



DEMENTIA DESIGN SERIES

Improving the design of housing to assist people with dementia

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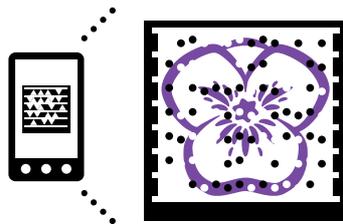
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Research and knowledge in the field of dementia care are constantly changing. As new information emerges, changes in how we support people with dementia become necessary. The authors and publishers have, as far as possible, taken care to ensure that the information given in this text is accurate and up to date at the time of publication. However, readers are strongly advised to confirm the information complies with current legislation and standards of practice.

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Introduction

Most people with dementia live in the community, initially with the help of relatives and friends, and latterly with support from health and social work. As a result, people with dementia live in all types of housing. The design of their house or apartment will mean that many people with dementia will struggle, which is why we published the popular booklet *10 helpful hints for dementia design at home*. This provides solutions for a lot of common design challenges and is mainly aimed at relatives and friends.



There has always been the need for a more substantial book on design for housing providers, and this led to the publication of *Improving the design of housing for people with dementia*. Like *10 helpful hints*, this is easy to read and outlines broad principles. It is written to raise awareness, explain why particular design features are needed, and to give basic guidance on the most important ones.

If housing is designed well, it can extend the amount of time a person with dementia can remain at home. It can also reduce the sort of adverse incidents that lead to hospital admissions, which in themselves often result in a move to residential care. This is a progression that most people want to avoid, or at least delay for as long as possible.

In addition to improving housing design, housing providers can now equip their staff to support people who live at home with dementia. The DSDC's best practice training programme enables home care workers to embed the most important aspects of dementia care into their routine domiciliary care. Government policies reflect the desire of people to stay at home for the rest of their lives, wherever possible. The aim of the DSDC's publications and training courses is to give service providers the practical support to make this happen.

This book was commissioned by the Scottish Government's Joint Improvement Team. It is part of a range of initiatives flowing from the National Dementia Strategy. The Dementia Services Development Centre supports housing providers to enable people with dementia to live at home comfortably for as long as possible. Good design can facilitate this, and there are plenty of easy and often inexpensive measures that can be taken, as this book makes clear.

*Professor June Andrews, Director
Dementia Services Development Centre*

What is the scope of this guidance and who is it for?

This book provides guidance on improving the design of housing for people with dementia. It is relevant to anyone working in the field of housing, especially those with tenants aged over 65. However, as there are also a significant minority of people with dementia who are younger than 65, the recommendations will be beneficial to this group too.

The guidance provides a brief introduction to key design features that will enhance the internal and external living environment of people with dementia. It explains why extra care needs to be paid to design for people with dementia. Most of the recommendations do not involve additional cost – just a little forethought during the planning, refurbishment or redevelopment of accommodation.

- the section on individual houses and flats includes recommendations to assist frontline staff working with individual residents and providers of care housing
- people with dementia and their carers may also find it useful

The guidance applies to all types of housing and all providers. It will benefit:

- staff, directors and trustees with strategic responsibilities
- development staff
- asset and estates managers
- procurement staff
- technical staff, including those with health and safety responsibilities
- housing staff who work with individual tenants or tenant groups
- any staff responsible for modernisation or adaptations
- staff or carers who support individual tenants
- commissioning staff in local authorities

The content does not include detailed technical guidance or cover regulations. However, the authors are not aware of any recommendations that conflict with regulations.

For reasons of space, this guide does not cover assistive technology or telehealthcare. Publications on these subjects are available to download, free of charge, from www.dementiashop.co.uk.

1. Key points

- it is discriminatory to fail to meet the needs of people with dementia. Their needs should be given the same priority as those of other groups with impairments
- most people with dementia live in the community, and their quality of life can be significantly improved by ensuring their home environment is well designed
- design changes that benefit a person with dementia are beneficial to others too: making the changes recommended in this guidance will have a positive effect on all tenants
- when considering modifications, avoid changing too much. People with dementia may have difficulty adjusting to change
- dementia impairs recent memory first, so when considering changes think about the person's strongest memories, which are likely to be from their more distant past (for instance, this is why installing traditional style taps, rather than modern alternatives, is likely to benefit a person with dementia)
- people with dementia need higher than normal levels of light in order to make sense of their environment. Many have significant sight impairment. Allow for double the amount of light that you would normally provide
- the design of the person's environment must be easy to understand: clarity and simplicity should be your key goals
- as the person's memory is usually impaired, focus on design changes that will help them see where things are and where to go
- choose well-designed signs and mount them low: weak neck and shoulder muscles – as well as poor eyesight – mean that the optimal height for signage is 1.2 metres from the ground
- contrast is more important than colour. Contrast makes things visible, while a lack of contrast makes them invisible. Things that are important to the person need to be especially easy to see, while those which might distract them can be made less visible by minimising contrast
- always avoid contrast changes where different flooring surfaces meet (this also applies to places where internal and external flooring surfaces meet). People with dementia can struggle with 3D perception and may misinterpret changes in contrast as steps or holes. Many older people with sight impairments have the same issues, regardless of whether they have dementia or not, so this design change will benefit them too
- external areas can be as disabling as internal areas and need equal attention when design is being considered

2. Why design for dementia?

Design for dementia is important because there are very substantial numbers of people with dementia living in every type of housing, and the numbers are increasing. The levels of impairment experienced by different people will vary greatly. Some will be at the very early stages of dementia and may not have had a diagnosis. Others will be seriously impaired and reliant on support from relatives or friends, perhaps supplemented by formal care at home.

Dementia is an umbrella term for a range of progressive diseases of the brain, including Alzheimer's disease, vascular dementia and dementia with Lewy bodies. About one in 20 people over 65 and one in four over 85 have dementia. At present there are about 800,000 older people with dementia in the UK, of whom 84,000 live in Scotland. Numbers are increasing rapidly as the population ages and will grow even more quickly when the baby boomers reach their eighties. Until recently, dementia was an under-diagnosed condition. Rates of diagnosis are now improving, and people with dementia are increasingly being identified at the earlier stages.

About 3% of people with dementia are under 65. These include those with learning disabilities, who are at higher risk of developing dementia (Llewellyn, 2011; Kerr, 2007) and people with early onset Alzheimer's disease. Another group who are developing symptoms of dementia are those with alcohol-related brain damage, many of whom will be younger than 65. Their condition is not necessarily progressive so is not usually classified as dementia, but they have the same need for dementia-friendly design.

Everyone's pathway through dementia is different and depends on a wide range of factors. People tend to associate dementia with the advanced stages when the person is so distressed that their behaviour is 'challenging' to those around them. These people are often talked about as having 'severe dementia', whereas the reality is that 'challenging' behaviour can occur at any stage of the condition.



Dining in traditional style

There are huge numbers of people with dementia living in our communities, often with their relatives, who go unnoticed. They can benefit enormously from the design changes recommended in this guidance. If the design of a person's home environment makes their life easier, they are likely to be happier and less stressed. By contrast, bad design can make the home environment hostile and confusing.

Case study

Mr Clarke and his wife moved into a ground floor flat five years ago when Mrs Clarke's arthritis meant she could no longer manage stairs. Mr Clarke was already slightly impaired by dementia but is now unable to understand the layout of the flat, or how to find his way around the neighbourhood. Mrs Clarke relies on her husband for many things and is finding the situation very stressful. If he is to remain at home the flat will need a lot of design modifications (see section 6).

Good dementia design should enable people to be more content, more independent and to remain in housing tenancies for longer. It can also be part of care packages and ideally should dovetail with care packages. In some circumstances, good design can even reduce the amount of care the person requires.

It is in the interests of society generally that expenditure on health services and residential care is reduced wherever possible. Good dementia design can enable people to remain at home for longer and can also reduce the likelihood of them having falls. Falls can be seriously disabling and also represent a major cost to all services. One of the main reasons why people go into a care home is because they have had a fall. Other positive outcomes of good design can include lower levels of agitation, confusion, restlessness and disorientation because the person is less distressed.

Dementia-friendly design can also reduce pressure and stress on families, neighbours and housing staff. If someone with dementia is calmer and feels more in control, they are likely to make fewer demands on others and cause less potential disruption.

Case study

Miss Cunningham lived alone in a ground floor flat in a four in block. She was causing great consternation to her neighbours because she repeatedly went outside during the night. She seemed to have lost her sense of day and night (see 'Clocks and calendars', page 25).

It is vital that refurbishments and adaptations are carefully thought through so that their benefits (and any unforeseen consequences) are understood. This will minimise the likelihood of spending time and money on 'improvements' that add to the challenges people with dementia face, rather than reducing them. The goal is to enable people to maintain their tenancies by providing well designed accommodation and good care packages. Housing providers will also benefit by reducing the costs associated with turnover of tenants. Other advantages include happier staff and neighbours.

The actual costs of dementia-friendly design need not be great, although it is always cheaper if features are built in rather than retro-fitted. Ideally, housing providers need procurement and asset management programmes that consider all aspects of dementia-friendly design comprehensively. This should include communicating with staff and tenants to explain the aims and benefits of the changes.

New housing should provide 'lifetime' or 'barrier-free' homes, embracing the principles of 'universal design'. In keeping with this goal, the design process should address the needs of those with cognitive impairment. Good design should begin at the inception of the project at sketch design stage.

If designed carefully, new-build accommodation should be flexible enough to meet the person's changing needs with no or minimal adaptations. However, housing providers seldom have the opportunity to build new homes from scratch. Instead, refurbishment and adaptation programmes are likely to provide the main opportunities for improving design.

Case study

When a flat becomes vacant, Bankfield Housing Association has a policy of repainting it, reflooring the kitchen and bathroom, and replacing any damaged fittings. In addition, the housing association now ensures that all toilet/bathroom doors contrast with the adjacent walls and that new flooring matches existing carpets. Threshold strips are removed where possible. They advise incoming tenants to maintain consistent contrast if replacing carpets. In the kitchens, some glass-fronted cupboards are provided at eye-level, making it easy to see the contents without having to remember what goes where. When Mr and Mrs Sprott moved into one of the flats, Mr Sprott was not aware of the dementia-friendly features. However, Mrs Sprott, who had dementia, benefitted greatly. Ideally, housing providers should provide a leaflet for tenants and their relatives if one of them has dementia. This should explain the key design features and why they are helpful.

Design that assists people with dementia is invariably better for all tenants. Buildings become easier to understand because they incorporate features that can compensate for visual and hearing impairments. Dementia-friendly design can and ought to be routine. There is no need to make an issue out of it which can result in possible stigma. Although there are some minor conflicts between what is best for people with physical impairments and those for people with dementia, there is usually a way around them.

Occasionally, design features that are preferable for people with dementia are not optimal for a person with physical impairments. Here are three examples with suggested solutions:

- taps that are easy to recognise (such as traditional crosshead designs) are generally preferable when designing with people with dementia in mind. However, a person whose grip is impaired can find these difficult to operate. If this is the case, a small lever is available that can be attached to the tap heads

- flooring with a strongly contrasting tone at the top and bottom of stairs can alert someone with impaired vision to the presence of the stairs, but could be perceived as holes in the floor by a person with visuo-perceptual problems (common among people with dementia). This can be solved by using flooring that uses a change in texture without a change in tone to indicate the top and bottom of stairs
- design guidance states that handles on windows should be 'easily openable', with many windows designed to 'tilt and turn'. The types of handles commonly used can be confusing to people with dementia. Alternatives are available which are easy to use and will suit both people with physical impairments and those with dementia

The measures outlined in the previous section are described in much more detail in the DSDC's series of design guides. A full list can be found in the appendix, along with other useful references.

Thoughtfully combining good design with telehealthcare and assistive technology can lead to very significant benefits for people with dementia. References to the DSDC's free guidance on assistive technology and telehealthcare are also included in the appendix.

3. Impairments of old age for which design can help

Design for dementia builds on design that is beneficial for older people in general. This section provides a brief summary of the impairments of old age for which design can help.

Designing effectively for people with dementia involves first appreciating that they are mainly older, indeed often very old people, who are likely to have the same impairments as their contemporaries. These impairments will often affect their sight, hearing and mobility. The difference is that they may not be aware that they have them.

Sight

The prevalence of blindness and visual impairment increases exponentially with age (World Blind Union, 2011). Older people's eyes are likely to have thickened lenses, which will impair their ability to see colour, make glare harder to tolerate and slow their ability to adjust to different light levels. Cataracts may affect their ability to see – and because of their dementia these may go unreported and untreated. They may have macular degeneration, resulting in loss of detailed vision. This has implications for reading, watching TV, eating, identifying hazards and recognising faces. Some people will have glaucoma, which affects peripheral vision, impacting mobility and making it harder to detect hazards. Dementia itself is likely to adversely affect the parts of the brain used to construct the visual scene.

People with sight impairment and dementia need a lot of light, combined with contrasting tones (rather than colour itself) to ensure objects are visible.

Case study

Mr Wright had severe macular degeneration, which he did not understand because he had dementia. He regularly walked into the bollards outside his flat because the centre of his field of vision was affected.

Hearing

Over 70% of people aged over 70 have a hearing impairment (Action on Hearing Loss, 2011). There are two main forms of impairment. Conductive loss occurs when sound is not conducted efficiently through the outer ear canal to the eardrum and the ossicles of the middle ear. Sensorineural loss is caused by damage to the inner ear or the nerve pathways to the brain. Presbycusis is a form of gradual, age-related sensorineural hearing loss.

Older people commonly experience a combination of both conductive and sensorineural hearing loss. As well as a general deterioration in their ability to hear, both types of impairment lead to specific difficulties. These include reduced ability to hear high frequency sound; an oversensitivity to low frequency sound; and an impaired ability to filter out unwanted sound. The need to wear hearing aids can further impacts on the hearing difficulties of many older people. For example, if batteries are not replaced or the tubes become obstructed by wax, hearing aids may become a hindrance to hearing. The result can be a real struggle to remain calm, concentrate and have a normal conversation with others.

A person with dementia may also have tinnitus, which is a perception of sound where there is none externally. Vestibular disorders of the ear (e.g. Ménière's disease) can lead to imbalance, dizziness and hearing changes.

People with hearing impairment and dementia need a quiet environment with extra attention paid to acoustics. Measures should be taken to avoid or prevent sources of noise, and to provide sound absorption.

Case study

Mr Phillips was becoming increasingly irascible and unpleasant towards his neighbours. It transpired that he found the constant noise from the major road beside his flat increasingly intolerable, along with low-frequency noise from other tenants. His dementia made it impossible to explain to him why he was having this problem. Explaining the situation to his neighbours helped them understand his behaviour.

Circadian rhythm (body clock)

Many older people have difficulty regulating their body clock, and this is especially common for those with dementia. They can sleep a lot during the day and be awake at night. Television and computer use at night can also add to this problem due to emission of 'blue' light (Giuliano, 2012). For many people, problems with their body clock can be remedied by exposure to high levels of light in the morning. Daylight (or an equivalent light with high blue content), combined with dark and quiet conditions at night, is extremely useful. Clocks can be a helpful starting point for some people who have become disorientated in terms of time (see section 6).

Musculoskeletal problems

The majority of older people have some problems relating to their muscles and joints. They may stoop; experience pain; have impaired reach and grip; find it hard to balance; or experience general mobility problems. Vitamin D is essential for good bone and muscle health, and the best and cheapest way to get it is to expose skin (e.g. arms and legs) to sunlight for around ten minutes a day between April and September (avoiding exposure to midday sun). This underlines the importance of easy access to an outside space.

4. Impairments of dementia for which design can help

This section briefly outlines the types of impairments that may affect a person with dementia, along with ways in which good design can minimise them. More detailed information on dementia can be found by visiting the Alzheimer Scotland and Alzheimer's Society websites.

Dementia is an umbrella term for a range of progressive diseases of the brain. There are over a hundred conditions that can lead to symptoms of dementia. The main ones are described below.

The onset of dementia is usually gradual. Delirium has similar symptoms, but it starts suddenly and is usually related to dehydration, infection, acute illness, medication or stress. Unlike dementia, delirium is treatable and reversible. It is a medical emergency and should be treated immediately.

The most common dementia is **Alzheimer's disease**, which affects all areas of the brain and is characterised by a gradual, steady progression. People with Alzheimer's disease are prone to visuo-perceptual problems (Jones et al. 2006).

Case study

Mrs Davies had dementia and perceptual problems, which meant she misinterpreted what she was looking at. She did not understand or remember that she had a dementia. Because she interpreted the black mat at the door of her block of flats as a hole it became increasingly hard for her to leave the block.

Vascular dementia is the second most common type of dementia. It is caused by the blood supply to the brain becoming restricted and can affect some areas of the brain more than others. Vascular dementia often progresses suddenly, rather than gradually. The difficulties the person has may be related to the area of the brain which has been damaged. This means the symptoms can differ widely. A person with vascular dementia may experience fluctuating levels of confusion.

Dementia with Lewy bodies affects another large group of people. They may experience difficulties with walking and balance and be prone to frequent falls. Dementia with Lewy bodies often causes hallucinations, which can be very frightening.

People with **alcohol-related brain damage** benefit from the same design features as people with dementia. Since their illness does not always progress, they do not have dementia as typically defined.

There are six main impairments which are common to most kinds of dementia, and which must be reflected in the design of the person's environment.

Impaired memory (especially for recent events)

As a result of impaired memory, a person like Mr Clarke (page 9) who finds himself in an unfamiliar environment may not understand where he is or recall how he got there. Having impaired memory function can lead to feelings of insecurity and mean that the person forgets they have other impairments.

Case study

Mrs Vine was assessed as needing a shower since she was unable to use the bath. However, she reacted very strongly to the removal of her bath and the installation of a shower. She had no memory of having agreed to this, and was baffled by the shower which she could not operate. Previously she had been coping well with a basin of hot water and a strip wash, which was a familiar routine from her childhood.

Impaired learning

A person with impaired learning may not be able to learn where they are or where key rooms like the toilet are. They may constantly be looking for these places, which can be a cause of anxiety for them. From a design perspective, modifying the environment so the person can either see the room they are looking for or see an appropriate sign, may enable them to find it.

Case study

Moving house when you have dementia may be unavoidable, as in the case of Mr and Mrs Clarke (page 9). However, any move needs to be considered very carefully because a person with dementia may never learn their way round the new environment.

Impaired reasoning

A person with impaired reasoning may be unable to work out where rooms are and is likely to struggle to operate unfamiliar items. Things that can cause difficulties include modern taps, soap dispensers and toilet flushes. The style of these must be carefully chosen as part of the design process. Objects either have to be familiar in terms of the person's past, or really intuitive to use. It is also important to minimise clutter, as this can add to visual confusion.

Case study

A refurbishment in Mrs Stephen's house included a new kitchen and bathroom. Unfortunately the new taps and the shower control baffled her completely. Her inability to use the taps and shower was wrongly attributed to her progressing dementia and meant she needed more help with activities like washing. In fact, she had been disabled by poorly chosen fixtures and fittings.

Visuo-perceptual problems

Visuo-perceptual problems are particularly prevalent in people with Alzheimer's disease. They can result in the person misinterpreting what they see. For example, wavy lines on wallpaper or carpets may appear to move, and judging distance may be difficult. Some floors can look as if they have pools of water on them. The person may be unable to interpret 3D, perhaps mistaking a change in the tone of the floor for a step.

Mrs Davies mistook the black mat at the door of her flat for a hole and this type of experience is not unusual. Another problem area is ensuring that steps and stairs are clearly intelligible. A person with dementia may be unable to see steps from above, even if they have contrasting nosing. Other cues may be required, such as sloping or stepped skirting and/or a sloping handrail.

High levels of stress

People with dementia often struggle to make sense of their environment and this can result in high levels of stress – along with the type of behaviour we all exhibit when we are very stressed. They also have a lower threshold for stress, so may become very agitated when they are overstimulated by noise, excessive activity or movement. This is especially likely when the reasons for the disturbance are not obvious. When making design choices it is important – as far as possible – to create a calm, quiet environment without too much stimulation.

Difficulty adjusting to the sensory/mobility impairment of normal ageing

For all the reasons described above, people with dementia may not be able to understand, adjust to and deal with the normal impairments of ageing (described in section 3). This means their environment must be designed to compensate *for* them, rather than relying on them to make the adjustment.

Case study

A lifetime of being careful about wasting energy meant that Mr Griffiths put on as few lights as possible. As he developed dementia, he was unable to understand that the lack of light meant he was also unable to see any hazards in his path. He was at considerable risk of falling.

5. Key design features outside individual flats and houses

External areas

Like everyone else, people with dementia need to be able to get out and about in their local community so they can go shopping and interact socially with others. This is very important for maintaining mental and physical wellbeing. Sites for new-build housing should be considered in terms of their location and topography, with particular attention paid to the proximity of shops, GP surgeries, chemists and green open space.

The provision of a porch and canopy at the front door is particularly valuable for older people in general, not just those with dementia. These provide shelter on entry and exit and are traditional features in many older houses. They have the added advantage of allowing time for older eyes to adjust to the change between indoor and outdoor light levels.

The layout of housing developments tends to be based on one of three styles: courtyards, streets or flatted blocks. The dementia-friendly treatment of external areas differs for each, although some principles are common to all them. All housing developments – and especially courtyards – should provide enough sun to keep plants, trees and people healthy, whilst also offering shade and shelter where necessary. Ensuring that front doors are clearly visible and differentiated is a useful way of aiding way-finding. With street layouts the location of the front door is usually more obvious. In flatted blocks, ensuring that both the main front door and interior front doors are visible can require additional attention.

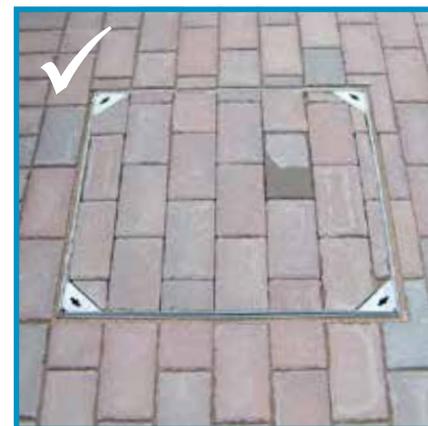
Several features are required to ensure that outside space is safe and accessible. These include level access, non-slip paving and good lighting that is mounted sufficiently high to avoid pools of light. Care should be taken to avoid strong contrasts between different areas of paving, and also between internal flooring and external paving. Good, clear signage (see below) is required. Benches or other seating should contrast with the ground.

Key references

See Burton and Mitchell (2006) for great detail on dementia-friendly urban design. They have also written many articles and book chapters. A key reference for outside areas is Pollock and Marshall (2012) in which there is also a chapter from Mitchell and Burton.



Poorly disguised service cover



Properly concealed service covers

Differentiating between storeys in blocks of flats

Do not rely on changes in tone to enable residents to tell which floor of a block of flats they are on. Even very large and clear numbers will only work for some people. Instead, combining different tones with numbers and landmarks of some sort will help to make the difference memorable.

Case study

A three-storey block of sheltered flats relied on the use of different tones on each floor. However the property managers found that many tenants still could not remember which floor was theirs. One floor now has a tree in a pot on the landing, and the other has a couple of garden gnomes to aid way-finding.

Lighting

People with dementia often struggle to make sense of their environment, and adequate lighting is vital to enable them to see as well as possible. Lighting levels for older people in general (regardless of whether they have dementia or not) should be twice those required for a younger person. Before considering artificial light, every effort should be made to let in as much natural light as possible. Natural light is free!

When considering light levels, energy consumption needs to be considered too and strategies may include:

- making every effort to maximise natural light by cleaning windows regularly
- felling trees or overgrown plants that block light outside windows
- removing objects blocking windows, e.g. curtains that cover part of the glazing
- controlling artificial lighting near windows to some extent by using light sensors
- having fewer light fittings near windows than in the darker areas of space
- managing lighting with movement detectors (in which case it is usually desirable to have some low-level lighting as well, since the ageing eye adjusts more slowly. This will avoid a harsh transition from darkness to bright light)

Care must be taken to use the right kind of lights for each situation to avoid dazzling people or creating very dark shadows.

Case study

Mr Johnson had perceptual problems that were associated with his dementia. At a certain time of day, the sun shining through the window above the entrance to his block of flats created a strong shadow in the vestibule. He was convinced that someone had left a large piece of furniture there, such as a wardrobe. When staff became aware of this they were able to reassure him that they knew all about it and he was not to worry.

Key reference

McNair, D. et al. (2010) *Light and lighting design for people with dementia*
Stirling: DSDC

Floors in hallways and other communal areas

Floors should be one consistent tone that is the same between rooms. Stripes or patterns should be avoided. Changes in flooring tone can be misinterpreted as steps, increasing the risk of a person with dementia falling. Consistency of tone should continue into any areas that might be entered by people with dementia.

- threshold strips can be perceived as a step, causing people to stop and falter: they should be avoided where possible
- doormats that are a dark colour can look like a hole in the floor; choose ones that are the same tone as the floor
- shiny floors may be perceived as being wet and slippery or having pools of water on them
- any kind of linoleum, carpet or vinyl with large speckles and sparkles should be avoided as people with dementia may stoop and attempt to pick up the specks
- where different flooring types are laid adjacent to each other, they should have light reflectance values (LRVs) which are as similar as possible.

Case study

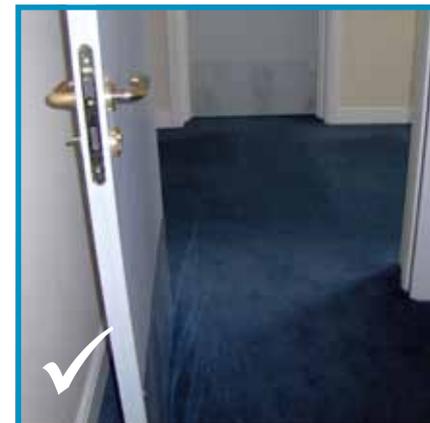
Replacing worn out flooring provides an opportunity to improve the design of a person's home. Ensuring that the new flooring has a consistent tone, and improving lighting (if required), can reduce the risk of falls. Mrs Davies previously thought that a change in tone in the flooring was a step, and since she was already unsteady on her feet she was in danger of falling. Following the installation of new flooring this problem was rectified.

Stairs

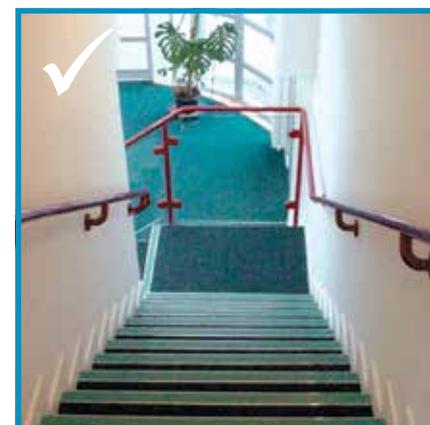
People with dementia may need several different cues to alert them to stairs, over and above those required by Building Standards. Sloping or stepped skirting and highly visible sloping handrails will give extra information to someone who may no longer be able perceive 3D. On the other hand, flooring at the top or bottom of the stairs that has a different tone may be perceived as a hole and should be avoided where possible. People without dementia, but with severe sight impairment, use changes in texture rather than tone to identify the presence of stairs. Avoiding strong tonal changes near stairs, but still ensuring there is a change in texture, does not cause any conflict with Equality Act guidance and will assist both people with dementia and those with sight impairments to use them safely.



Change in floor tone may be perceived as a step. This can be exacerbated by a contrasting threshold strip.



No visible barrier at doorway



Clearly visible steps and handrail

Skirting and walls in hallways, staircases and communal areas

Guidance on designing for people with visual impairment states that it must be clear where the floor ends and the wall begins. This means painting the wall to contrast with the floor. A contrasting skirting helps too, and can provide an extra visual cue for older people who often walk along looking at the floor. If the architrave round doors is painted to match the skirting, the person will also be able to see doorways by following the skirting board. Walls should not have stripes or any recognisable design on them which could be misinterpreted.

Case study

Mrs Bridger was very attracted to a wallpaper of roses and quickly picked off all the flowers she could reach, leaving an extremely messy and unattractive wall.

Handrails

Handrails, when installed, should contrast with the wall and include a feature to indicate where they end, such as a knob or the rail turning inwards. This will ensure that people who rely on handrails can feel when they have reached the end, avoiding anxiety.

Doors

Doors in blocks of flats should contrast with the adjacent wall unless residents are not meant to access them, in which case they can be painted the same tone to 'disguise' them.



Doors to areas not used by person with dementia deliberately disguised

Signs

Signs should:

- be consistent in style if they are used across an estate or within a block of flats
- be mounted with their lower edge no higher than 1.2 metres from the floor
- clearly contrast with the door or wall
- use a capital letter, followed by lower case letters and include a graphic or photograph (if the sign is for a person in their own home it may be possible to tailor it using either words, a graphic, or a combination, depending on their impairment)
- feature good contrast between the words, graphic and background

Generally, light lettering on a dark background is easier for people with a sight impairment to read.

Directional signage may be required if a location is not obvious. It should be in the same style as other signs and have a clear arrow or pointing finger to show where to go.

Sound

Every effort should be made to reduce noise. Like Mr Phillips (page 13), many people with dementia are easily overwhelmed by noise. This means the location of the building and how it is constructed are as important as the use of sound absorbing fabrics and flooring materials.

Key reference

McManus, M. and McClenaghan, C. (2012) *Hearing, sound and the acoustic environment for people with dementia* Stirling: DSDC

Lifts

Lifts need to have controls that are easy to understand and highly visible. They also need to be at a suitable height for an older person. A big mirror can be frightening for people with dementia as they may think there is someone in the lift with them. Although most Equality Act guidance requires a mirror for people in wheelchairs, this does not have to be a big, wall-mounted one. It can be high up and positioned at an angle so the wheelchair user can see who is behind them when exiting backwards.



Examples of good, clear toilet signs



Poor toilet sign

6. Key design features inside individual flats and houses

The design principles for outside spaces described in the previous section also apply to the interiors of flats and houses. This section provides additional information for designing interiors and builds on the previous section.

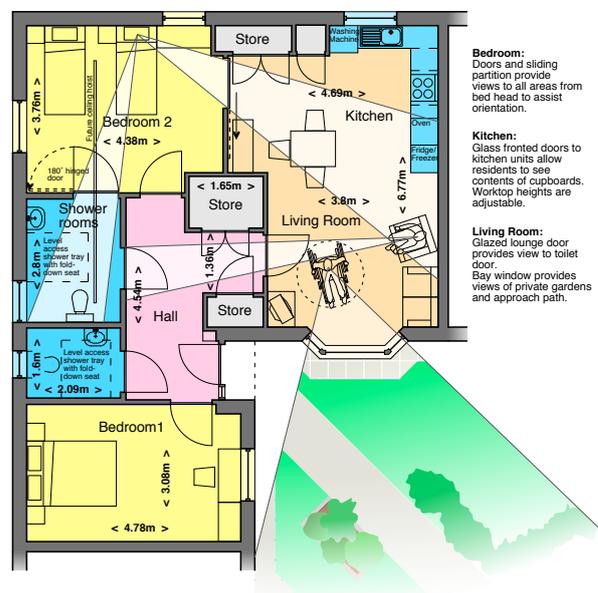
Although housing providers do not generally offer furnished accommodation, some guidance on décor and furniture is included here. This is relevant for shared areas such as communal lounges, and can also be incorporated into information for tenants and relatives.

Key reference

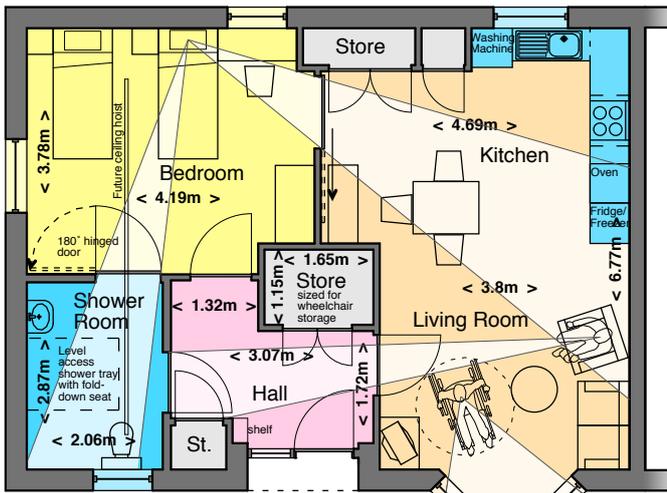
10 helpful hints for dementia design at home is a simple guide for people with dementia and their relatives published by the Dementia Services Development Centre. Providing simple information on dementia-friendly design features for tenants and relatives can be very helpful when they are furnishing a flat. This can be offered as a leaflet, or provided as a section in the tenants handbook.

Creating an appropriate internal layout

A person with impaired memory and reasoning will rely very heavily on what they can see, so creating a clear layout with lots of visual cues is important. When planning a new-build or commissioning a major refurbishment, avoid corridors and complex layouts. Try to ensure that residents can see the toilet from most parts of each house or flat, and aim for a largely open-plan design.



Left and above right: Dementia-friendly housing at Gemmill Crescent, Mainholm, Ayr, designed for Hanover Scotland. Features of all houses include flexible smart technology; circulation space minimised; familiar domestic environment and accessible private gardens.



Kitchen: Glass fronted doors to kitchen units allow residents to see contents of cupboards. Worktop heights are adjustable.

Bedroom: Doors and sliding partition provide views to all areas from bed head to assist orientation.

Living room: Glazed lounge door provides view to toilet door. Bay window provides views of private gardens and approach path.



Doors

Being able to identify doors is critical for way-finding. When designing new-build housing, try to ensure that all doors are immediately visible on entering the house, and that doors to key rooms such as the bathroom are easy to identify. Doors should open fully so that the interior of the room is clearly visible. Vision panels and partially glazed doors can be helpful as they will enable the person to see what is in the room beyond. In some houses, the door to the toilet or bathroom traditionally had opaque glazed doors, so this can be a way of reminding people where it is. Another way to make it easier to find toilets or bathrooms is to ensure that they all have doors that are a consistent bright colour which contrasts with adjacent walls. Signs should be mounted on the door to which they refer, rather than on the adjacent wall.

Sliding doors should be avoided since people with dementia can find them hard to understand. Wardrobes with concertina-style folding doors are impossible for most people with dementia to understand.

Implications for new-build	Implications for refurbishment	Implications for aids and adaptations
A hall with all doors off it is helpful	–	–
Hang doors to maximise the view into the room		
Glaze toilet/bathroom doors or paint them a strong colour		Paint toilet/bathroom door a tone which contrasts with the walls
No sliding doors	–	

Clocks and calendars

Case study

Miss Cunningham's difficulty (page 9) distinguishing day and night was solved by putting a large analogue clock in each room. This told her the time and also showed whether it was am or pm. The clock in her bedroom was illuminated using a low light controlled by a timer.

Not knowing the time, day and date can add to people's sense of bewilderment and anxiety. It is important to provide large, clear and accurate analogue clocks in visible locations. Digital clocks may be incomprehensible to many very old people, but might be preferred by younger people with dementia or by an older person who had been an engineer, for example.

Implications for new-build	Implications for refurbishment	Implications for aids and adaptations
Install large analogue clocks		

Lighting

Section 4 described the range of impairments that a person with dementia may experience. As a result of these, they will often struggle to make sense of their environment and it is crucial that they can see as well as possible. Lighting levels for older people (regardless of whether they have dementia or not) should be twice those required for a younger person, with every effort made to let in as much natural light as possible. Buildings should not have trees right outside the windows, and the windows themselves should not be obstructed by objects or curtains. Areas where people spend a lot of time or undertake complex tasks, such as reading, eating or cooking, need to be especially well lit. Most lighting guidance is written for middle-aged people and the levels they recommend are not high enough for older people.

Key reference

McNair, D. et al. (2010) *Light and lighting design for people with dementia* Stirling: DSDC

Good lighting in areas where people eat their meals is essential to maximise the chance that people will see, recognise and consume meals and drinks.

Target lighting levels

Area	Maintained average horizontal illuminance (in lux) at task areas*
Living rooms	300
Recreation**	300 supplemented by 300
Kitchens	600
Bathrooms and toilets	300
Bedrooms	200
Hallways	100 to 150
Stairs	150

Notes:

***Task areas** are the parts of a room where the light is required. Examples include sinks in bathrooms, and work surfaces and sinks in kitchens. Light levels at adjacent areas should be not less than half those at task areas. Usually this will be achieved if task areas are appropriately illuminated.

****For recreation**, provide 300 lux from artificial lighting and supplement with 300 lux of daylight when available (and 300 lux from free-standing units when daylight is not available).

Wherever possible, lamps should have a colour-rendering index (Ra) of 85 or greater.

Measures can be taken to minimise energy consumption. Twin electrical circuits with two switches will allow some or all of the lights to be switched on, so that light levels can be adjusted as required. Movement detectors can be used to bring the lighting up to higher levels when someone enters the room. In toilets and bathrooms, any lighting controlled by movement or presence detectors needs to be set to remain on long enough for people with dementia, who can take longer in the toilet. It is useful to have the option of choosing between a movement-operated light or a switch, since the former may not be understood by someone with dementia. They may get anxious if they look for a switch to turn the light off and can't find one. Where lights are controlled by a switch, they should be easy to operate and clearly visible. Ensuring that the switch contrasts against the switchplate, and the switchplate contrast against the wall, will achieve this.



Good contrast between switch spot, switchplate and background



All white fitting with no contrast

Implications for new-build	Implications for refurbishment	Implications for aids and adaptations
Orientate building to maximise light	–	–
Install large windows with low sills	Do not use deep pelmets or swag curtains	New curtain arrangements may be necessary
Extend curtain rails beyond windows so they are fully exposed when curtains are open		–
Provide plenty of electric lights with several circuits and controls	Increase number of lamps, taking care that flexes do not cause a trip hazard	
Ensure switches contrast with walls. Install coloured plates at switches or coloured finger plates around switches		–

Furniture

Furniture rarely needs to be provided by housing agencies except in communal rooms within sheltered and extra-care housing.

The types of chairs available need to reflect the fact that older people come in different heights and sizes. People with dementia may not be able to tell you if they are in pain from a seat which is too high, too narrow or too low. The seat needs to contrast with both the floor and the background wall. Tables should contrast with the floor. Many people with dementia lack the coordination to navigate through furniture which is placed close together, so it is helpful if it is well spaced apart.

Implications for new-build	Implications for refurbishment	Implications for aids and adaptations
–	Ensure contrast between furniture and floor	New cushions and bed covers may assist visibility
–	Provide a selection of chairs in different sizes and heights	
–	Ensure curtains are plain and light coloured with black-out lining	
–	Provide blinds to control glare	

Mirrors

Mirrors are appreciated by most people with dementia so they can ensure they look as good as possible. However, they can be misinterpreted by some people leading to significant anxiety and agitation. This is because some people with dementia do not recognise themselves or may think there is someone else in the room with them when they see their reflection. Mirrors should not be provided where they are not generally used (e.g. in the lounge). In other locations,

such as bathrooms and bedrooms, it should be possible to easily remove them or cover them (e.g. with a small blind mounted above them).

Implications for new-build	Implications for refurbishment	Implications for aids and adaptations
Ensure mirrors are removable or can be concealed by doors or roller blinds	Mirrors may need to be removed or covered in some way	–

Kitchens

The style of kitchen and number of appliances provided will vary from one housing type to another. It may be helpful to compile a leaflet for relatives, based on the following information but tailored to the style of housing you manage.

Kitchens are probably the most difficult room to make dementia-friendly since the design of kitchens and appliances has changed so much since the 1950s. Points to bear in mind include:

- the kitchen is where many people eat (see section on dining rooms below)
- the things the person needs to use must be easily visible. To achieve this, some cupboards may need to have either no doors or glass doors. Key appliances may need to be left on worktops
- equipment and appliances should look traditional. For example, taps should be of a cross-head design with clear indication of which is hot and cold. Kettles should be traditional in shape, rather than jug style (although it needs to be clear that they have a flex so do not go on the hob)
- noise should be minimised by ensuring sound absorbent surfaces are used where appropriate
- lighting needs to be maximised. Strip lighting above kitchen surfaces is generally the most effective option. Spotlights can be used to highlight specific locations such as the sink, but should be positioned so as not to create shadows
- hazardous items such as cookers may need safety devices such as heat and smoke sensors which can switch them off if necessary. It is generally not a good idea to disable a cooker fully unless there is no alternative, since the person may then become very confused and frustrated when they try and operate it
- speckled surfaces should be avoided, as the specks can be interpreted as crumbs or other small items
- the cooker and units should be the same height, since people with dementia may not be able to judge differences in height and may be more prone to break things

Implications for new-build	Implications for refurbishment	Implications for aids and adaptations
Ensure that most cupboard doors above the kitchen counter are glass-fronted		Remove cupboard doors or replace with glazed ones
Use taps and sink plugs that are traditional in appearance and usage		Replace kitchen equipment which is no longer understood with more traditional items
Ensure lighting is good, especially on working surfaces. Avoid spotlights except to highlight specific working areas		Consider safety technology
	-	OT assessment may suggest modifications of cookers or their removal in some circumstances
-	Do not hide fridges etc. behind cupboard doors	Ensure appliances and equipment contrast with surfaces and walls. Fridges should be recognisable and visible. Cookers and washing machines should have easy to understand controls.



Kitchen featuring glass fronted cupboards to make locating items easier (note also large, traditional analogue clock).

Bathrooms/shower rooms

After kitchens, bathrooms are the most difficult room for people with dementia to interpret, since the design of bathrooms and their fittings has changed so much. Choosing fittings that look traditional and are easy to operate will make it much easier for residents to understand them. As elsewhere, appropriate use of contrast is essential in bathroom design. For example, the toilet seat should contrast with both the floor and the pan, and the cistern should contrast with the wall. If grab-rails have been installed, they too should contrast with the wall and floor.

Where possible, there should be at least two overhead lights positioned in locations that will minimise shadows. None should be directly above the bath where they can shine in the person's eyes and cause discomfort. Natural light is always helpful.

Showers which deluge the person from above can be very frightening. A more gradual approach through a hand-held shower head is usually preferable. This enables the person with dementia to see where the water is coming from and have some control over it, reducing fear and avoiding a possible angry response.

A free-standing shower seat with arm-rests may be needed. It should contrast strongly in tone with the surrounding background. Entry to the shower should be barrier-free. This requires careful design to avoid flooding the bathroom floor. If a commode is required, the seat should contrast with the rest of the commode and the whole commode should contrast with the floor.



Clearly visible traditional sanitary ware



Difficult to see white range



Coved skirting with contrasting capping strip

Implications for new-build	Implications for refurbishment	Implications for aids and adaptations
Avoid standard packs of white equipment: tonal contrast is crucial		Ensure that all equipment contrasts with walls and floors, e.g. grab rails contrast with floor and walls; toilet seat contrasts with both pan and floor
Use taps, plugs, cisterns etc. that are traditional in appearance and operation		Ensure that shower seat/commode contrasts with floor
Maximise natural light	–	–
Install two lights, with neither directly above the bath		–
Ensure showers are easy to use and understand		–
Ensure wash hand basins are big enough for soap, toothbrush mug etc.		–
In wet rooms, which often have coved skirting, a contrasting capping strip should be included to make it clear where the floor ends and the wall begins.		–
Install non-slip flooring with a similar tone to any adjacent hall or bedroom carpet. Avoid threshold strips or ensure that they blend in		

Bedrooms

Bedrooms need to be quiet and look as familiar as possible. They also need plenty of light. As in kitchens, furniture that helps the person see what is in cupboards can be helpful. For example, a wardrobe with an open side or glazed door can be used to contain the clothes for the day. Many people with dementia cannot recall where things are and need to actually see them. Signs on drawers may be helpful, and handles need to be of a size and style that old hands can manage.

Implications for new-build	Implications for refurbishment	Implications for aids and adaptations
Locate bedrooms on the quiet side of the building, away from lifts or stairwells where possible	Avoid built-in furniture, which is hard to recognise	Choose furniture designed for people with dementia (for example, wardrobes with clear, glazed doors)
Ensure plenty of light		Signs on drawers may be required
Consider installing movement-operated lighting for the en-suite as an option for those who need it		–

Dining rooms

As with all other rooms, there should be no change in the tonal contrast of the floor covering at the dining room door. The room should be traditional in style, with cues such as a sideboard or dresser to indicate its purpose. Ensure the furniture contrasts with the walls and floor. The same applies to the surface of the table or table mats, which should contrast with any crockery, glassware or cutlery so that people can see their food. Although not strictly design guidance, it is often helpful to avoid putting too much on the table at any one time. To avoid confusion, only place items on the table (such as sugar and milk) when they are needed, rather than at the start of the meal.

Implications for new-build	Implications for refurbishment	Implications for aids and adaptations
Ensure plenty of natural and artificial light		
	Ensure furniture contrasts with the floor	Ensure new furniture contrasts with the floor
–		If new crockery and cutlery is required, ensure that it contrasts with the table. Do not choose designs that are 'childish'

Lounges

It is important that the furniture and fittings give strong cues as to the purpose of the room. As elsewhere, the furniture should contrast with the floor covering. People are likely to spend a lot of time in their lounge, so careful consideration is needed to ensure light levels are adequate. This may mean reducing the size of the pelmet and the swag of the curtains. Natural light is typically much brighter than artificial light and should be maximised as far as possible.

The room needs a focus and this should not be the TV, since many people with dementia find television frightening and noisy. When switched off, TVs can also alarm people by showing a reflection of their faces, so a cover or cupboard can be useful.

Case study

Mrs Jones was given a large screen TV which was installed above the mantelpiece. However, she became anxious about what she saw as a large hole appearing in such a prominent position.

A fireplace with a mantelpiece is the traditional focus of the lounge, and these are available in a range of sizes and styles to suit modern houses with smaller rooms and lower ceilings. Sometimes it may be necessary to remove the heating element from an electric fire. However, if it incorporates a light that gives off a flame-like glow, this should be kept to create the impression of a fire. Naturally there needs to be a good alternative source of heating.

Implications for new-build	Implications for refurbishment	Implications for aids and adaptations
Ensure plenty of natural and artificial light with large windows that have low sills. Provide space each side of windows so curtains can be drawn back beyond them.	Ensure curtains, trees/shrubs outside etc. are not reducing natural light	
Create traditional layout with fireplace/mantelpiece		Consider replacing fires if they may pose a danger; choose a new fire with a traditional appearance
–	Ensure furniture contrasts with floor	Consider changing cushions etc. to ensure furniture is visible
–	Consider location of TV carefully. Provide a cover for the TV so it can be hidden when not in use	Provide cover for TV so it can be hidden when not in use
–	Consider carefully the location of alarm call pulls and door entry handsets	–

7. Individual gardens and outside areas



A stimulating view can be very beneficial

Looking outside

Many people with dementia will spend a lot of time simply looking out of the window, and if there is something to watch this can be life-enhancing.

Implications for new-build	Implications for refurbishment	Implications for aids and adaptations
Try to ensure communal rooms have outdoor view of garden, and/or other locations where things are happening, e.g. a car park or public footpath		–

Getting outside

For many people, getting outside is possible and may be very important. Although the research evidence is limited, one study suggests that access to outside space is beneficial for people with dementia. It found that easy access to outside space reduced aggressive behaviour (Namazi and Johnson, 1992). Doors to outside areas should be clearly visible, unlocked and easy to use wherever possible. A seat, clearly visible from the door, will encourage people to go outside. Areas such as lobbies, conservatories and porches are often very much appreciated by people who want to go outside but are anxious about the weather. They can provide a ‘halfway’ outdoor experience.

Implications for new-build	Implications for refurbishment	Implications for aids and adaptations
Maximise opportunities for getting outside, including balconies, roof terraces and roof gardens	Maximise opportunities for getting outside, including balconies, roof terraces	–
Install doors that are easy to see and operate		–
Thresholds with level access are essential		–
Provide a porch/lobby where possible		–

Being outside

Access to outside space needs to be level and barrier-free. This means ensuring thresholds are level, and maintaining consistent contrast between flooring/

paving surfaces inside and outside the building. Additional design features need to be incorporated for outside space that forms part of extra care housing for people with dementia. This must be secure, and the enclosing element should ideally be 'disguised' by planting, or otherwise concealed to avoid looking imprisoning. It is important to be aware that gates out of an outside space may be an attraction for a person with dementia, and should be disguised as far as possible to minimise attention.

For all older tenants with dementia, outside surfaces must be non-slip, of a consistent tone and level as far as possible. Handrails should be provided on slopes and steps. Providing raised planting beds and other garden items will encourage activity. Robust seating with arms to aid the older person to get up should be available, along with objects of interest to look at. If possible, provide some protection from wind, rain or sun so that outdoor spaces can be used in a variety of weather conditions.

People with dementia who have enjoyed their garden can be distressed if it is not maintained or if they are no longer able to go outside. Easy access to safe gardens and other external areas is really important. Studies demonstrate the role of exercise and vitamin D in maintaining bone and muscle quality, and access to natural light is also necessary to help regulate the circadian rhythm.



A seat will encourage people to go outside



Raised planting beds can encourage activity

Implications for new-build	Implications for refurbishment	Implications for aids and adaptations
Ensure level thresholds	Ensure no contrast in tone between flooring inside and paving outside	Provide ramps where required
For extra care housing, provide a secure, concealed perimeter without obvious gates		Consider things to do in the garden as a way of getting people outside
Provide non-slip paving of consistent tone		–
Provide handrails on slopes and steps		
Prioritise protection from the weather		–
Provide prompts for activities, e.g. raised beds, washing lines, sheds, garden games		–
Provide robust and comfortable seating and tables		



Protection from wind and rain in the garden

Conclusion

These guidelines for improving the design of housing for people with dementia are deliberately brief. For readers who would like to know more, a range of books published by the Dementia Services Development Centre is listed below. The list is added to regularly, so it may be useful to check the website: www.dementiashop.co.uk.

Feedback on these guidelines would be much appreciated through the Dementia Services Development Centre website.

Three lists have been included here to conclude this guidance. The first is the list of key points from the start of the document. This is followed by a list of 'Top ten housing adaptations'. Finally, should funding be very limited indeed, the third list details 'Four priority areas'.

Key points

- it is discriminatory to fail to meet the needs of people with dementia. Their needs should be given the same priority as those of other groups with impairments
- most people with dementia live in the community, and their quality of life can be significantly improved by ensuring their home environment is well designed
- design changes that benefit a person with dementia are beneficial to others too: making the changes recommended in this guidance will have a positive effect on all tenants
- when considering modifications, avoid changing too much at once. People with dementia may have difficulty adjusting to change
- dementia impairs recent memory first, so when considering changes think about the person's strongest memories, which are likely to be from their more distant past (for instance, this is why installing traditional style taps, rather than modern alternatives, is likely to benefit a person with dementia)
- people with dementia need higher than normal levels of light in order to make sense of their environment. Many have significant sight impairment. Allow for double the amount of light that you would normally provide
- the design of the person's environment must be easy to understand: clarity and simplicity should be your key goals
- as the person's memory is usually impaired, focus on design changes that will help them see where things are and where to go
- choose well-designed signs and mount them low: weak neck and shoulder muscles – as well as poor eyesight – mean that the optimal height for signage is 1.2 metres from the ground

- contrast is more important than colour. Contrast makes things visible, while a lack of contrast makes them invisible. Things that are important to the person need to be especially easy to see, while those which might distract them can be made less visible by minimising contrast
- always avoid contrast changes where different flooring surfaces meet (this also applies to places where internal and external flooring surfaces meet). People with dementia can struggle with 3D perception and may misinterpret changes in contrast as steps or holes. Many older people with sight impairments have the same issues, regardless of whether they have dementia or not, so this design change will benefit them too
- external areas can be as disabling as internal areas and need equal attention when design is being considered

Top ten housing adaptations

1. Double the usual levels of lighting in the home.
2. Pay attention to acoustics and reduce noise pollution.
3. Ensure there is good signage mounted low enough for older people.
4. Use contrast of tone (rather than colour) to differentiate between walls, skirting boards and floors. Ensure that the tone of flooring/paving is consistent throughout the house and also in outside areas.
5. Use contrast of colour or tone to make switches and objects easily visible.
6. Use objects or pictures rather than colours to differentiate between rooms and different parts of the building.
7. Ensure that kitchens and bathrooms are easy to understand. Avoid modern fixtures and fittings such as taps or kettles.
8. Ensure that people can see important rooms such as the toilet, as easily as possible, and that furniture and fittings clearly indicate the purpose of each room. Use unambiguous signage on the doors of rooms.
9. Place illuminated clocks in each room indicating whether it is am or pm
10. All doors should ideally be visible on entering the dwelling. Cupboards should be glass-fronted or open.

Four priority areas

1. Improve lighting
2. Ensure flooring/paving is consistent in tone
3. Ensure the toilet is easy to find
4. Ensure good contrast in the toilet/bathroom

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Dementia Services Development Centre books on design

Visit www.dementiashop.co.uk to view other books on a very wide range of dementia care issues.

10 helpful hints for dementia design at home

- McManus, M. and McClenaghan, C. (2012) *Hearing, sound and the acoustic environment for people with dementia*
- McNair, D. et al. (2010) *Light and lighting design for people with dementia*
- Marshall, M (2010) *Designing balconies, roof terraces and roof gardens for people with dementia*
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- Pollock, A. and Marshall, M. (2012) *Designing outdoor spaces for people with dementia*

See also the virtual care home on the DSDC website which, although not housing at this stage, shows many useful principles of dementia-friendly design.

Telecare and telehealthcare

The following resources are available to download free of charge from www.dementiashop.co.uk:

- Kerr, B., Cunningham, C. and Martin, S. eds. (2010) *Telecare and dementia: using telecare effectively in the support of people with dementia.*
- Kerr, B., Cunningham, C., Martin, S., Watchman, K. eds. (2010) *Telecare and learning disability: using telecare effectively in the support of people with learning disabilities*
- Kerr, B., Cunningham, C., Martin, S., Dick, M. eds. (2010) *Telecare and sensory impairment: using telecare effectively in the support of people with sensory impairments*

- Kerr, B., Cunningham, C., Martin, S., Alison, A. eds. (2010) *Telecare and physical disability: using telecare effectively in the support of people with severe physical disabilities and long-term chronic conditions*
- Kerr, B. and Murray, A. eds. (2011) *Telehealthcare and falls: using telehealthcare effectively in the support of people at risk of falling*
- Kerr, B., Hurst, K., Clark, S., Dorrian, C., Muir, L. eds. (2011) *Telehealthcare and mental health: using telehealthcare effectively in the support of people living with mental disorder*

Useful websites

Alzheimer Scotland, <http://www.alzscot.org/>

Alzheimer's Society, <http://www.alzheimers.org.uk/>

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Improving the design of housing to assist people with dementia

This book is one of a series published by the Dementia Services Development Centre to raise awareness of dementia design issues and improve the design of buildings used by people with dementia. It explains why environmental design is so important for people with dementia and goes on to describe the design features that follow from this. It describes modifications that are recommended within individual houses and flats, along with those that are helpful in communal internal spaces within specialist care housing units. There is also a section on designing outside spaces. Most of the recommendations do not involve additional cost – just a little forethought during the planning, refurbishment or redevelopment of accommodation. The guidance is relevant to anyone working in the field of housing, especially those with tenants aged over 65. However, since there are a significant minority of younger people with dementia, the recommendations will benefit this group too.



The Dementia Services Development Trust exists to extend and improve services for people with dementia and their carers. It funds projects undertaken by the Dementia Services Development Centre. For further information visit: www.justgiving.com/dementiaservices

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