accessible.

The construction of covered outdoor space adjacent to the building, or a veranda can alleviate some of these challenges. These edge spaces mediate the relationship between inside and outside, and temper the environmental conditions of natural light, wind, rain, and sound, thereby softening the transition experience between the two spaces. The mediating influence of edge spaces can be harnessed and tuned to the sensory, physical and cognitive needs of a person with dementia. Edge spaces and sheltered external in-between spaces can allow a person to 'preview' the external weather conditions or social activity that may be taking place outside before committing to going outside. These transition spaces also allow a person's eye to adjust to outside lighting levels.

Beyond the role of a transition space, these covered outdoor spaces provide a sheltered and shaded seating or social area protected from inclement conditions. Given the mild climate in Ireland these spaces could be used for much of the year if they were designed correctly and if patients or visitors are dressed appropriately.

Edge spaces can often create areas of interest and interaction, not only between people, but also between people and nature. These qualities of transition or edge spaces can be exploited to draw people outside and help them benefit from being outside and in contact with nature and natural processes.



31 Covered external seating area adjacent to day room in a nursing home, Dublin.

Dementia Friendly Design Guidance

- The internal and external spaces of the hospital must be designed together in an integrated manner in order to create a unified whole and to provide physical and visual access to the outdoors.
- Provide level access from the key internal spaces such as the Outpatients Department or the Day Service through an accessible and easily operated external door.
- Consider the use of a veranda, pergola or similar space to provide a shelter or shaded transitional outdoor space that can allow people to sit outside without full exposure to the weather conditions.
- Use solid, non-slip, non-reflective material for ground surfaces without strong patterns. Ensure the ground surfaces are suitable for wheelchairs or a person who may shuffle when walking.
- Avoid the use of garden structures or items which might cast slatted shadows on the ground, as these may be perceived as troughs or changes in level.
- Avoid abrupt changes in ground finishes or junctions between very different materials.
- Provide plants preferred by patients (e.g. roses or lilacs). Use planting that will also clearly illustrate the changing seasons.
- Provide multi-sensory experiences through the use of colourful planting or colourful materials for visual stimulation; fragrant planting for olfactory stimulation; textured objects and plants for tactility; or bubbling water features or similar for aural stimulation.
- Where safety is a major issue, provide an enclosure using trees, tall shrubs or bushes to screen walls or fences. This planting will also lessen the feeling of being overly contained.

5.6.2 Balconies, Terraces, and Green Roofs



32 Green roof, North West Cancer Centre, Altnagelvin Hospital, Derry, Northern Ireland.

Photo Design Features

- Green roof incorporates a variety of plants and shrubs, providing good views to nature as part of the built environment.
- In ground-level garden, raised beds make planting more accessible. There is also a good provision of seating to allow for patients to sit outside on a good day.

Design Considerations and Awareness

Balconies and Terraces

Well-designed balconies and terraces can provide many of the same benefits that have been outlined in the previous section. Access to fresh air, daylight and views, and contact with nature may be very therapeutic for a person with dementia. These spaces become even more important if a patient who is located on an upper floor is unable to travel to or access a ground level garden due to illness, frailty, delirium or infection control.

While many of the same design issues that apply to ground level outdoor areas are relevant to terraces and balconies, there are a few additional considerations mainly around access, adequate space to carry out meaningful activities, and safety due to height concerns.

Green roofs

In the context of views and access to nature it is also important to consider ways to green the built environment. The creation of green or planted flat roofs may provide an attractive and therapeutic view for patients and visitors on upper floors overlooking the roof. While these roofs will not be physically accessible for patients, they will provide a natural scene, and also introduce biodiversity and wildlife close to the building.

Dementia Friendly Design Guidance

- To ensure that a balcony or terrace is fully usable by a person with dementia it must be easily accessed and visually accessible from key internal spaces such as day rooms, and inpatients wards.
- While a typical balcony with standard 1200mm high balustrade may be appropriate in most cases, it may also be worth considering the creation of a 'winter garden' style balcony which is fully enclosed.
- Where safety is a real concern provide a minimum 1800mm high safety glazing or similar balcony balustrade or full height screening.
- Providing a balcony with a minimum depth of 1500mm or 1800mm will ensure that it can function as an adequate outdoor space. This may be particularly important if a person spends much of their time in their bed.



Section 6

Building Components: Materials, Fit-Out, and Signage



The complexity and scale of acute hospitals means that they contain a huge array of building materials, fit out elements, furniture, and signage, and more. These are often the most visible aspects of the building and present the physical face of the hospital. It is with these elements that patients, family members, visitors, and staff interact with the hospital on an intimate level on a day to day basis.

These building components are critical to providing a calm, supportive, accessible, easily understood and usable setting. They are also an aspect of the building that can be directly changed or modified by staff who have a valuable contribution to make in improving the environment and setting for people living with dementia.

Stephen has been diagnosed with mild cognitive impairment (dementia not confirmed). Stephen has also been diagnosed with macular degeneration, which causes blurred central vision, and has difficulty seeing colour and identifying objects. He has recently been admitted to hospital; the clear colour contrast, the uniform, non-glare floor finishes, and the clearly visible handrails have made him feel safer, and his overall hospital stay more comfortable.



Building Components, Materials, Fit-Out, and Signage

Overall Design Issues

A typical acute hospitals will contain a wide range of building materials, fit-out elements, furniture, signage, and similar building components. Through walking on floor surfaces, looking at finishes, holding handrails, opening a door, or sitting in a chair, patients, family members, visitors, and staff interact with these components on a daily basis.

The hospital building components are critical to providing a calm, supportive, accessible, easily understood and usable setting. This will include use of unobtrusive features to ensure health and well-being of patients or clear and legible signage to support wayfinding. Consideration must be given to furniture and fittings to support the specific needs of an older person and a person living with dementia. While calming and harmonious décor and artwork will enhance the aesthetic and orientation experience.

When considering **building components**, it important to think about the Key Design Issues:



Engagement and participation

1. Promote engagement with friends and family, staff and community.
2. Provide space and supports for accompanying persons.
3. Promote a participatory design approach.



Provide a people-centred environment

4. Soften the institutional environment
5. Familiar or recognizable design that is easily understood and intuitive.
6. Facilitate personalisation and opportunities to add personal belongings.



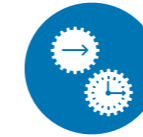
Support patient safety and health

7. Provide a safe environment through unobtrusive safety measures.
8. Support diet, nutrition and hydration.
9. Support meaningful physical and social activities including ADLs.



Balance sensory stimulation

10. Optimise positive sensory stimulation and minimize negative stimulation.
11. Provide indoor and outdoor contact with nature, and access to the outdoors.



Support orientation and navigation

12. Support orientation to date, time, location, and improve spatial cognition.
13. Provide good way-finding that supports navigation.
14. Provide good visibility and visual access.



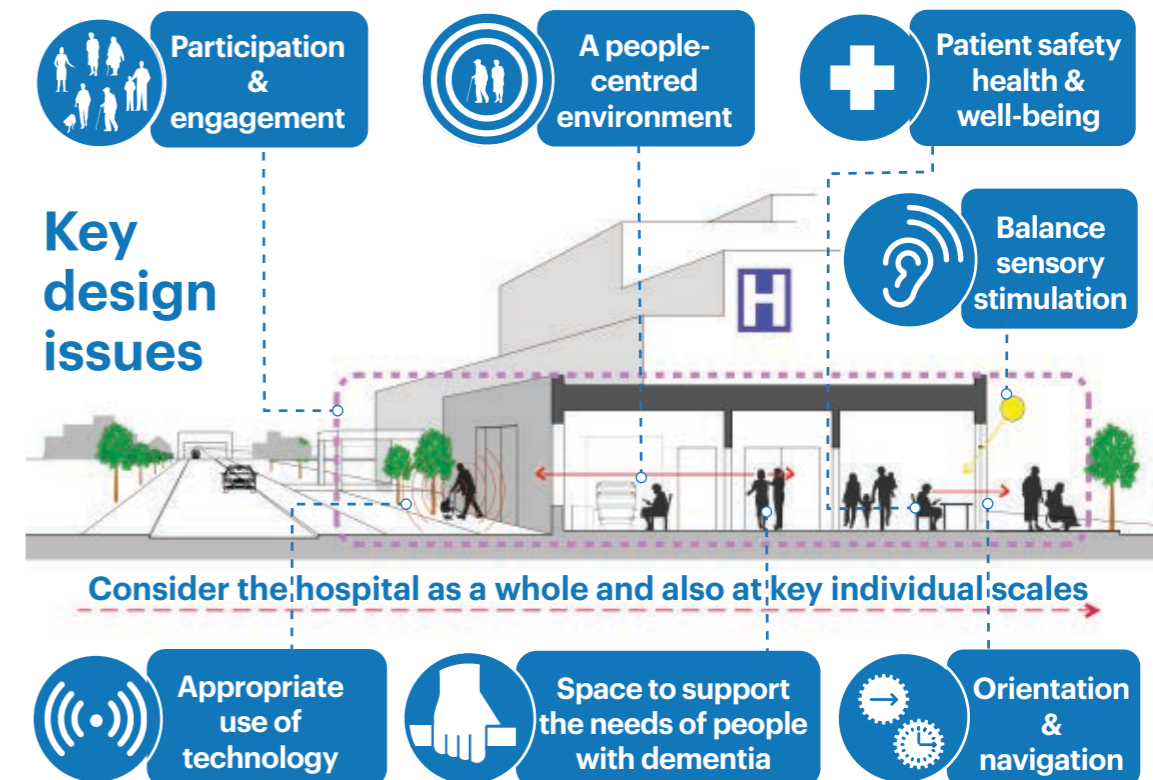
Adequate space to support the needs of a person with dementia

15. Bays or single rooms with space for personal belongings and visitors.
16. Retreat spaces in multi-bed wards or communal areas in single-bed wards.
17. Provide space and supports for patient mobilisation and activities.



Appropriate use of technology

18. Appropriate use of technology for care delivery, safety, therapy, communication, and entertainment.



6.1 Building Materials and Finishes



01 Circulation area in the MISA Building, St. James's Hospital, Dublin.

Photo Design Features

- Clean and simple materials and finishes creating a calm and legible space.
- Good colour contrast between the floor and the wall.
- Uniform floor colour to minimise disorientation.
- Good colour contrast between the handrail and the wall.

Photo Design Tip

- Separate wayfinding from other hospital signage and information. General information should be coordinated and located together to avoid confusion with wayfinding.

6.1.1 Materials and Finishes

Design Considerations and Awareness

The colour, tone, reflectance, or surfaces patterns of materials and finishes determine the interior visual quality of the hospital. Through these qualities, materials and finishes affect the visual field and perception of people with dementia. Furthermore, due to symptoms such as agnosia, a person with dementia may experience visual spatial cognition difficulties that lead to problems with depth perception, disorientation, anxiety or discomfort. Therefore, the selection of materials and finishes is critical in a UD dementia friendly hospital

While inappropriate materials and finishes can cause serious difficulties, carefully selected materials and finishes will not only ameliorate these difficulties, but can also be used to compensate for visual, memory, or cognitive difficulties. This will help people living with dementia to have a more positive experience while attending the hospital.

While the impact of materials and finishes has been discussed to some extent in all previous sections, the following sections examines some of the key issues in further detail to reiterate the importance of materials and finishes in an universally designed dementia friendly hospital.



02 Circulation area in the MISA Building, St. James's Hospital, Dublin.

Photo Design Features

- Subtle use of light yellow colour to highlight certain areas
- Good colour contrast between door frames and wall.
- Subtle colour change in the flooring between main circulation area and the alcove. While a colour change is achieved, it is not abrupt enough to be perceived as a step.

Materials and finishes: Colour

Despite the great interest that many people have in colour, there is still scant evidence regarding how we perceive colour, or how it affects us on a psychological level. And while it has been established that as people age their vision and perception of colour changes, there is little research regarding dementia and colour perception.

Nevertheless, some studies show that people with Alzheimer's find it more difficult to distinguish between hues in certain parts of the colour spectrum such as blue and green, compared to hues such as yellow and red. It has also been reported that colour schemes that mix hues from opposite sides of the colour wheel, such as the combination of red and green, or yellow and blue, can cause difficulties for people with dementia as these colours can appear mixed or muddy.

It is also worth considering that age related changes to the eye can cause colours to be perceived with a yellow tint. Therefore, pastel colours may be difficult to distinguish while stronger more vibrant colours may stand out better. In this regard objects or spaces to be highlighted should use bold or accent colours.

Notwithstanding the lack of research data, some established ageing and dementia experts cautiously suggest the following colour implications:

- Blue: a cool colour that is believed to be restful and calming, and that decreases perceived room temperatures and increases the perceived size of a room.
- Green: a cool colour that is believed to be very restful, and as above increases the perceived size of a room. It is also strongly associated with nature.
- Red: a warm colour that is believed to be a stimulating colour that increases perceived room temperatures and decreases the perceived size of a room (the opposite to blue).
- Violet is a colour with no clear psychological implications.
- Orange as a warm colour, that along with green, is strongly associated with nature.
- Yellow as highly visible colour has strong communication qualities. It is believed to be a restful colour that increases perceived room size.

It must be strongly reiterated that the lack of evidence regarding the impact of colour means that the application of colour should be undertaken with caution. It is probably more accurate to say that colour is very subjective, and will be perceived differently depending on a person's age, gender, or culture, and also contextual influences such as fashion, lighting conditions, time of day, and season.

Materials and Finishes: Colour and Tonal Contrast



03 Corridor in St. Mary's Ward, Mercy University Hospital Cork, Ireland.

Photo Design Features

- The selected floor finish provides a homely appearance without presenting any abrupt colour or tonal changes.
- Good colour contrast achieved between the floor, handrails, and wall.

Photo Design Tip

- Positioning of the wall-mounted radiator could pose a problem for people using handrail.
- The non-patient, emergency exit doors to the end of the corridor would draw less attention if they were camouflaged or blended into the background.

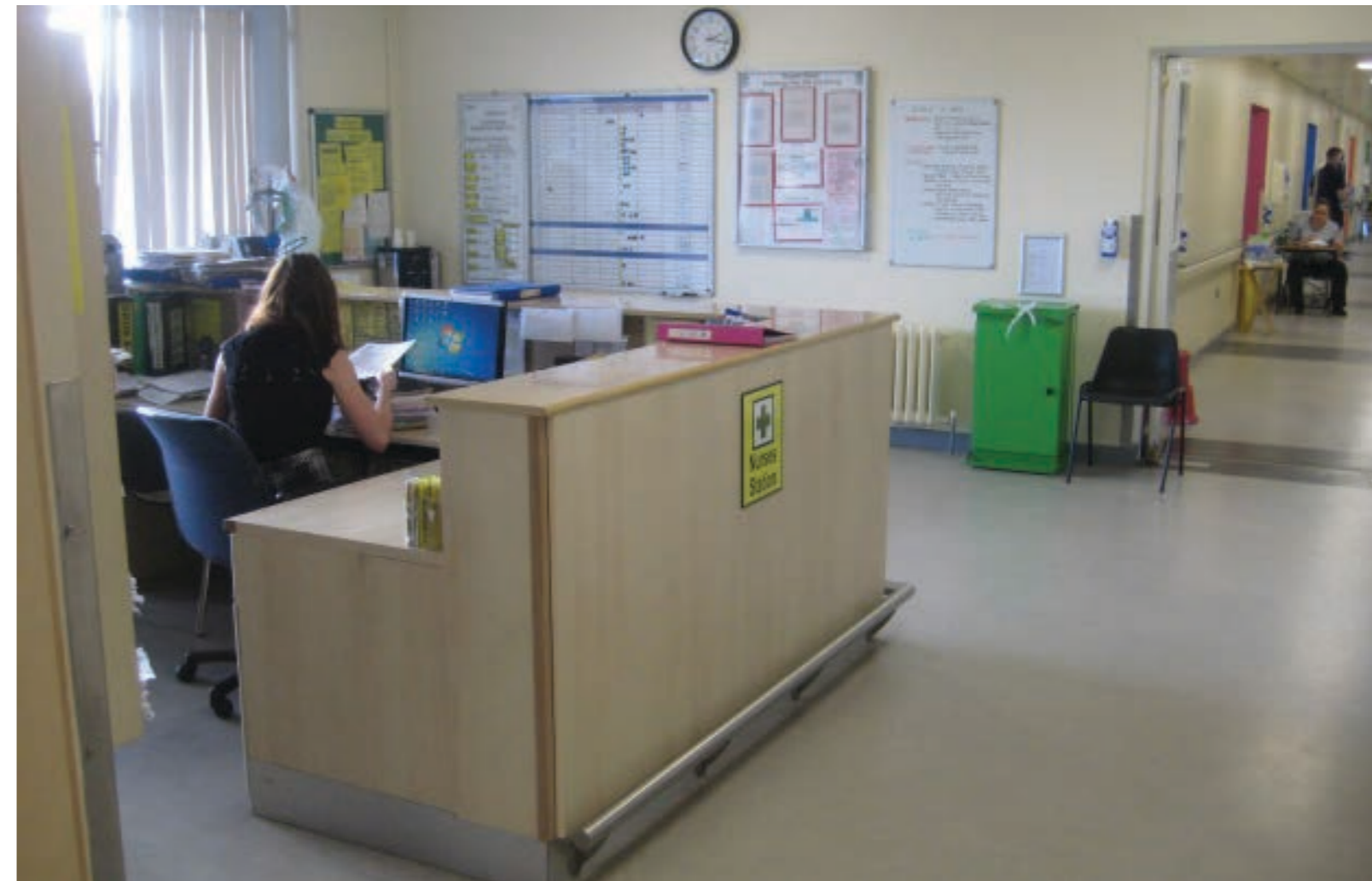
While the psychological relevance of colour is debatable, the use of colour and tonal contrast has more defined outcomes. Introducing colour and tonal contrast can be beneficial to people with both dementia and visual difficulties. Colour and tonal contrast can also help compensate for cognitive or spatial perception difficulties. For example, contrasting colours or the use of sharply contrasting tones within the same colour, can help people to distinguish between different surfaces and between surfaces and objects. Contrasting colours can be used to distinguish doors from the surrounding walls and thus facilitate recognition of access points and make the environment easier to negotiate and understand.

Colour contrast is based on Light Reflectance Value (LRV), which is a measure of the amount of light a colour reflects into the environment and therefore determines the brightness or darkness of a colour. LRV is measured between 0 and 100, where a high LRV results in a bright colour, while a low LRV results in a darker colour. To achieve good LRV contrast between two materials, there should be at least 30 points of a difference on the LRV scale.

When it comes to flooring, colour and tonal contrast may cause problems for people with depth perception difficulties as a sharp contrast in flooring can be perceived as a step or hole in the ground. Similarly, blocks of contrasting colour tone or high contrasting floor patterns may be perceived as objects on the floor, this can cause a person to trip over, sidestep, or veer off course, and may result in a fall. In other cases, it has been shown that significant floor colour changes will deter some patients from entering that space. For this reason, best practice is to choose a uniform colour only and use this flooring throughout the department or ward.

Where floor colour changes are required to demarcate waiting areas, circulation routes, or departmental zones, this colour change should not be too abrupt. On the other hand, given that floor colour changes can be a deterrent, a colour change may be considered to keep people away from non-patient zones or areas of the hospital that might be distressing or dangerous for a person with dementia.

Some people with dementia can mistake one room for another, and in this regard, wayfinding can be improved if rooms are distinctive in their décor. Using distinct colours for specific rooms or fittings may act as a simple visual cue to help with recognition and orientation. While colour-coding can be effective, it is imperative that the information being communicated through colour is consistent throughout the hospital. Predictability and order can be achieved in the environment through consistent repetition of colour systems.



04 Nurses Station, Connolly Hospital, Blanchardstown, Dublin, Ireland.

Photo Design Features

- Non-reflective materials used on the floor and nurses station.
- Spacious and uncluttered nurses station creates a calm and legible space.

Photo Design Tip

- Coordination of information on a design board would reduce visual clutter.
- Colour contrast strips visible in corridor to the rear may cause visual issues.

Reflections on glossy surfaces can interfere with visual perception and can cause visual discomfort arising from glare. Surface reflection can also be misinterpreted as water spillage, and that a surface is wet or slippery. This might cause an individual to alter their gait when walking over it, or attempt to step over the perceived 'spillage', and this, in turn, may result in a fall. This also applies to any person with a visual difficulty.

Therefore, matt finishes are recommended to reduce these reflections and glare. Where glossy surfaces such as tiles are used, careful location of these surfaces adjacent to windows or light fixtures is required to avoid these light sources from producing reflections close to the line of sight.

Floor finishes can also make a difference to visitors, accompanying persons, or staff, who depending on their age or mobility, may be prone to falls.

Materials and finishes: Surface patterns



05 Reception area, Navan Road, Primary Care Centre, Dublin, Ireland.

Photo Design Features

- Uniform floor colours to avoid visual confusion or disorientation.
- Good colour contrast between floors and walls.
- Good use of accent colour to highlight key features and provide visual cues.

Research has found that patterned floor finishes or dark contrasting borders may increase visual-spatial difficulties and present walking problems and falls for people with dementia. Patterns on floor coverings that represent real life objects can be problematic for some people with dementia and therefore the use of uniform colour is recommended.

Bold and repetitive wall paper patterns and those with real life objects such as flowers can cause fear, restlessness, frustration, delusions and confusion for some people with dementia. It is widely recommended that walls are decorated with plain colours using muted or pastel shades - matt or satin finish paint is recommended as it reduces glare.

Materials and finishes: Mirrors and highly reflective surfaces

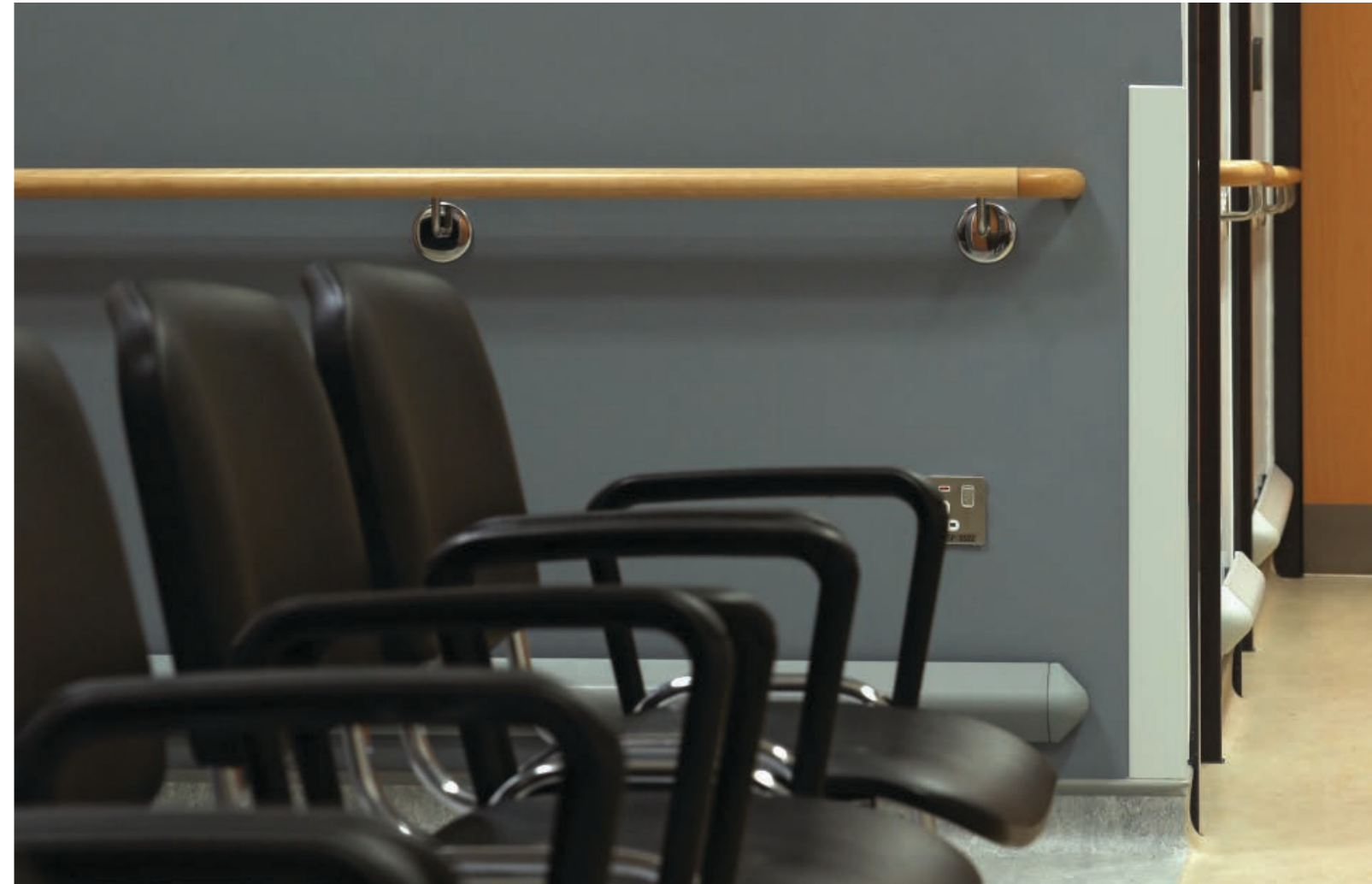
For some people with dementia, mirrors may create confusion if, for example, the person does not realise that the image in the mirror is their own. This can generate fear and may cause adverse reactions. Therefore, it would be useful if the mirrors in certain parts of the hospital, such as the inpatient wards, can be easily moved, removed completely or covered over.

On the other hand, condensation covered mirrors from bathroom steam may also cause problems if a person is unable to see their reflection as expected in the mirror. To combat this, proprietary heated mirror pads, which are simply electrical elements fitted to the back of a mirror, can be installed to keep mirrors steam-free.

UD Dementia Friendly Design Guidance

- Where colour is needed for increased legibility consider colours in the blue and green area of the colour spectrum, as opposed to yellow and red colours, as these colours may be harder to differentiate for people with dementia.
- Use colour and tonal contrast to distinguish one surface from another, or to make certain objects stand out against their background.
- In line with the above, paint skirting boards and door frames a contrasting colour to walls and ceilings to ensure a clear contrast is made between floor and wall finishes.
- Paint doors a contrasting colour to the wall to make it visually stand out from the background. Ensure the door handle and any locks or similar door furniture is finished in a colour that stands out from the door.
- Use colour or tonal contrast to highlight handrails, grab rails, light switches, wall mounted fittings and other important objects that need to be visually prominent.
- Avoid sharp colour or tonal contrasts on floor finishes as these may be misinterpreted as an object on the floor or a step. Maintain a similar finish and colour on any one storey, and minimise or eliminate internal door saddles or carpet bars at door thresholds which may be misconstrued as a step.
- Use colour or decor to distinguish one room from another as part of a design strategy to create distinctive spaces.
- Avoid glossy finishes with excessive reflectance. Use material with matt finishes; when choosing paint consider low sheen paints such as matt or satin finishes.
- Avoid strong patterns on both floor and wall finishes as these may cause confusion or disorientation.
- Ensure all mirrors can be easily moved, removed or covered over
- Where condensation on mirrors is causing problems for a person with dementia consider fitting proprietary heated mirror pads to keep mirrors steam free.

6.2 Fit-Out Elements



06 Seating and handrails, MISA Building, St James' Hospital Dublin, Ireland.

Photo Design Features

- Good colour contrast between handrail and wall.
- Timber finish to handrail makes it less institutional and more comfortable to hold.
- Armrests make it easy for people to get up and out of seats.
- Comfortable seating with plastic arms rests that are more comfortable to touch.

6.2.1

Windows, Doors & Ironmongery



07 Doors, doorframes, and door handles, MISA Building, St. James's Hospital Dublin, Ireland.

Photo Design Features

- Good colour contrast between doorframes and wall.
- Large format room numbers help with wayfinding and navigation.
- Good colour contrast between handrail and wall.
- Simple and subtle signage.
- Timber finish to handrail and doors create a less institutional environment.

Design Considerations and Awareness

Doors

Fit-out elements such as doors and door handles are parts of the hospital that a user will interact with in a very hands-on manner. From using the main public front door, down to entering a toilet or opening a wardrobe, the accessibility, ease of use and understanding of these elements across all spatial scales of the hospital is critical for people with dementia.

While wide door openings, or double doors are common throughout the hospital, these should be considered for all public areas to maximise accessibility. In some locations the installation of a door-and-half or a 'Cat and Kitten' type door will help in this regard.

Within the hospital there are many non-patient areas or exit points that may present a risk for the patient. In these situations, it may help to paint the access doors in a colour that matches the background to disguise these doors.

Windows

The windows to the hospital control much of the interaction between inside and outside, not only in terms of views and daylight, but also in terms of sound and thermal insulation. Windows should provide maximum views to the outside, allow a person to experience positive stimuli such as a summer breeze, bird song, or external activities, while also protecting the occupants from disruptive external noise, solar glare or excessive solar heat gains, or conversely, heat loss.

Window sills and transoms should not obscure the view to outside when a person is seated or laying on a hospital bed. Windows should be easily opened by a patient, with appropriate restrictors ensuring their safety.

Dementia Friendly Design Guidance

- Internal doors should be hung so they open against an adjoining wall to allow maximum views to the room from adjacent spaces when the door is open. For non-fire rated doors consider using a door hold-open device to keep the door fully open to maintain visual access.
- Consider using extra wide doors or door-and-a-half to provide maximum physical access and also good visual access.
- Use internal door ironmongery that is intuitive and simple to use and that is familiar to the extent that it is consistent with the patient's expectations around appearance and function.
- Paint doors a contrasting colour to the wall to make them visually stand out from the background. Ensure the door handle and any locks or similar door furniture is finished in a colour that stands out from the door.
- Ensure that window sill heights and window transoms do not obscure the view to the outside for a person when seated or laying on a bed.
- Provide window systems (including frames and glazing) that minimise glare and sound transmission while also balancing solar heat gains and internal heat losses.

6.2.2 Sanitary Fittings

Fully accessible toilets with a range of supports for people with dementia (i.e. hoists, changing benches, space for carers etc) will be required in certain locations and these should take on board the design considerations outlined above.

See Section 5.1 for UD Dementia Friendly Hospital Guidelines relating to toilets.



08 Ensuite bathroom in single inpatient room in the MISA building, St. James's Hospital.

Photo Design Features

- High quality toilet fittings soften the institutional appearance.
- Good colour contrast between the toilet, the wall, and floor.
- Good colour contrast between the grabrails and the wall.

Photo Design Tip

- Better colour contrast to the wash hand basin would improve visibility.
- A colour contrasting toilet seat would improve visibility and usability of the toilet.

Design Considerations and Awareness

Toilets have been discussed earlier in Section 5.1. In terms of toilet and bathroom fittings, these should be as non-institutional looking as possible and use recognisable features, and colour contrast effectively. Colour and tonal contrast can be used to distinguish and highlight the objects where you want to draw attention .



6.2.3 Electrical Fittings and Controls



09 Emergency call button and light switches.

Photo Design Features

- The colour of these electrical fittings contrasts with the colour of the wall and therefore helps them to stand out.
- The large rocker-style switches are easy to operate as they require less strength.

Design Considerations and Awareness

There may be limited opportunity for patients to control lighting and electrical appliances within the hospital setting, however, allowing somebody to interact with and use such controls can help maintain existing skills and engage in meaningful activities.

UD Dementia Friendly Design Guidance

- Use electrical fittings such as light switches, socket plates, ventilation that are familiar to a person with dementia and intuitive to use.
- Ensure that all switches or controls are placed in a logical location, are clearly visible from within the room, and are finished in a colour that makes them stand out from the background.

6.2.4 Handrails and Grab Rails



10 Handrail to corridor in the MISA building, St. James's Hospital, Dublin, Ireland.

Photo Design Features

- Good colour contrast between handrail and wall.
- Timber finish to handrail is comfortable to touch and creates a less institutional environment.

Design Considerations and Awareness

Providing space and supports for patient mobilisation and activities, including safe and stimulating walking or circulation routes, is critical to a UD dementia friendly hospital. Handrails and grab rails are critical to this mobility, and not only provide physical support, but increase confidence and help with wayfinding.

Handrails must be clearly visible, this can be reinforced by using contrasting colours so they visually stand out from the background. High levels of natural and artificial light should optimise the visibility of the handrails.

In addition to corridors and bathrooms, the judicious placement of handrails and grab rails in other locations such as cafes, or garden areas, may be an inexpensive way to increase comfort and safety, and reduce the risk of falls.

In retrofit projects where existing handrails do not visually contrast with the background and it is too expensive to replace them, it is possible to fit the existing handrail with a colour cover to achieve the visual contrast required.

UD Dementia Friendly Design Guidance

- Use a handrail design that will be familiar to most people and will be consistent with their expectations.
- Use colour and tone so that the handrail stands out clearly from its background.
- Where possible, use some feature to clearly indicate where a handrail ends, as this will help provide a better signal to the user that the handrail is ending and thus give them a chance to adjust accordingly.
- Handrails should be provided on both sides of ramps and steps and should be continuous along the full length of the flight and at intermediate landings.
- Handrails should be positioned with the upper surface 900 to 1000mm above the ramp slope and 900 to 1100mm above landings.

6.2.5 Wardrobes and Cupboards



11 Kitchen units in day room, inpatient ward, Connolly Hospital, Dublin.

Photo Design Features

- Glazed front to kitchen cupboard to allow a person a view inside to see the contents.
- Domestic style tap will be familiar and therefore usable by many people.
- Good colour contrast between socket and splashback.

Design Considerations and Awareness

Ensuring that a person continues engaging in ADLs while in hospital is an important part of maintaining their skills and health condition. Providing wardrobes, lockers, storage areas, and cupboards that are accessible, easily understood and used will help in this regard. For instance, making sure that certain objects and spaces are clearly visible, especially food, crockery, or cooking items, may serve as a reminder and may help with activities such as cooking and, in turn, improve nutrition. The use of clear glazed kitchen units that reveal their contents may help in this regard. This also applies to wardrobes that allow a person to see their clothes, which might provide a visual cue or prompt to dress themselves.

UD Dementia Friendly Design Guidance

- Use open shelves or wall mounted units with clear glazed panels for maximum visibility to foodstuff, crockery or cooking utensils.
- Consider using clear glazed panels in certain sections of the wardrobe doors to allow a person to see their clothing as a visual prompt to get dressed. In some cases it may help if a person's clothes for the day are left out in this section the night before,
- Use labels, images, or photos on kitchen unit doors or appliances to remind the occupant about their use(s), or what each item contains.

6.2.6 Artwork and Orientation



12 Art exhibition space along hospital street in Tallaght hospital, Dublin, Ireland.

Photo Design Features

- Strong artwork providing a point of interest and visual landmark.
- White mounted background helps provide a dedicated exhibition area to protect the space around the artwork.

Design Considerations and Awareness

Artwork

The role and value of art in the hospital is as subjective as it is outside the hospital, and therefore most hospitals will take a balanced and somewhat cautious approach to artwork in the healthcare setting. Notwithstanding this, there is a growing appreciation of the potential therapeutic benefits of art, and its capacity to soften and humanise the hospital environment.

In the context of dementia friendly design, art, whether it takes the form of painting, sculpture, or photographs, can perform several roles including:

- Orienting a person to place and context through images or depictions of the local community or local scenes.
- Orienting a person to time or season of the artwork is synchronised to time of day or time of year (i.e. digital images or displays).
- Providing a calming effect or acting as a distractor (often through images of nature or natural processes – see discussion of biophilic design in Section 1.3 and 5.6).
- Creating a healing environment through an aesthetically enriched environment.
- Enhancing wayfinding and navigation through the creation of nodes or visual landmarks.
- Providing material to reminisce or spark a conversation.

Artwork must be carefully curated to achieve some of the above, and to ensure it is appropriate for the patients who will view it. It must be strategically placed to align with patient movement and avoid becoming part of, or lost in clutter. It must also be judiciously managed to keep things fresh and interesting, provoking conversation and social interaction.



13 Large format photograph in inpatient ward day room, Naas Hospital.

Photo Design Features

- Strong artwork providing a point of interest and visual landmark.

Orientation to time and date

While artwork can provide good sources of geographical and temporal orientation, more direct approaches such as large format clocks and calendars are also valuable. These clocks should be placed in strategic locations and at appropriate heights to maximise their visibility.



14 Large format clock and calendar (left) and photograph of local scene (right) Naas Hospital, Co. Kildare Ireland.

Photo Design Features

- Large format clock and calendar supporting patient orientation to time and date.
- Photograph of local scene providing orientation to locality.

Dementia Friendly Design Guidance

- Art work in a hospital setting should be carefully curated to support orienting a person to place context, through images or depictions of the local community or local scenes. Careful curation of art work in a hospital setting can also provide a calming effect or act as a distractor (often through images of nature or natural processes – see discussion of biophilic design in Section 1.3 and 5.6).
- Where possible, ensure artwork is synchronised to time of day and time of year (i.e. digital images or displays) in order to orient a person to time or season.
- Create a healing environment through an aesthetically enriched environment.
- Enhance wayfinding and navigation through the creation of nodes or visual landmarks.
- Consider the use of large clocks to help orientation to time and date.
- Provide material to reminisce or spark a conversation.

6.3 Signage and Graphics



15 Signage and wayfinding graphics, MISA building, St. James's Hospital, Dublin.

Photo Design Features

- Direction provided to key destinations within the vicinity.
- Use of simple and effective symbols and graphics.

Design Considerations and Awareness

Short term memory loss associated with dementia can make it difficult to remember the layout of a physical environment, while cognitive difficulties can impair spatial processing resulting in disorientation and anxiety. Consequently, wayfinding is a major part of dementia friendly design, and must be carefully considered across all spatial scales within the hospital. In this regard, an overall wayfinding approach for the hospital has been discussed in Section 1.2 - Main External and Internal Patient Route: Orientation, Navigation and Wayfinding throughout the Hospital as Whole. This current section provides further information around signage and associated graphics to support a UD dementia friendly wayfinding approach.

In the context of signage, it is worth bearing in mind that some people with dementia may also find it hard to distinguish one room from another or identify objects, appliances or equipment within rooms. Labelling of rooms or objects with simple text or images can increase legibility by helping a person identify the location and function of certain spaces. Examples include a label with a picture of a toilet outside the bathroom, labels and images on family rooms or dining rooms, or images on kitchen cupboards to indicate what is inside.

Bearing in mind the important role that signage plays in terms of navigation within a hospital, and the importance of wayfinding and orientation for people with dementia, this section provides a number of recommendations for signage in an Universally Designed Dementia Friendly Hospital.

6.3.1 Signage

Signage zoning

If the hospital uses colour coding for the floors or departments, then the signage should align with this to reinforce wayfinding.

Progressive disclosure of information

Progressive disclosure is a wayfinding approach often used in large building complexes such as airports, and is based upon providing the visitor with just enough information to get them to the next decision-making point. This avoids information overload and confusion and helps to simplify the navigation of a building. Progressive disclosure includes:

- Providing minimum information designed to get the person to the next decision-making point such as the reception or directional signage.
- Upon approaching or entering spaces or entrances, the important thing is that the visitor knows they are going in the right direction and that they will receive more detailed directions only when required.

Consistent approach to signage

Four kinds of signage are typically needed in hospitals including: Information signs; Directional signs; Identification signs; Mandatory signs. It is helpful to take a consistent approach across these categories so that each type of sign has the same appearance, this will help a person identify signs and understand that one set of signs is for getting you there (i.e. directional signs) while another set of signs tells you that you have arrived at your destination (i.e. identification signs). Consider the grouping of signs as this can reduce the number of signage locations and reduce the amount of visual clutter in the hospital.

In this regard it is important to have a consistent approach to signage, ideally with distinct visuals (can be subtle) and positioning for each category. If a distinct approach for each category is not possible, then it is critical not to mix up the design of signage as this can lead to confusion.

Specific signage recommendations

Bearing in mind the above overall wayfinding approach, the following detailed recommendations are being proposed:

Signage location & positioning

The overall locations of the signage must be well considered in terms of aligning with patient routes and direction of movement.

Ageing results in a decline in visual acuity and restricts the upward gaze and therefore signage at too far a distance, or at an excessive height will make it difficult to read certain signage. In addition to normal ageing impairments, visual difficulties are more prominent among people with dementia. To compound this the perceptual disturbances associated with dementia can affect visual processing and therefore impinge on a person's ability to read and comprehend signage.

In light of this, signage should be in a **logical location** (consistent with a person's expectations), at a **height not too far above eye level**, and situated in an **uncluttered location** with minimum adjacent distractions or clutter (i.e. other non-wayfinding signage, information leaflets). The signage should also face the direction of approach to ensure it is clearly visible when required (i.e. when the person is moving along a circulation route looking for their destination).

Detailed signage that requires some time to read should not be located where the viewer will obstruct other visitors (If the viewer is aware that they may obstruct other visitors, this may possibly deter them from reading the signage).

Careful consideration should be given to the fact that other visitors may obscure the signage and therefore it should be placed at a level above any crowds, while bearing in the mind the restrictions in vertical gaze experienced by many older people.



16 Floor level signage, MISA building, St. James's Hospital, Dublin.

Photo Design Features

- Simple, large scale numbers and arrows providing wayfinding in the stairway.

The Building for Everyone (BfE), Booklet 4 (CEUD 2014) provides the following guidance regarding the placement of maps and timetables:

- **Detailed maps and timetables:** Centred 1400mm above floor level, with the lower edge no lower than 900mm and the upper edge no higher than 1800mm above floor level.

Regarding the location and positioning of signs requiring close-range viewing, the BfE recommends the following:

- **Directory Signs and Room identification signs:** Height 1400-1700mm above floor level. Wall-mounted signs should not project more than 100mm from the wall surface / Signs to be mounted on the wall adjacent to the leading edge of room doors rather than on the door face so that they are visible at all times and to ensure that the door is not opened while someone is reading the sign /braille. Embossed signs to be positioned where a person can approach and touch the sign without being obstructed or causing an obstruction to other people.
- **Detailed maps, diagrams, and timetables:** Centred 1400mm above floor level, with the lower edge no lower than 900mm and the upper edge no higher than 1800mm above floor level.

For signs requiring medium-range viewing, the BfE recommends the following:

- **Suspended directional or Identification signs:** 2300mm clear headroom to the underside of the sign.
- **Wall-mounted projecting signs:** Not projecting more than 100 mm from the wall.
- **Post-mounted signs:** Located at least 2000mm above floor level.

For the location and positioning of signs requiring long-range viewing, the BfE recommends the following:

- **Directional or identification signs:** In large spaces, and where visibility of signs may be obscured by crowds, the height should be greater than 2300mm.

Signage Colour, Contrast and Surface Finish

Consistent visuals for each and all categories of signage is the first issue to be considered in terms of signage colour. As discussed previously, research shows that people with Alzheimer's find it more difficult to distinguish between certain parts of the colour spectrum such as blue and green, compared to hues such as yellow and red. It has also been reported that colour schemes that mix hues from opposite sides of the colour wheel, such as the combination of red and green, or yellow and blue, can cause difficulties for people with dementia as these appear muddy, and therefore these combinations should be used with caution.

It is also critical to consider that the contrast between the signboard and the colour of the text is determined by the LRV of each colour. As described earlier, LRV is measured between 0 and 100, where a high LRV results in a bright colour, while a low LRV results in a darker colour. For signage to be legible there must be an LRV contrast of at least 70% between the text and the background colour (e.g. there is an 88% LRV differential between a white background and royal blue text).

Finally, the finish to the signage should be non-glossy or non-reflective as this can cause difficulties and confusion for many older people, those with visual impairments, or people with dementia.

Signage Font-Typeface and Size

Sans serif display typefaces such as Arial or Futura are considered highly legible. Letter size on signage is determined by the appropriate viewing distance which can be determined on site. The BfE provides the following guidance:

Viewing distance of 6000mm requires a letter height of 200mm. At 4600mm the letter height must be 150mm; 2500mm requires 100mm; 1500mm requires 50mm; while 750mm requires 25mm.

Lastly, capitalize the first letter of names and locations with all other letters lower-case.

Terminology & Language

Wayfinding should use recognisable terms and language that is easily understood. Some successful Irish hospital wayfinding strategies have opted for very straightforward terms such as Bone Health, Memory Clinic and Falls. Once agreed this terminology should be consistently used in all areas and categories of signage (i.e. Information signs; Directional signs; Identification signs; Mandatory signs).

Symbols

The use of simple easily understood language and terminology will be reinforced by clearly associated symbols or icons. This provides another navigation cue that strengthens the overall wayfinding approach.



17 Various symbols developed for the MISA building, St. James’s Hospital, Dublin.

Photo Design Features

- Simple and intuitive symbols for key departments and wards within the building.

Labelling

On a less formal basis, the use of labelling, images, pictograms and other graphics can help identify key spaces and objects. While this may be applied on a more ad-hoc basis, they should follow the approach set out above.

Maintenance

Once signage is in place it is important to keep it unobstructed and free from adjacent visual clutter.

Note: All signage designed in accordance with the HSE Signage Manual are suitable for the visually impaired. In some facilities, it may be necessary and useful to provide signs in Braille and tactile format; these can be provided as separate signs or incorporated in the designs of the standard signs. The latter is recommended as it reduces the number of signs and avoids visual clutter.

UD Dementia Friendly Design Guidance

- Where possible, use multiple modes of communication, including both written and pictorial, and multi-sensory cues such as sound, touch and smell to reinforce wayfinding and legibility.
- Ensure that the format and style used for any signage and labels would be familiar to people with dementia.
- Ensure all signage and labels use clear and large font, and images where the font colour or image contrasts with the background colour.
- Use matt or satin finishes for all signage and labelling to avoid glare. Ensure they are very well lit without causing excessive shine or reflection.
- Capitalize the first letter of names and locations with all other letters lowercase.
- Ensure consistent and easy to understand language and terminology on signage.



Section 7

Technology



The hospital is an extremely complex setting in terms of technology and consideration must be given to the integration of multiple layers of building related technology, diagnostic and treatment equipment, and Information and Communication Technology (ICT). Technology plays a key role, not only the care process for staff, but also in providing communication and entertainment systems for patients, family members, and visitors. Technology across the spectrum is important, from the optimal use of lighting, heating and ventilation, to the provision of assistive technologies to support patients, family members and staff.

Cathy is an ED nurse. The hospital recently retrofit an ED bay to make it dementia friendly, including ambient lighting. She has noticed that when she has a distressed patient, this ED bay is helpful in creating a calmer environment thereby reducing the environmental stress that is typically associated with the ED. The ED bay has also been designed to make better use of the space, including seating to allow family members to stay with the patient while they are in the ED.



Technology

Overall Design Issues

The hospital is an extremely complex setting in terms of technology which consists of multiple layers of building related technology, diagnostic and treatment equipment, and Information and Communication Technology (ICT). However, for the purposes of these guidelines, we are focusing firstly on technology for therapy and patient safety, and secondly on assistive technology and ICT in general.

It is important for those designing technologies for patients, including patients with dementia, to have in-depth knowledge about the issues that face users when they interact with a technology but also how they might react to potential solutions. In this context, it is vital to engage with patients, family members, and staff regarding the design and installation of technology.

When considering **technology**, it is also important to think about all Key Design Issues:



Engagement and participation

1. Promote engagement with friends and family, staff and community.
2. Provide space and supports for accompanying persons.
3. Promote a participatory design approach.



Provide a people-centred environment

4. Soften the institutional environment.
5. Familiar or recognizable design that is easily understood and intuitive.
6. Facilitate personalisation and opportunities to add personal belongings.



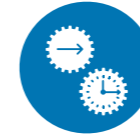
Support patient safety and health

7. Provide a safe environment through unobtrusive safety measures.
8. Support diet, nutrition and hydration.
9. Support meaningful physical and social activities including ADLs.



Balance sensory stimulation

10. Optimise positive sensory stimulation and minimize negative stimulation.
11. Provide indoor and outdoor contact with nature, and access to the outdoors.



Support orientation and navigation

12. Support orientation to date, time, location, and improve spatial cognition.
13. Provide good way-finding that supports navigation.
14. Provide good visibility and visual access.



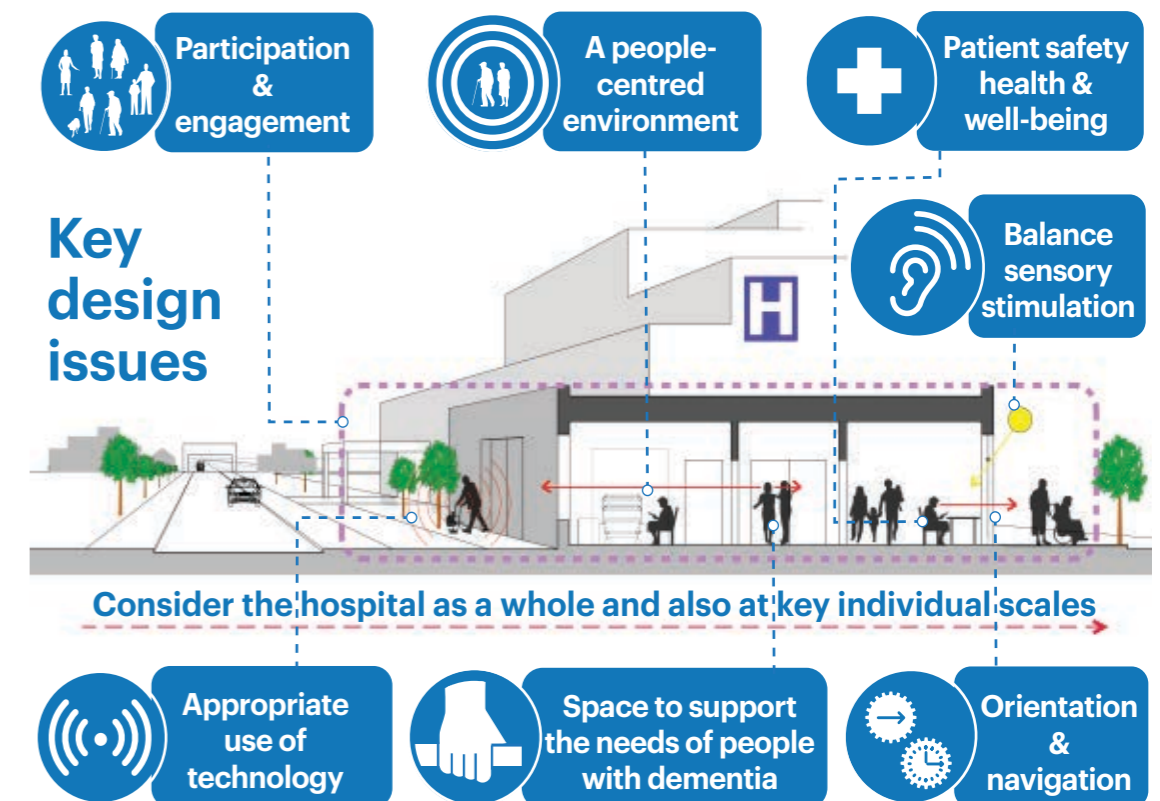
Adequate space to support the needs of a person with dementia

15. Bays or single rooms with space for personal belongings and visitors.
16. Retreat spaces in multi-bed wards or communal areas in single-bed wards.
17. Provide space and supports for patient mobilisation and activities.



Appropriate use of technology

18. Appropriate use of technology for care delivery, safety, therapy, communication, and entertainment.



7.1

Therapeutic and Patient Safety Technology



01 ED bay showing different ambient light settings, St James's Hospital, Dublin, Ireland.

Photo Design Features

- Adjustable ambient lighting that can be set according to patient needs. The images above show the ED bay with different lighting colour temperature.
- Seating for accompanying person or family member to stay with the patient.
- Choice of fold-up chairs allows for more space when chairs not in use.

Design Considerations and Awareness

Therapeutic Technology

An important use of technology in the hospital relates to multi-sensory stimulation and the creation of calming environments. The 'Snoezelen' room is an example of this, where multi-sensory stimulation is achieved through visual effects using water columns, fibre-optic cables, mirror balls, screen projectors, video, interactive projecting systems; sound effects through musical selections; tactile stimulation using vibrating water beds, and olfactory stimulation using aromatherapy equipment. While Snoezelen rooms and similar

therapeutic multi-sensory spaces are more commonly found in long-term residential care, they have also been successfully used in the acute setting, particularly in dedicated age-related or dementia specific wards.

Lighting technology is another feature that has been trialled in some hospitals. In the busy ED environment where negative sensory overload can be a problem, adjustable ambient lighting within ED bays represents a therapeutic technology that can alleviate an austere and overtly clinical setting. Also by changing the lighting colour temperature, this can create either a calming, restful, or stimulating lighting environment, as required (See Figure 01 above. Figure 02 illustrates the control panel and rationale behind such technology).



02 Lighting control panel (left) and lighting information (right) fixed adjacent to control panel. ED bay, St James's Hospital, Dublin, Ireland

Photo Design Features

- Lighting control panel (left) with intuitive controls.
- Lighting information panel (right) providing clear information about the impact of different lighting conditions.

Safety Technology

One of the main applications of technology for people with dementia relates to patient safety, and in this regard, there is a range of assistive technology systems including: ambient assisted living; infrared fall detection devices; pull-cord emergency call unit; monitoring equipment (i.e. bracelets for patients to alert a staff member when designated patients leave the ward); movement sensors or bed pressure mats that turn lights on

automatically at night when a person needs to get up and use the toilet.



03 Monitoring technology and patient bracelet to alert a staff member when certain patients leave the ward.

Photo Design Features

- While there is much debate about the use of monitoring and 'exit alert' technology, such systems may allow ward doors to remain open or unlocked.

Note:

Beyond technology specifically used for patient safety or sensory stimulation, healthcare technology is always evolving, such as robotic telepresence, where remote controlled mobile robotic devices allow doctors to interact with other staff or patients from a distance. While this may be beneficial and effective in terms of delivering medical care, it is worth considering how such technology will be perceived by a person with dementia based on the various cognitive impairments they may be experiencing.

UD Dementia Friendly Design Guidance

- Ensure building structure and materials facilitate WiFi technologies.
- For inpatient beds consider the following technologies: infrared fall detection devices; pull-cord emergency call unit; movement sensors or bed pressure mats that turn lights on automatically at night if a person needs to use the bathroom or move about.

7.2 Assistive Technology and ICT



04 Digital clocks showing time of day and tablet for personal entertainment and communication.

Photo Design Features

- Digital clocks for orientating a person to time of day, and day of the week.
- Personal technology, such as an tablet for entertainment and/or to facilitate communication.

Design Considerations and Awareness

Assistive Technology

Assistive technology (AT) can be defined as products, equipment or systems aimed at supporting an older person or a person with a disability to undertake tasks they would otherwise find difficult or impossible. AT is also designed to help staff and accompanying persons support a patient.

Many hospitals will use ceiling or wall mounted mechanical hoists for patient lifting, or transfer to toilets or baths. While low-low beds, or low-level beds that can be lowered to the ground, are sometimes used when there is a concern that patients may fall or climb

out of their bed and hurt themselves. Like a standard profiling bed these beds can be adjusted to as low as 23cm from the ground. The appropriate use of side rails to the bed, or floor safety mats also offer some protection in this regard.

In the context of electronic equipment or systems, AT can range from a large button mobile phone, or photo ID phone, to more complex in-room smart technology. For instance, Environmental Control Units (ECUs) can be used within an inpatient room to allow the patient or accompanying person to control various items such as the lights or TV. They can also be linked to window, or curtain openers, and therefore enable a person who is frail or is living with mobility difficulty to independently control their environment.

Ambient Assisted Living (AAL)

AAL has a health and well-being focus and refers to embedded ICT to create more intelligent environments to provide assistance, monitoring and care for everyday living for older people. While AAL is typically focuses on enabling ICT in the home environment, there are also applications that can be considered in the acute settings.

Digital day clocks are a simple example of effective AAL technology that can be beneficial in orienting a person about the time of day, day of the week, or the month. An Enuresis Sensor placed in a bed and connected to a staff monitoring system might be used to support a person with dementia who may be incontinent. An Enuresis Sensor detects moisture in the bed and alerts the relevant staff member.

The various assistive technologies described herein are some examples of a wide range of assistive technologies which are increasingly being used as part of an integrated approach to support people with dementia. However, as stated previously, it is important that technology is introduced ethically, so that the rights and preferences of people with dementia are respected. Technology should never be used as a substitute for human care, but rather should be used to complement personal care services.

General ICT and entertainment

The use of tablets, including the use of headphones can help with entertainment and communication. With this in mind, it is important to ensure high-quality WIFI connection is available throughout the hospital. Furthermore, it is important to encourage patients to bring their ICTs to the hospital, rather to expect the hospital to supply them.

Automated check-in

Technology can be used to facilitate ease of checking in to appointments in OPD through the use of automated check-ins. Where they are used, ensure they are usable and accessible. However, it is important to recognize that the automated check-ins may present difficulties for an older person, a person with a mild cognitive impairment, as well as non-native English speakers. In certain instances, make sure there is a by-pass procedure, one that allows patients and accompanying persons to check-in in person at reception (i.e. the practice in some OPD Age-Related Health Clinics is to allow patients to check-in directly with reception).

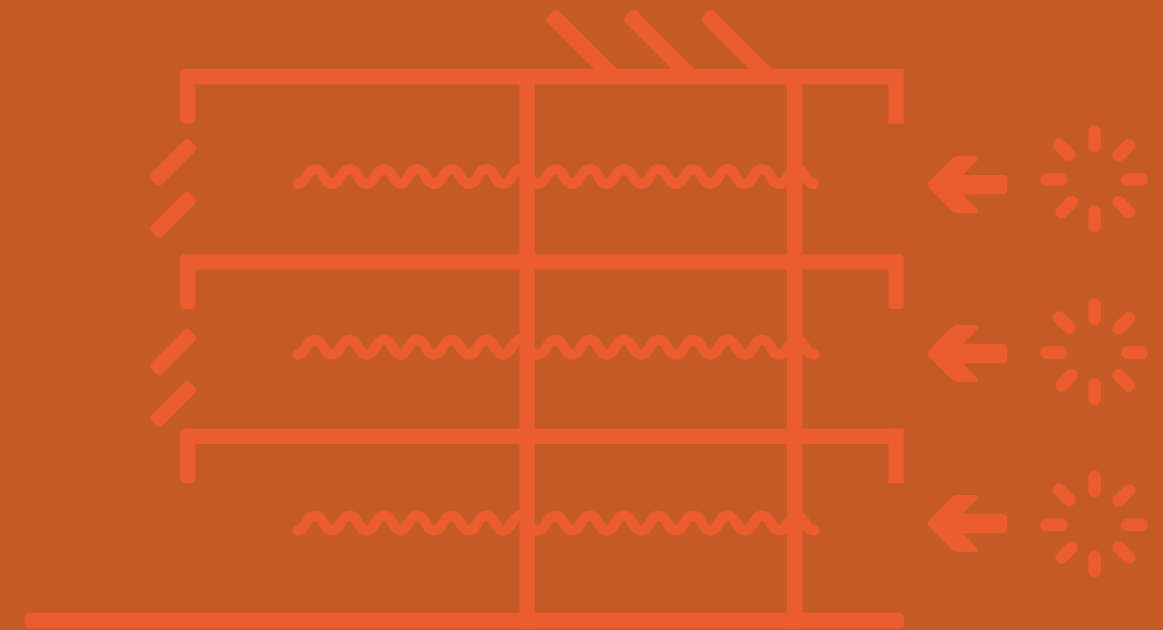
UD Dementia Friendly Design Guidance

- Ensure the building structure and materials facilitate WiFi technologies.
- Where permissible, allow a patient to bring and use technologies (such as smart phones and tablets) while in hospital.
- Provide headphones to facilitate the use of personal technologies (in order to reduce noise, especially in multi-bed wards).
- Facilitate ease of checking in to hospital appointments in OPD through the use of automated check-ins. Where they are used, ensure they are usable and accessible. Furthermore, in certain instances, make sure there is a by-pass procedure, one that allows patients and accompanying persons to check-in in person at reception of the clinic they are attending.



Section 8

Internal Environment



Multi-sensory stimulation within a building is an important part of how we experience the built environment. This has added significance for people living with dementia who may experience altered perception and acute sensitivity to environmental stimulus as part of the condition. Therefore, when designing for people with dementia who are often more sensitive to their environment, and yet at the same time have a greater reliance on all their senses in terms of navigation or orientation, the design of the internal environment is critical to dementia friendly design.

Trevor, 67, is currently in a 6-bedded ward, recovering from appendicitis. There are good levels of natural light in the ward, and he really likes looking out to the courtyard garden. Natural ventilation through the windows allow the air and temperature to be regulated, which has helped with Trevor's thermal comfort, as he tends to find spaces a bit stuffy and hot.



Internal Environment Overall Design Issues

For the purposes of these guidelines, we are focusing on four basic environmental factors that affect how people perceive their environment, and in turn how this environment impacts on their health and well-being. These include:

- Visual or lighting quality (view, illuminance, reflection, etc.);
- Thermal comfort or indoor climate (temperature, moisture, air velocity etc.);
- Indoor air quality (odour, fresh air, air pollution, etc.); and,
- Acoustical quality (indoor and outdoor noise, vibrations, etc.).

Multi-sensory perception has additional significance for people living with dementia who may experience altered perception and acute sensitivity to environmental stimulus. Therefore, when designing for people with dementia who are often more sensitive to their environment, and yet at the same time have a greater reliance on all their senses in terms of navigation or orientation, the design of the internal environment is critical to dementia friendly design.

When considering **internal environment**, it is important to think about all key Design Issues:



Engagement and participation

1. Promote engagement with friends and family, staff and community.
2. Provide space and supports for accompanying persons.
3. Promote a participatory design approach.



Provide a people-centred environment

4. Soften the institutional environment.
5. Familiar or recognizable design that is easily understood and intuitive.
6. Facilitate personalisation and opportunities to add personal belongings.



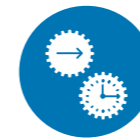
Support patient safety and health

7. Provide a safe environment through unobtrusive safety measures.
8. Support diet, nutrition and hydration.
9. Support meaningful physical and social activities including ADLs.



Balance sensory stimulation

10. Optimise positive sensory stimulation and minimize negative stimulation.
11. Provide indoor and outdoor contact with nature, and access to the outdoors.



Support orientation and navigation

12. Support orientation to date, time, location, and improve spatial cognition.
13. Provide good way-finding that supports navigation.
14. Provide good visibility and visual access.



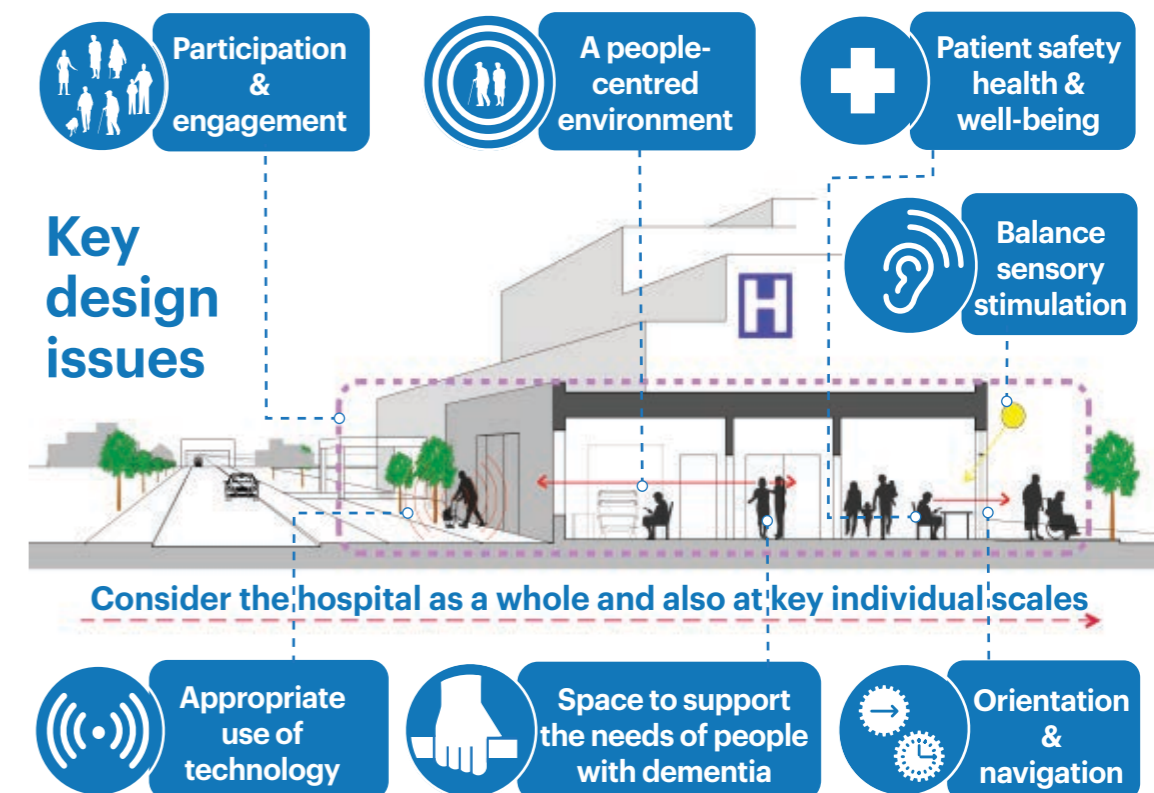
Adequate space to support the needs of a person with dementia

15. Bays or single rooms with space for personal belongings and visitors.
16. Retreat spaces in multi-bed wards or communal areas in single-bed wards.
17. Provide space and supports for patient mobilisation and activities.



Appropriate use of technology

18. Appropriate use of technology for care delivery, safety, and therapy, communication, and entertainment.



8.1 Natural and Artificial Light



01 Natural lighting in corridor, MISA building, St. James's Hospital, Dublin, Ireland.

Photo Design Features

- Good lighting along corridor provides good visual access and visibility.
- Views to the exterior help with orientation.
- Good colour contrast between floor and walls.

Design Considerations and Awareness

Well-designed natural and artificial lighting is important for people with dementia, for older people, and for people with visual difficulties. Good lighting can help with task visibility, place recognition, and raise awareness of hazards through increased visibility. Proper lighting design can also play a role in reducing sleep disturbances and thus reduce certain challenging behaviours, such as restlessness.

The following sections briefly discuss some of the key issues around natural and artificial lighting in the UD dementia friendly hospital.

Natural and Artificial Light:

Compensating for Deterioration in Vision

People with dementia and older people will often experience visual difficulties and therefore will benefit from higher levels of lighting. Higher levels of natural light can be achieved through correct orientation, window location and window sizing. Careful design of curtains or blinds, along with reduced clutter on window sills, will maximise the available light entering through the window.

Ensuring there are sufficient light fittings or simply changing existing light bulbs to a higher wattage will increase artificial light levels (Ensure that the bulb does not exceed the light fitting rating as set by manufacturer).

Natural and Artificial Light:

Provide Evenly Distributed Illumination

Visual adaptation times from dark conditions to light, or from light to dark, increases with a person's age. Therefore, for older people, or people with dementia, uneven lighting can cause the following problems:

- Poorly lit rooms with a combination of brighter and darker areas can cause problems for people with light adaptation difficulties.
- Uneven light may create shadows and uncontrolled glare and reflections. This uneven lighting will impact on visual comfort, and visual access, and may create unsafe transition areas or act as hazards.
- Therefore, evenly distributed illumination within a hospital is important and in some cases it may be necessary to supplement daylight with artificial lighting to achieve the right conditions.

Any approach to uniform illumination must consider that the quality of light and how it is perceived is a very subtle and subjective issue which has many perceptual and psychological impacts. Overly uniform illumination minimises illuminance differences between surfaces and can reduce clues to the form of the room and hinder orientation. Indeed, a change in lighting levels can help residents to distinguish between various spaces. Light in itself can attract people, thus light and shade can be used positively to attract people in certain directions or to certain spaces.



02 Waiting area, Navan Road, Primary Health Centre, Navan Road, Dublin, Ireland.

Photo Design Features

- High levels of artificial lighting provide good visibility.
- Artificial lighting behind reception desk improves legibility.

**Natural and Artificial Light:
Enhancing Task Visibility**

While it is generally recommended that lighting levels should be uniform throughout the building, directed task lighting may be useful for people with dementia. For example, additional light sources in closets and cupboards will increase task visibility.

Extra and directional lighting may also be needed to view any cueing system, which may also include the use of coloured walls, objects or signage. It may also be used to accentuate stairs and handrails, so that people can move with confidence.

Dedicated lighting over counter tops in family or day rooms, or in bathrooms will also help with activities in these areas. Good lighting will make a difference to accompanying persons and visitors who may also have some visual difficulties. Consider also how lighting can be used to create a sense of place, and when combined with planting, graphics, or artwork, it can help with orientation and navigation.



03 Artificial lighting to lift and signage in MISA building, St. James's Hospital, Dublin.

Photo Design Features

- Lighting places a focus the signage and increases visibility

**Natural and Artificial Light:
Reducing Effects of Glare**

Direct natural light from windows or artificial light can cause glare, which tends to become more problematic with age. Glare can generally be divided into two types: (i) discomfort glare; and, (ii) disability glare. Discomfort glare results in an instinctive desire to look away from a bright light source. Disability glare makes it difficult to see an object or to carry out a task without causing discomfort.

Thus, windows should have a means of reducing excessive glare and excluding low-elevation sunlight, such as blinds, curtains, awnings, solar reflective glass, or external solar shading devices.

The positioning of artificial lights should be given proper consideration. For instance, lights at eye level can cause glare and therefore indirect sources of light are recommended. Sources of direct light within a person's field of view should be of low luminance, while free standing reading lights can be used to great effect in a room, this should not contain anything brighter than a 40W light bulb.

Natural and Artificial Light:

Reducing Sleep Disturbances & Providing a Therapeutic Environment

As light plays a role in controlling important biochemical processes and balancing circadian rhythms (i.e. the human body clock), the use of lighting appears to be a promising approach in attempts at re-balancing circadian rhythms. There is good evidence from research that increasing levels of lighting (beyond that considered as normal) in the environment where people with dementia spend a lot of time, can improve sleep patterns and can reduce restlessness at night.

High intensity light with a blueish tint has been shown to improve circadian rhythms in older people; it may positively influence restless behaviour, delay cognitive decline and decrease feelings of depression.

On the other hand, high levels of lighting at night is an issue for persons with dementia as it has an impact on their ability to distinguish different times of day, and the activities associated with day-time light (awake, active) and night-time light (sleeping).

A balance is required between visibility and visual access, and the need for time-of-day orientation expressed through different lighting levels. A layered lighting strategy with better artificial lighting control and personalised bed-side lighting will help with this.



04 Circulation, and social areas in Phoenix Care Centre, Grangegorman, Dublin 7, Ireland.

Photo Design Features

- Bright and spacious circulation and social areas with direct views to courtyard.
- Good combination of natural and artificial light to create even illumination.
- Good colour and tone contrast between the floors and the walls.

UD Dementia Friendly Design Guidance

- Fit higher wattage bulbs in light fixtures to create higher levels of artificial light (e.g. if a light fitting currently has a 60W bulb and a person finds it hard to see in that room, replace the bulb with a 100W bulb). Do not exceed ratings as set by light fixture manufacturer.
- Ensure window dressings, ornaments or other objects are not blocking natural light coming through the windows in inpatient wards, day rooms, and other key spaces.
- Ensure windows are orientated and sized correctly to maximise daylight and minimise excessive solar glare.
- Provide evenly distributed illumination throughout a hospital to reduce visual adaptation difficulties, and minimise shadows or glare. This can be achieved through careful window design, the installation of sufficient ceiling mounted light fixtures, and the use of wall mounted light fixtures where required.
- Notwithstanding the above, consider how carefully designed variation in light levels can be used to highlight certain features, or draw people towards certain spaces or an exit door leading to a safe garden area.
- Provide ceiling, wall-mounted, or under-cabinet spot lights or strip lights, or plug-in lamps to provide task lighting in areas such as washrooms, toilet facilities in inpatient wards, and day rooms.
- In line with the above, consider lighting within wardrobes or other storage areas to help draw a person's attention to these areas and help to identify and find various items.
- Consider how window dressing, such as blinds, external solar shading devices, solar reflectance glass or anti-glare window film, can help reduce glare within a hospital.
- Ensure careful placement of light fixtures or plug-in lamps to avoid glare from artificial lighting.

8.2 Heating and Ventilation



05 Inpatient ward, Peamount Healthcare, Newcastle Co. Dublin, Ireland.

Photo Design Features

- Natural ventilation provided through easily operated openable windows provides a combination of high and low-level ventilation.
- Good access to natural light, views and direct access to outdoors.
- High performance radiators.

8.2.1 Thermal Comfort and Heating Systems

Design Considerations and Awareness

People with dementia can be more sensitive to thermal conditions. This may be caused by perceptual issues, where a person with dementia may have a different understanding of the temperature in a room, compared to other occupants. Furthermore, a person with dementia may not realise that the room is too hot or too cold, or damp, or that there is a draught coming in from under the door - they may simply feel uncomfortable. Sometimes this discomfort is expressed through behaviour such as: attempting to leave the room; becoming agitated; undressing; or alternatively, trying to put on inappropriate clothing.

Diminished understanding of environmental surroundings or the cognitive difficulties associated with dementia may have other implications for heating such as: difficulties in judging the temperature of hot radiators or hot water pipes; an inability to operate heating or ventilation controls; or a tendency to adjust controls when this may not be necessary.

Efficient and responsive heating are critical to a UD dementia friendly hospital and these can be designed as part of an integrated approach.

UD Dementia Friendly Design Guidance

- Create even temperatures within the overall ward by using consistent levels of thermal insulation on all parts of the building envelope, and by adopting appropriate window treatment to reduce overheating in summer or heat loss in winter.
- Utilise, or provide thermal mass within the building to reduce temperature fluctuations and maintain more consistent temperatures throughout the highs and lows of the winter and summer months
- Ensure high levels of building envelope airtightness to minimise draughts and the associated discomfort experienced by people with dementia.
- Consider smart heating controls that work in conjunction with internal and external temperature sensors and automatically control the heating based on a pre-set thermal comfort range.

8.2.2 Indoor Air Quality and Ventilation System

Design Considerations and Awareness

Ventilation is used for both cooling and for maintaining a healthy indoor climate. It introduces fresh air and removes pollutants and moisture. Natural ventilation provided by stack ventilation, or cross ventilation achieved by vents or openable windows (located at opposite sides of the building), can be used to create air movement to ventilate and cool.

However, air movement can be a problem if it is perceived as an uncomfortable draught, or if is strong enough to cause curtains to move, or other light objects to move, which could be disconcerting if a person does not understand why. Mechanical ventilation can be useful in all bathrooms, and can be of great benefit to a person with dementia and staff, as a steam-filled room can be stressful for a person with dementia.

Caution is needed though in relation to the use of noisy fans for ventilation as this can cause distress. Fans that are activated automatically when the light is switched on can be distressing and confusing for a person with dementia, as they may not understand how the fan was activated.

UD Dementia Friendly Design Guidance

- In terms of natural cooling and ventilation, consider how stack ventilation or cross ventilation can be incorporated into the hospital. However, care must be taken not to create air movement that could be perceived as a draught or cause lightweight objects to move.
- Where mechanical heat recovery ventilation (MHRV) systems, or similar heating, ventilation and air conditioning (HVAC) systems are used, ensure that the fans associated with these systems do not create excessive noise or draughts. This can be a problem in the quiet of the night, and may compound any sleep disturbance issues.
- In new-build situations consider radiant slab cooling which provides a stable internal environment and reduces thermal discomfort by minimising temperature differences and reducing draughts.
- Alternative ventilation options should be considered including high and low-level opening window sections. These should be considered in addition to trickle ventilation. For cleaning purposes, purge ventilation should also be considered.
- Ensure high levels of ventilation and extraction from bathrooms where steam can be problematic for people with dementia. Care must be taken around automatic extractor fans in bathrooms, where such operation may cause stress or disorientation for a person with dementia.

8.3 Acoustic Qualities and Sound



06 Hospital Street, Tallaght hospital, Dublin 24, Ireland.

Photo Design Features

- High levels of activity on hospital street can create a noisy environment .

Photo Design Tip

- Separating public and patient flows from services will help create a calmer environment.
- Use of durable finishes and hard surfaces within key circulation areas will contribute to noise, sound reflection, and increased reverberation. Therefore consider using sound absorbing materials to help dampen noise.

Design Considerations and Awareness

Good acoustics are a key element when designing for people with dementia. The basic principle for creating good acoustic environments is to increase sound - help a person with dementia hear important things; and at the same time reduce noise. It is not only about blocking things out, it is also about ensuring that a person can hear pleasant and stimulating sounds.

In general, the hospital can be a noisy place, with areas such as ED being perceived as particularly noisy space, especially at peak operation. Inpatient wards, especially shared 6-bedded wards, are also prone to high levels of noise, especially during medical rounds, mealtimes, and visitor hours.

The importance of a good acoustic environment cannot be over emphasised in the design of UD dementia friendly hospitals.

Location of Key Spaces to Provide a Peaceful and Calm Environment

Careful consideration should be given to the layout of spaces to ensure that areas requiring quiet and calm are not located adjacent to noisy or extremely active spaces.

Acoustic Environment

Careful consideration must be given to the acoustic environment within the hospital. Balanced sound absorption and reverberation is important, particularly in areas of high traffic and activity such as circulation areas, and clinical areas such as the ED.

Acoustic Separation and Insulation

This issue of noise transmission between spaces needs to be carefully treated and attention should be paid to sound insulation in separating walls, floors or staircases. Spaces close to sources of external environmental noise such as onsite hospital activities or offsite activities from roads or railway lines must also be carefully designed.

Sources of internal and external noise generated by fans or equipment must also be addressed.

UD Dementia Friendly Design Guidance

- Create spaces that reflect a peaceful environment away from sources of external noise and closer to sources of pleasant sounds such as bird life in a garden. This is of particular importance for a bedroom where sleep disturbance may already be an issue.
- Acoustic separation should exceed the current building regulations (Part E - Sound) by up to 5 decibels (dB), it may also be appropriate to aim for a higher performance if noise is a real issue.
- Provide sound insulation to internal mechanical or electrical equipment such as lifts or water circulation pumps.
- Choose mechanical, electrical and plumbing systems, plant and internal equipment with low noise emissions.
- Ensure windows facing onto public roads provide good acoustic separation particularly in urban areas or adjacent to busy roads.
- Use external planting or screens to reduce the transmission of noise from adjacent areas, such as roads, to the site.
- Provide absorbing materials to create a balanced acoustic environment within the hospital.



Part C: References & Appendices



Appendix A

Stakeholder Engagement Process

These Guidelines are underpinned by in-depth research and supported by an extensive engagement process with key stakeholders. Some key highlights of the stakeholder engagement process include:

- +250-person hours on-site building analysis in the following hospitals: Tallaght, Peamount, and Naas.
- Building Analysis: 60 interviews, 138 questionnaires returned from the three hospital sites.
- Visits to Genio sites (and interviews with staff in James’s Hospital (Dublin), Connolly Hospital (Dublin), and Mercy University Hospital (Cork))
- Facilities/Estates Management + Technical Services Department Survey – 12 returned
- Ad hoc interviews: 10 interviews
- Stakeholder Workshop: 30 participants
- Extensive review of international hospital best practice

This stakeholder engagement process is outlined in detail in the Research Report Dementia Friendly Hospital Design from a Universal Design Approach - Key Research Findings Report 2018.

Appendix B

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Appendix C

Key Terminology

Accessible

With respect to buildings, or parts of buildings, means that people, regardless of age, size, ability or disability, are able to both access and use the building and its facilities.

Acoustics

Characteristics relating to sound.

Activities of Daily Living (ADL)

Typical domestic activities such as washing, dressing etc.

Acute Care Hospital

Hospitals delivering various emergency, diagnosis, and treatment services to a wide range of in-patients and out-patients. Also referred to as acute hospitals, or general hospitals.

Alzheimer's disease

Alzheimer's disease- named after the Bavarian doctor who first described it (Alois Alzheimer), in a 51 year old woman, this is an organic illness that affects the brain. There are 48,000 people in Ireland with dementia and most of these people have Alzheimer's disease. During the course of the disease, proteins build up in the brain to form structures called 'plaques' and 'tangles'. This leads to the loss of connections between nerve cells, and eventually to the death of nerve cells and loss of brain tissue. People with Alzheimer's also have a shortage of some important chemicals in their brain.

Ambient Assisted Living (AAL)

Ambient Assisted Living (AAL) centres on information and communication technology (ICT) enabling older people to live at home independently.

Apraxia

Apraxia is an acquired disorder of motor planning, despite intact motor coordination. It is not caused by incoordination, sensory loss, or failure to comprehend simple commands but rather by damage to specific areas of the cerebrum in the brain.

Assistive Technologies

Technological devices (equipment or systems) that are used to increase, maintain, or improve functional capabilities of individuals.

Atrium

Large internal open space extending through all floors of the building.

Biophilia and Biophilic Design

Biophilia describes our innate affinity and reliance on nature and other living organisms for our overall wellbeing. In this context, Biophilic Design is the design of the built environment to incorporate nature in a way that helps people connect and relate to nature and natural processes.

Bathroom

A room comprising a bath, WC, washbasin, and associated accessories.

Campus

A site or grounds with a collection of mostly detached buildings which share a common purpose.

Cardiovascular

Cardiovascular disease includes ischemic heart disease (heart attacks) and blood vessel disease such as strokes. A heart attack occurs when the blood flow to part of the heart gets blocked and similarly a stroke occurs when the blood vessel that feeds the brain gets blocked.

CAT6

A data communication cable standard for Gigabit Ethernet cable.

Circulation

External or internal spaces to allow a person move from one place to another (i.e. External pathways or internal corridors).

Challenging Behaviours

Sometimes known as “behavioural and psychological symptoms” of dementia. A person with dementia may exhibit one or more of these challenging behaviours during the course of the illness. Challenging behaviours include agitation, aggression, wandering, sleep disturbance, inappropriate eating, inappropriate sexual behaviour, delusions, hallucinations, paranoia, depression, anxiety and misidentification.

Clear Width

The clearance width between walls, door frames, or handrails.

Cognitive Impairment

A cognitive decline greater than that expected for a person’s age and education level.

Concourse

A large open space, within or outside a building, that provides a social/gathering space or circulation space, for large numbers of people.

Crime Prevention Through Environmental Design (CPTED)

Crime Prevention Through Environmental Design’ (CPTED) urban design and architectural approach aims to promote environmental design and management practices that create safer places for inhabitants and discourage criminal activity by increasing passive security and by making targets such as property less attractive for criminals. By designing out spaces that make people feel insecure or vulnerable, the CPTED is concerned with reducing fear of crime.

Day Hospital

Part of a hospital where patients attend for a full day (typically 9:00 to 16:30) or a large part thereof, to receive treatment or rehabilitation. Many day hospitals provide specific healthcare services for older people.

Day Room

Also known as patient lounge, family room; a communal room within the ward that is used by patients, family and visitors to the hospital.

Decibels

Decibels (dBs) are the units used to measure sound intensity.

Dementia

Global or umbrella term used to describe a group of diseases that have common symptoms but different causes. Symptoms include impaired memory, language, ability to communicate, mood and personality. By far the most common type of dementia is Alzheimer’s disease.

Department type:

■ **Emergency Department (ED)**

Emergency Department, also known as Accident and Emergency (A&E) and previously known as the Casualty Department

■ **Acute Medical Units (AMU)**

Units within a hospital that treat acutely unwell patients referred by a GP or arriving from the ED.

■ **Cardiology**

Department focusing on heart related diseases, conditions and treatments.

■ **Geriatric Department**

Department dedicated to geriatric medicine and therefore focusing on the health and medical treatment of older people.

■ **Haematology**

Department dedicated to blood diseases, conditions and treatment.

■ **Intensive Care Units (ICU)**

A unit in a hospital for treating seriously ill patients, often following surgery or those who are critical ill.

- **Nephrology**
Department focusing on kidney or renal related diseases, conditions and treatments.
- **Oncology**
Department focusing on treatment of cancer, this may include medical, chemical or radiation oncology.
- **Outpatient Department (OPD)**
Department for treating patients by appointment, who at that point do not need to be admitted - Often in relation to an ongoing health issue or rehabilitation.
- **Psychiatric**
Department dedicated to the treatment of acute mental health illness and disorders.
- **Radiology**
Department dealing with including X-Ray, CT Scans.

Designated car parking

Car parking spaces reserved for the use of car users with disabilities, whether as motorists or passengers.

Discharge lounge

A lounge within or close to an inpatient ward, where a patient can wait after being discharged from the ward. The discharge lounge provides a space where hospital staff can liaise with the patient after discharge, or provide a pick-up point for the patient to be collected if required.

Door-and-a-half or ‘Cat and Kitten’ doors

A large door opening fitted with one full size door and one half size door. When both are open it gives extra wide clearance area that allows wide objects to pass through.

Door Ironmongery

A collective term for components including hinges, handles, locks and self-closing devices, which are used to facilitate the correct functioning of a door. May also be termed ‘architectural ironmongery’ or ‘door furniture’.

Dropped kerbs

A lowered section of kerb between a pavement and carriageway forming a level or flush crossing point. Also referred to as dished kerbs.

ED Triage

The room or space within the ED where hospital staff carry out the first patient assessment to determine their priority for admission or treatment.

En-suite bathrooms:

- **Inboard**
Where the en-suite is located between the room and the internal circulation areas (i.e. corridor).
- **Interstitial**
Located between 2 rooms, preserving the internal and external walls for glazing, but can result in extended circulation areas.
- **Outboard**
Where the en-suite is located along the external wall; this reduces the amount of glazing, but increases observation glazing from the circulation.

Enuresis Sensor

Detects moisture typically associated with bed-wetting.

Handrail

Component of stairs, steps or ramps that provides guidance and support at hand level.

Heating, Ventilation and Air Conditioning (HVAC)

Heating, Ventilation and Air Conditioning systems in a hospital

Hospital Street

Main organising and orientation strategy providing the primary public circulation route and link between the various hospital facilities.

Information and Communications Technology (ICT)

This includes a wide range of technologies such as computers, telecommunications, etc.

Inpatient Ward

Inpatient wards provide bed accommodation for patients. This may comprise of single-bed (private room) or multi-bed rooms which may have up to six beds.

Instrumental Activities of Daily Living (IADL)

Typical daily activities which involve a higher level of organisation than ADLs. These include shopping, paying bills, etc

Isolation Room

A single room within a ward to isolate a patient who may be at risk of either contacting or spreading infection (often referred to as Airborne Isolation Room)

Leading edge

The opening edge of a door adjacent to the handle.

Legible space

A place or space that is easily read, understood, or comprehended by a person within or moving through the space.

Matwell

Entrance Door Matting Systems set into a frame in the floor.

Mixed Dementia

Mixed dementia is a combination of Alzheimer’s disease and Vascular dementia. The diagnosis of mixed dementia is on the increase probably as a result of more refined technologies now used in the detection of dementia sub-types.

M2

Metres Squared.

Nosing

An edge part of the step tread at the top of the riser beneath in a flight of stairs.

Nurses Station

Central desk, ward reception, and control point for ward medical staff.

Parietal Lobes

The brain comprises many different lobes (frontal, temporal, occipital and parietal) each with particular functions. The parietal lobes are found in the cortex of the brain and are where information such as taste, temperature and touch are integrated or processed. The parietal lobes enable us negotiate our way in the three dimensional world in which we live. Humans would not be able to feel sensations of touch, if the parietal lobe was damaged.

Parkinson’s disease

Parkinson’s disease is a degenerative disorder of the central nervous system mainly affecting the motor system. The motor symptoms of Parkinson’s disease result from the death of dopamine generating cells. Early in the course of the disease, the most obvious symptoms are movement related; these include shaking rigidity slowness of movement and difficulty with walking and gait. Later, thinking and behavioural problems may arise. Dementia is very common in the more advanced and severe stages of the disease. Parkinson’s disease is more common in older people.

Participation and Collaboration

Where all key stakeholders (see below) are part of the planning and design process, in a structured and meaningful manner, to ensure their expert knowledge, experience or needs are factored into the process.

Passenger lift

A conventional motorised lift enclosed within a structural shaft and rising one or more storeys within a building. Lift and door movement is automatic.

Path

A pedestrian route that has no adjacent vehicle carriageway and includes paths in countryside locations as well as paths in urban and residential environments.

Patient Friendly Hospital

A hospital with a patient or person-centred approach where the delivery of healthcare prioritises the well-being of the patient as opposed to prioritising efficiency or cost.

Pavement

A pavement is the part of a roadway used by pedestrians and is adjacent to the vehicle carriageway.

Pavilion layout

A series of narrow hospital wards connected by a long corridor.

Person-centred care

Person-centred care ensures the patient/client is at the centre of everything you do with and for them. This means that you need to take account of their individual wishes and needs; their life circumstances and health choices.

PIR

A Passive Infrared (PIR) sensor-activated light fitting.

Placemaking

Placemaking is a people-centered approach to the planning, design and management of public and publicly accessible places such as streets, squares, parks, campuses, buildings, and other similar public spaces. It identifies the importance of ‘place’ and a ‘sense of place’ for human and community health and wellbeing. Placemaking is a process that carefully examines, among other local things, the social, cultural, ecological and physical attributes of a location. These attributes inform a process of improving or creating public places that support greater access, interaction, equality and equity, and more socially, and economically viable communities.

Public Realm

The public realm typically refers to public space in villages, towns and cities. It usually consists of streets, squares, parks and other open public spaces, but it also refers to public internal space such as markets, public museums, and large government buildings. For the purposes of these guidelines we refer to the external and internal connective public spaces in the hospital, as the Public Realm of the hospital..

Positive risk-taking

Positive Risk taking –refers to balancing the positive benefits gained from taking risks against the negative effects of attempting to avoid risk altogether. In dementia care, positive risk taking involves enabling the individual with dementia have some autonomy independence, dignity and choice whilst unobtrusively protecting that person from potentially hazardous situations.

Productive Ward

The Productive Ward is a self-directed programme made up of 13 modules, each of which provides tools and guidance to assist nurses in making the necessary changes to their ward environment and work processes.

Psycho-Social

Psycho-social environment refers to the culture, climate and ethos of the setting in which we live or where we work. The build environment in contrast refers to the actual architectural lay out of the setting. Examples of the psychosocial environment of a nursing home might include the ethos of care, respect for residents, quality of life, quality of care, and acknowledgement of employees' psychological well-being.

Ramp

An inclined plane 1:20 or steeper from the horizontal and intermediate landings that facilitate access from one level to another.

Retro-fit

Carrying out building works to an existing building.

Riser

The vertical portion between each tread on the stair.

Sanatorium

Hospital catering specifically to patients with Tuberculosis.

Setting-down point

A designated area close to a building entrance or other facility where passengers can alight from a car or taxi.

Shower room

A room comprising a shower, WC, washbasin, and associated accessories, such as en-suite facilities in residential accommodation.

Soffit

The underside of any construction element, the underside of a flight of stairs.

Stairlift

A device mounted on a support rail that follows the incline of a stair and incorporates either a seat with footrest (chairlift) or standing platform and perch (perching stairlift). Stairlifts are designed for domestic use only. Also termed chair stairlift and domestic stairlift.

Stakeholders

Any person or organisation that can affect, or can be affected by the development of a new hospital, or the extension or refurbishment of an existing hospital.

Strategic Planning

A strategic Plan assesses the current situation of an organisation, determines a vision or strategy for the future, identifies how this strategy will be implemented, and sets targets and goals for achieving the strategy.

Step nosing

The leading edge of a step or landing.

Street furniture

Items located in street and other pedestrian environments such as lamp posts, litter bins, signs, benches, and post boxes.

Tactile paving surface

A profiled paving or textured surface that provides guidance or warning to pedestrians with visual difficulties.

Telehealth

A system that uses the electronic exchange of personal health data from a person at home to medical staff at a hospital or similar site to assist in diagnosis and ongoing monitoring of the person's health condition.

Telecare

The use of various ICT to provide support and social care from a distance, supported by telecommunications, such as phone or video equipment.

Transom

A horizontal crosspiece in a window frame usually dividing the window into a top and bottom section.

Tread

The part of the stairway that is stepped on.

Urban Form

The layout, shape, height and design details of the built environment, including streets, roads, public space, buildings etc. in an urban area.

Vascular Dementia

Vascular dementia is caused by reduced blood supply to the brain due to diseased blood vessels and results in symptoms that can include memory loss and difficulties with thinking, problem-solving or language.

Ventilation Strips

Vents integrated into a window frame that are in the shape of a bar or strip, and that can be controlled by opening or closing the aperture within the vent to different extents.

Vision panel

A fixed, glazed panel set into a door that enables people to see through from one side of the door to the other. May also be termed 'viewing panel.'

Visual contrast

Colour and/or tonal contrast between surfaces and fixtures, designed to improve visual clarity.

Wainscoting

Panelling (usually timber) fixed to the lower part of an internal wall and usually carried up to approximately 1000mm above finished floor level

Wayfinding

A collective term describing features in a building or environment that facilitate orientation and navigation.

Wet room

A shower room in which the floor and walls are all waterproof. The shower area can be accessed without crossing a threshold or stepping into a shower tray.

Ward layout

The plan layout of a hospital ward usually determined by the circulation layout

Ward layout type:

- **Courtyard layout**

Hospital rooms arranged around an open courtyard. The circulation route may be doubled loaded with rooms facing out of the building and also into the courtyard, or where the circulation is directly adjacent to the courtyard.

- **Linear ward**

Ward layout with rooms typically organised in a straight line along a corridor. This may be single loaded (rooms on one side) or double loaded (rooms on two sides) and often finishes at a dead end.

- **Racetrack or deep ward**

Ward layout with continuous circulation containing patient accommodation or treatment rooms along the external section (with direct views and natural light); while the inner section is composed of service areas and staff areas or treatment rooms that do not require direct access to external windows.

Appendix D

Key Acronyms

AAL - Ambient Assisted Living

ADL - Activities of Daily Living

AMU - Acute Medical Unit

AT - Assistive Technology

BMS - Building Management System

CEUD - Centre for Excellence in Universal Design

CPTED - Crime Prevention through Environmental Design

ED - Emergency Department

ECU - Environmental Control Units

F,F&F - Furniture, Fixtures and Fittings

IADL - Instrumental Activities of Daily Living

ICT - Information and Communications Technologies

MHRV - Mechanical Heat Recovery Ventilation

NDA - National Disability Authority

OPD - Outpatient's Department

UD - Universal Design

UDHI - Universal Design Homes for Ireland

UFH - Under Floor Heating

Appendix E

Key Organisations involved in this project (websites)

Health Research Board (Funding) - www.hrb.ie

TrinityHaus Research Centre, Trinity College Dublin (Research Team and Steering Committee) - www.trinityhaus.tcd.ie

Tallaght Hospital (Research Team, Steering Committee, and case study site) - www.tallaghthospital.ie

The National Dementia Office (NDO) (Project support and Steering Committee) - www.understandtogether.ie/national-dementia-office

HBS Estates, Health Service Executive (HSE) (Project support and Steering Committee) - www.hse.ie/eng/about/who/healthbusinessservices/estates

Centre for Excellence in Universal Design at the National Disability Authority (Project support and Steering Committee) - www.universaldesign.ie

O'Connell Mahon Architects (Research Team and Steering Committee) - www.oconnellmahon.ie

Alzheimer Society of Ireland (Steering Committee) - www.alzheimer.ie

Irish Dementia Working Group (Steering Committee) - c/o www.alzheimer.ie

or www.dementiavoices.org.uk/group/irish-dementia-working-group/

Dementia Services Information and Development Centre (DSIDC) (Steering Committee and case study site) - www.dementia.ie

Connolly Hospital Blanchardstown (Steering Committee and case study site) www.hse.ie/eng/services/list/3/acutehospitals/hospitals/connolly/

Mercy University Hospital, Cork (Steering Committee case study site) - www.mu.h.ie

Peamount Healthcare (case study site) - www.peamount.ie

Naas General Hospital (Steering Committee and case study site) - www.naashospital.ie/



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