

Housing Options For People Living With Dementia

Volume I





CMHC — HOME TO CANADIANS

Canada Mortgage and Housing Corporation (CMHC) has been Canada's authority on housing for more than 65 years.

CMHC helps Canadians meet their housing needs. As Canada's authority on housing, we contribute to the stability of the housing market and financial system, provide support for Canadians in housing need, and offer objective housing research and advice to Canadian governments, consumers and the housing industry. Prudent risk management, strong corporate governance and transparency are cornerstones of our operations.

For more information, visit our website at www.cmhc.ca or follow us on [Flickr](#), [Twitter](#), [YouTube](#) and [LinkedIn](#).

You can also reach us by phone at 1-800-668-2642 or by fax at 1-800-245-9274.

Outside Canada call 613-748-2003 or fax to 613-748-2016.

Canada Mortgage and Housing Corporation supports the Government of Canada policy on access to information for people with disabilities. If you wish to obtain this publication in alternative formats, call 1-800-668-2642.

Housing Options for People Living with Dementia

Volume 1

This guide was prepared for Canada Mortgage
and Housing Corporation (CMHC) by:

Ed Starr, Jodi Ball and Johanna Hashim (SHS Consulting)

A. Paul Williams, Frances Morton-Chang and
Natalie Warrick (University of Toronto,
Balance of Care Research and Evaluation Group)

Doug Snyder (Snyder Architects)

CMHC offers a range of housing-related information.
For details, call 1-800-668-2642 or visit our website at www.cmhc.ca.

Cette publication est aussi disponible en français sous le titre :
Les choix de logements pour les personnes vivant avec la démence (n° de produit 61160).

CMHC does not assume responsibility for errors or oversights resulting from the information contained herein. Users must consult with the jurisdiction having authority concerning the design and installation of any of the products, components or systems described in this publication. The content of this publication is for information purposes only. It is not intended for the content to be relied upon as professional or expert advice or opinions. The information in this publication is a result of current research and knowledge. Readers should evaluate the information, materials and techniques cautiously for themselves and consult appropriate professional resources to see whether the information, materials and techniques apply to them. The images and text are guides only. Project and site-specific factors (climate, cost and esthetics) must also be considered.

© 1999 Canada Mortgage and Housing Corporation
Revised 2014, 2015

This document or any discrete portion of this document (such as a chapter or section) may be reproduced for redistribution, without obtaining the permission of the copyright owner, provided that no changes whatsoever (including translation) are made to the text; that the entire document or discrete part is reproduced; that this copyright notice is included in its entirety in any and all copies of the document or any discrete part of the document; and that no use is made of any part of the document or the name or logo of the owner of the copyright to endorse or promote any product or service. For any use of this document other than reproduction or general reference purposes as set out above, please contact the Canadian Housing Information Centre (CHIC) at chic@cmhc.ca; 613-748-2367 or 1-800-668-2642. For permission, please provide CHIC with the following information: publication's name, year and date of issue.

Produced by CMHC

Table of contents

1.0	Acknowledgements	v
2.0	Background to the Guide	v
3.0	Introduction “Where is Home”	vii
3.1	Purpose of the Guide	vii
3.2	Approach to Using the Guide	vii
3.2.1	Conceptual Framework	vii
3.3	How The Guide is Organized	viii
4.0	Where to Begin	1
4.1	Understanding Dementia	1
4.2	The Physical Environment and Dementia	2
4.3	Quality of Life Principles	2
5.0	Finding “Home”	5
5.1	What Does “Home” Mean	5
5.2	“Home” Options (Care Environment)	5
5.2.1	Private Homes	6
5.2.2	Supportive/Community-Based Housing	8
5.2.3	Long-Term Care	10
5.2.4	Concept of “Campus of Care”	10
5.3	Transitioning “Home”	11
6.0	Designing “Home”	13
6.1	Design for Persons Living with Dementia	13
6.1.1	Design Elements for Private Homes	13
6.1.2	Design Elements for Supportive/Community-Based Housing	28
6.2	Safety for Persons Living with Dementia	37
6.2.1	Safety in Private Homes	38
6.2.2	Safety in Supportive/Community-Based Housing	39
6.3	Assistive Technology for Persons Living with Dementia	39
6.3.1	Assistive Technology in Private Homes	39
6.3.2	Assistive Technology in Supportive/Community-Based Housing	41
	Endnotes	43

1.0 Acknowledgements

The completion of the *Housing Options for People Living with Dementia Guide* is a result of the insight, experiences and stories shared by a diverse range of individuals.

We would like to thank the Study Review Team for their input and direction during the preparation of this report: Josée Dion, Canada Mortgage and Housing Corporation; Rose Ann Hoffenberg, Sandra MacLeod, Employment and Social Development Canada; Simone Powell, Public Health Agency of Canada; Mary Schulz, Alzheimer Society of Canada and Health Canada.

We would like to also thank the various stakeholders including housing providers, formal caregivers and informal caregivers for donating their time to speak with members of the consulting team either through a focus group or interview.

We would like to acknowledge and thank the individuals living with dementia who participated in this study and provided invaluable insight into their housing and support needs.

Together, the experiences from this broad range of stakeholders has contributed toward the development of a thoughtful and insightful guide aimed at outlining housing options designed to meet the needs of people living with dementia.

Thank you.

2.0 Background to the Guide

In 1999, CMHC published the guide *Housing Options for People Living with Dementia* to raise public awareness of community-based housing options for people living with dementia. More specifically, the guide examined housing options designed to meet the needs of people living with dementia; support services that can help caregivers; principles to help manage housing for persons with dementia; and environmental design elements that can increase the safety of people living with dementia as well as that of their family and caregivers (both formal and informal/unpaid). *For the purposes of this guide, informal caregivers are those who provide unpaid care for persons living with dementia. These caregivers may be family or friends and may or may not have formal training in providing care.*

At this time, CMHC has initiated a study aimed at developing content for an updated, Web-based publication to replace the existing guide. This current publication will also replace the earlier 1999 CMHC guide *At Home with Alzheimer's Disease*.

3.0 Introduction

“Where is Home”

For most Canadians, 'home' is where we want to remain as long as possible.¹ Based on the 2011 Census, the vast majority (92 per cent) of seniors, aged 65 years and older, live in private homes. In asking individuals living with dementia, some defined 'home' in the following ways:

“Home feels secure and familiar.”

“Place (to) always come back to.”

“Home is clean and well cared for.”

“I like the feeling of leaving something somewhere and coming back and it's in the space.”

The aging of the population in Canada is contributing to a growth in the number of persons living with dementia. Based on research from the Alzheimer Society of Canada, 1 in 13 persons over the age of 65, and 1 in 3 persons over the age of 85 are estimated to experience one of the dementia's many forms.² Further, a recent study suggested that, based on models which accounted for future changes in the Canadian population, the number of new cases for Alzheimer's disease and other dementias will double in the next twenty years. The number of Canadians 65 years and older living with each of the neurological conditions investigated, which includes Alzheimer's disease and other dementias, will more than double by 2031.³ Assisting persons with dementia to remain as safe and independent as possible in the community (at home or in a supportive housing setting) poses unique challenges to their housing, health and support needs.

Importantly, persons living with dementia are not homogeneous: their needs vary depending on the individual and change over time. There are, however, a number of general and/or common housing and environmental design considerations, features and interventions that can assist them along the progression of the disease as well as support their formal and informal care providers.

3.1 Purpose of the Guide

This guide is aimed at presenting information, through a Web-based platform, to provide guidance to individuals living with dementia and their caregivers and to operators/providers of housing for persons living with dementia on how to:

- increase the safety of the home environment for people living with dementia and their caregivers;
- create a supportive home environment for persons living with dementia; and
- highlight practical information and guidance for managing and designing housing for people living with dementia.

3.2 Approach to Using the Guide

3.2.1 Conceptual Framework

The conceptual framework used in this guide is informed by a person-centred care philosophy. This decision was influenced by the shift in recent years from an acute care focus toward the provision of care at home. This philosophy supports the autonomy of the person living with dementia and recognizes the vital role of formal and informal caregivers in maintaining quality of life and safety.

Alzheimer Society of Canada guidelines for person-centred care are used to inform the various sections of this guide and the organization of the case studies, including their format, layout and the rationale for their selection. These guidelines suggest that:

- dementia does not diminish persons but changes their capacity to interact with their environment. The first signs of dementia often include difficulty with abstract thinking, such as preparing a grocery list or banking, however procedural memory, such as that used to drive a car or cook a meal, often remains intact for a longer time. As such, structuring supports in the environment to enhance safety meets the needs of persons who have more severe symptoms of dementia and supports them to maintain or enhance their autonomy and quality of life;
- importance must be placed on the individual's life history and should be considered when developing a care plan for persons living with dementia, particularly when behavioural modifications are being developed. At the same time, providers and family should keep in mind and respect that the person's preferences may have changed;
- upholding dignity is central to engaging persons living with dementia. It is critical that they be offered choices while balancing their autonomy against potential risks to their safety.

The different elements for private homes and supportive housing as well as elements common and applicable to both care environments are also linked to the idea that a person-centred care philosophy may be applied in any context.

3.3 How the Guide is Organized

Following the background and introduction, this guide is organized in six sections:

Chapter 4: Where to Begin – provides guidance on how to better **understand dementia**. The chapter also presents many of the quality of life principles found in current literature that should be considered when addressing the needs of people living with dementia and their caregivers.

Chapter 5: Finding Home - describes various **care environments**. Care environments are linked to specific examples and case studies in order to highlight the different care environments and unique aspects of each.

Chapter 6: Creating Home – summarizes the many **design elements** that may be considered by persons living with dementia, caregivers and housing providers. Design considerations are provided for private homes and supportive housing environments (both new and adaptive/retrofit suggestions); however they apply as well to other care environments including day centres, retirement and long-term care homes. Guidance is provided on dementia-friendly indoor and outdoor environments, safety considerations, as well as technology features and helpful design considerations for caregivers.

Given the Web-based format of this guide, links to additional resources are provided through each chapter.

4.0 Where to Begin

4.1 Understanding Dementia

Dementia describes a variety of brain (neurological) conditions that cause the loss of mental functions over time. Some dementias are categorized as reversible, where the dementia symptoms are secondary to a primary illness such as thyroid or kidney disease, depression and delirium and can be successfully treated. Other types of dementia are irreversible, where brain cells are damaged and cannot be repaired.⁴ In addition, some forms of dementia, such as Alzheimer's disease, are degenerative, which means they get worse over time. Other forms of dementia, such as vascular dementia, may be non-degenerative and may not get worse over time.⁵ Common symptoms of many forms of dementia include the loss of memory, judgment and reasoning as well as changes in mood, behaviour and the ability to communicate. As these symptoms progress, they affect a person's ability to function in social relationships and in his/her activities of daily living.⁶

It is estimated that by 2038, 1.125 million Canadians, 2.8 per cent of the population, will be living with dementia.

Alzheimer's disease is the most common form of dementia, making up about 60 per cent of all dementia cases. In 2010, it was estimated that about 500,000 Canadians had Alzheimer's disease or a related dementia and this is projected to grow to a total of 1,125,200 Canadians by 2038, making up 2.8 per cent of the estimated total Canadian population.⁷ The aging population is contributing to this growth in numbers as the risk of developing dementia increases with age; however it is important to note that dementia is not a normal consequence of aging.⁸

Alzheimer's disease and related dementias will affect each person in a different way. The problems linked to dementia can be understood in three stages:

- Early stage (first year or two): at this stage individuals have mild impairment due to the symptoms of the disease. These symptoms include forgetfulness, communication difficulties and changes in mood and behaviour. In general, people at this stage require minimal assistance.
- Middle stage (third or fourth years): at this stage, memory and other cognitive abilities continue to deteriorate and while people still have some awareness of their condition, they begin to require assistance with many daily tasks.
- Late stage (fifth year and after): at this stage, people living with Alzheimer's become unable to communicate verbally or look after themselves and care is required on a 24-hour basis.⁹

Vascular dementia is the second most common form of dementia after Alzheimer's disease. It is caused by problems in the supply of blood to the brain. Conditions that can cause or increase the damage to the vascular system include high blood pressure, heart problems, high cholesterol and diabetes. The two main types of vascular dementia are stroke-related dementia and small vessel disease-related dementia. Many individuals who have Alzheimer's disease also have vascular dementia.¹⁰

Given the greatest risk for developing a dementia is age, many persons living with dementia will not only experience age-related changes to their health (for example, vision, hearing) but have also been shown to have a significantly higher burden of chronic diseases (for example, diabetes, angina, cancer) that can exacerbate the challenge of dementia even further.¹¹

For more information about dementia including the various forms please see: <http://www.alzheimer.ca/en/About-dementia>

4.2 The Physical Environment and Dementia

Many factors affect people's ability to manage, navigate, and interpret their environment. As people age there are a number of "normal" age-related changes they may experience such as declines with vision and hearing or possible frailty. When coupled with dementia-related neurocognitive issues (for example, perceptual difficulties, impaired learning, and decline in problem solving abilities) it can be difficult for persons living with dementia to make sense of their environment. As such, environmental design that takes into account the physical, emotional, and psychosocial well-being of persons with dementia is an essential consideration to enhancing their comfort, safety and general quality of life.

A dementia-friendly environment can also benefit caregivers (both informal and formal) by enhancing a person with dementia's remaining abilities and sense of the familiar, while also reducing unwanted behaviours related to poor design (for example, by providing adequate lighting to assist in completing tasks and avoiding misperceptions from shadows). The built environment and other dementia-friendly interventions can also contribute to the safety of persons living with dementia and caregivers in helpful and unobtrusive ways (for example, by camouflaging exit doors that could otherwise encourage elopement and wandering where that behaviour is dangerous while clearly marking and identifying doors to places where people can engage with the outdoors like a garden patio or secure courtyard/terrace).

In this connection, a well-designed environment can help to compensate for the progressive declines of persons living with dementia, promote positive perceptions and interpretations of their surroundings and support greater independence and sense of well-being. While this guide attempts to share helpful design elements broadly for those with dementia, it is important to remember that they are not a homogeneous group.

The National Institute of Health (NIH) in the United Kingdom (2012) notes that the "built environment" can have a significant effect on people living with dementia – it can support them or hasten their deterioration. When considering supportive environments for persons living with dementia it is important to address a number of

impairments that may occur depending on the type of dementia, including declining or impaired memory, reasoning and ability to learn; and the potential for high levels of stress and/or acute sensitivity to their social and physical surroundings.¹²

A person-centred approach to care is recommended such that wherever possible, design elements are individualized and adapted as needed during the course of a person's dementia, and are tailored to that person's tastes and in some instances, his/her generation (for example, interior fixtures and decor that work with long-term memory like individual hot and cold faucets).

"(Home is) a place which feels safe and has belongings that are familiar to you. A place where you feel comfortable."



4.3 Quality of Life Principles

The journey of every person with dementia is unique. How people define their own quality of life will vary and the factors that comprise one's experience of quality of life will be different for each individual. Quality of life is important to people living with dementia and those that care for them and an important element to consider when planning housing and supports for persons living with dementia.

The Alzheimer Society of Canada identifies a number of quality of life principles, which are useful when assisting persons living with dementia. These include the ability to think and make decisions for themselves; the ability to have control over their daily life, including their physical and mental health; their living arrangements, social relationships, religious beliefs, spirituality, cultural values and sense of community; and their say about their financial and economic circumstances.¹³ These principles/guidelines are based on a person-centred philosophy that recognizes that individuals have unique values, personal histories and personalities. They also address each person's right to dignity, respect and to full participation in their physical and social environment.¹⁴

Caregivers play an important role in helping to maintain quality of life by persons living with dementia; however, possible challenges may arise. While caring for a loved one can bring a sense of satisfaction and growth, it is often challenging to balance one's own needs with those of the person living with dementia; this can extend to both the physical and social environment, for example, in deciding what home adaptations to undertake for the person living with dementia while still maintaining a home that is livable for other members of the family. Another example may include situations where young children in a caregiver's family find that their own quality of life is affected due to attention and care required by the person living with dementia.¹⁵

Quality of life is also affected by the type of care the person living with dementia receives. For example, if informal and formal^a caregivers are not provided the appropriate education and training in the care of persons living with dementia, it can affect the quality of life of both the caregiver and the person living with dementia in a negative way. In addition, when the care provided is not based on a person-centred approach, for example when it is rushed or seen only as a task to be completed, the quality of life of the person living with dementia is also negatively affected. This means that it is extremely important for all caregivers to have enough time and support to really get to know and understand the individual needs and preferences of the person or people they are caring for.



Persons living with dementia at any stage of the progression need to be treated with respect, integrity, compassion, dignity and with concern for their safety and privacy. People with mild to moderate symptoms should be supported in finding opportunities to have control in their lives and express using whatever means possible (for example, conversation, advance directives) what will contribute to and enhance their quality of life. As dementia progresses, preserving an individual's quality of life will depend on continuing to respect these earlier decisions and choices as well as continuing to access appropriate health services, social supports and supportive physical environments to live in.¹⁶ These quality of life guidelines go hand in hand with the philosophy of person-centred care. Person-centred care aims to create partnerships among care home staff, persons living with dementia and their families to enhance the quality of life and quality of care of people living with dementia. As such, services and supports work best for persons living with dementia when they are designed and delivered in a way that is integrated, collaborative and mutually respectful of all persons involved in the unit of care.¹⁷

In 2012, the Alzheimer Society of Canada released the results of a qualitative research study highlighting seven key elements to begin and sustain a culture change toward providing person-centred care. The acronym for these key elements has been coined as PC P.E.A.R.L.S.TM:

^a Informal caregivers are those who provide care without financial compensation and are, in general, family or friends of the person receiving care. Formal caregivers are paid care providers.

Person and Family Engagement – Families and friends are involved, supported and engaged in the life of the person living with dementia.

Care – Effective care planning focuses on each person’s abilities, experimenting with various options to avoid the inappropriate use of restraints. It includes routine pain assessment and management to help the person enjoy an improved quality of life.

Processes – Person-centred care is entrenched in the strategic plan and operational processes of the care home to begin and sustain culture change.

Environment – Working within current regulations and legislation, a physical and social environment is promoted to support a person’s abilities, strengths and personal interests and enhance the daily life of persons living with dementia.

Activity and Recreation – Each person is engaged in stimulating and meaningful activities, with recreational plans tailored to the person’s interests, preferences and abilities. Continuous assessment, review and revision of these plans are done as the person’s abilities and interests change.

Leadership – Person-centred care can only happen with strong leaders who are champions of person-centred care and who embed this philosophy in their organizational philosophy and values and model the actions expected of staff in their own interactions with residents, families and staff.

Staffing – Staff training and support, continuity of care and the fostering of intimate and trusting relationships between families, residents and staff are key factors in optimizing person-centred care and the well-being of persons living with dementia.¹⁸



While these elements are derived primarily from research on the care of persons living with dementia in long-term care homes, they apply equally to persons living in their own homes or in supportive housing. Further information on these elements, including strategies to implement these principles, can be found in http://www.alzheimer.ca/~media/Files/national/Culture-change/PCPEARLS_full_e.pdf.

5.0 Finding “Home”

5.1 What Does “Home” Mean

The physical environment plays a major role in determining the independence of persons living with dementia. For persons living with dementia, maintaining a physical environment that is “home like” and familiar, in addition to being safe and comfortable, is the goal whether this is in their own home or in an assisted living or long-term care facility.¹⁹ Home is a place where persons living with dementia feel valued and where their personal space and possessions are respected. Good environmental design for persons living with dementia addresses not only physical needs but social, emotional and spiritual aspects as well. It recognizes that people can experience both internal and environmental causes of comfort or distress. When focus group participants were asked to describe what home meant to them, responses included a place that feels secure and familiar and having a sense of both emotional and physical comfort. Informal caregivers provided their insights into defining home:

*“Home is wherever I am...
he knows when I’m not there”*

While loss of the familiar can be difficult for any senior, it is particularly difficult for persons living with dementia, as one of their coping strategies is to rely on familiar places, faces, and routines that are embedded in their long-term memory. Losing the familiar can greatly affect their quality of life. Caregivers repeatedly report that familiarity is one of the key points to remember when making their new life with a person with dementia. As such, it is important to make housing for persons living with dementia as familiar and normal as possible;²⁰ for example, recreating furniture that was similar to what people had in their own homes to fit the assisted living environment. Just as persons with physical disabilities need modifications to gain physical access to their environment, persons living with dementia benefit from modifications to help them understand and cope within their environment. Home modifications for persons living with dementia usually are designed to

compensate for cognitive deterioration; however they may also address issues with growing frailty or co-existing physical or sensory disabilities such that modifications relating to physical access will also become relevant.²¹ For this reason, some housing providers allow their residents to bring furniture from their previous home to furnish their room. They also allow residents to move the furniture around to meet their needs.

“Companionship is so important to making it feel like home...she needs one-to-one relationships. Deciding to move into a facility is really difficult. Financially it’s tough but also emotionally.”



5.2 “Home” Options (Care Environment)

While most seniors would like to remain in their own homes, research shows that the decision to age in place is not a one-time event. As their needs and circumstances change, seniors may reconsider moving to assisted living or a long-term care home.²² For example, while persons in the early stages of dementia are often able to live in their own homes, they may need to consider additional home modifications, a live-in caregiver or moving to an assisted living or long-term care facility as their symptoms progress.

5.2.1 Private Homes

Staying in familiar surroundings provides some security and comfort, which may be particularly important for persons living with dementia. Generally, older homes were not built to facilitate aging at home, although there are modifications that can be done to make these homes safer and more comfortable as a person ages. For persons living with dementia, it is particularly important to ensure that their current home supports their independence and allows them to continue to enjoy the activities and lifestyle that they are used to. In addition to supporting the independence and quality of life of persons living with dementia, home modifications can also provide support to caregivers and ensure their safety. The section on creating home in this guide will discuss some suggested design elements and home modifications for private homes.



In addition to home modifications and adaptations, persons living with dementia and their caregivers may also access in-home and respite care options to provide caregivers a break. These may include the following:

In-home help – This refers to care providers that can be hired to provide assistance and can range from a few hours a week to live-in help (provincial home care programs provide supports based on assessed need and there are copayments for some of these).

Day programs or adult day care – This refers to programs that typically operate on weekdays and offer a range of activities and socialization opportunities. These programs also provide the primary caregiver a chance to continue working (at least part-time) and/or attend to other needs.

Respite care – This refers to care provided in the home by paid caregivers or a short-term stay in a facility (for example, care centre, supportive housing, long-term care home) to provide informal caregivers with some time to rest or attend to other needs. Respite care can last a few hours a day in their own home or at an adult day program or for a few days in residential respite facilities.

5.2.1.1 Receiving Help at Home

Cluster Care is one model of care used in Canada where community health workers work as teams to bring supportive services to people who live within a certain geographic area, such as within a neighbourhood or building.²³ Another model of care in the community is the **Comprehensive Home Option of Integrated Care for the Elderly (CHOICE)** in Alberta. In this model, seniors who have multiple and/or complex health needs and would otherwise be in a long-term care home receive care in a day health centre. These individuals also have access to home care services, respite and treatment beds and 24-hour emergency services.²⁴

One other approach used in the Netherlands is where teams of health care workers and case managers provide people with dementia home care services 24-hours a day, seven days a week. Case managers coordinate services from the team and other network partners with the person living with dementia and his/her informal caregiver. When they need more intensive treatment or observation, clients with dementia have access to a 16-bed short-stay clinic.²⁵

These different community care options help persons living with dementia stay in their own homes longer. They also provide some support to informal caregivers, augmenting the care they provide as well as providing respite relief either in their own home or through the use of a day centre.

Home and community care services provide supports for people who are chronically ill or with functional impairment or disabilities to live independently in their own homes. These services, some of which are publicly paid, may include health, personal and respite care. Other services such as homemaking, meal delivery, and Alzheimer day programs often operate under the context of the community support sector and are generally privately paid.

A number of national associations will also have provincial and regional affiliates that can help you to navigate your healthcare system. For further information about local programs and education that might be helpful for persons living with dementia and informal and formal caregivers please visit Health Canada provides more information on general community care options at <http://www.hc-sc.gc.ca/hcs-sss/home-domicile/commun/index-eng.php> and Alzheimer Society of Canada at www.alzheimer.ca

5.2.1.2 Adult Day Programs for Persons with Dementia

According to a study by Morton (2010), adult day programs (ADPs) for persons with dementia generally offer supervised and supported social and recreational activities at a location outside the person with dementia's home. The goal of many ADPs is to help individuals in need of some type of care or supervision to remain active in their communities and out of institutions for as long as possible. ADPs generally offer meals, light physical activity, assistance with daily living, transportation to/from the program, dementia-appropriate recreational activities, medication reminders and, in some cases, varying levels of personal care assistance ranging from simple toileting to showering. Dementia-specific ADPs ideally have appropriately trained staff and many will offer traditional and non-traditional hours of operation. For example, some may offer day-time programs which can allow for caregiver relief and the ability to continue working. Evening and overnight programs can also help to address issues like "sun downing" or sleeping for caregivers of persons living with dementia experiencing nighttime wandering, rummaging, or exit-seeking behaviours.



ADPs come in many forms ranging from lighter care environments as found in elderly person centers to more extensive programming and assistance such as those located in healthcare centres where there is access to professionals such as social workers or nurses. While most accommodate persons with early onset dementia occurring before age 65, the majority of programs target seniors aged 65 years and older. ADPs may service mixed populations (persons with and without cognitive impairment) or offer only dementia-specific programs.²⁶

5.2.1.3 Respite Programs for Persons Living with Dementia

Informal caregivers of persons with dementia, many of whom are seniors with health issues of their own, often provide significant amounts of unpaid care that leave them at risk for declines in their own health and possible burnout. Accessing respite programs sooner (as a first line program) than later (as an add-on service) can benefit both the person living with dementia, by introducing early preparation and familiarity with the routine of respite, and their caregivers, by providing earlier and more frequent breaks from caregiving responsibilities.

Respite care can be described as support services for persons living with dementia that temporarily relieve their informal caregivers from care responsibilities including but not limited to monitoring and/or engaging persons with dementia in the daily activities, meal and medication monitoring, safety checks and social interaction. This type of care can be provided in the home of the person with dementia by appropriately trained care providers or friendly visiting volunteers with dementia training, in dementia-friendly or specific adult day programs (and overnight respite programs), or through short-term stays in retirement or residential care facilities.²⁷

5.2.2 Supportive/Community-Based Housing

There are a number of factors that may influence the decision for a person living with dementia to move from a private home to an assisted living facility or a long-term care home. While each situation is different, this decision is often influenced by health and safety issues for the person living with dementia, their caregiver and/or the people around them. The decision to move to an assisted living or long-term care facility may also be influenced by the increasing need for supervision and care as dementia progresses, particularly for those who do not have an informal caregiver. Financial issues and the family's preferences are also factors in the choice to move to a long-term care home or assisted living facility. In some situations, the person living with dementia is still able to make the decision to move. In other situations, the caregivers and/or family members have to make the decision, often with the help of a doctor or other health care providers.

When a person with dementia is no longer able to live safely and independently at home, he/she may consider transitioning to a more supported care setting (for example, supportive housing, assisted living) to avoid premature or inappropriate institutional placement. Supportive housing is an example of congregate living that links affordable housing to staff that can provide a comprehensive and coordinated package of services and programs to help individuals maintain their optimal level of health and well-being.

Such models of care are said to promote mental and physical health by encouraging independence, providing opportunities for socialization and friendship, ensuring a secure living environment and providing regular contact with staff and other residents who would be aware of changes in a resident's well-being.²⁸

In asking providers to identify aspects of an 'ideal' housing model for persons living with dementia, responses included:

- a model which resembles an ordinary home or neighbourhood;
- a space can be made more like home by asking residents their views; and
- a model which accommodates varying levels of disability.

Some factors to consider when transition to a supportive/assisted living include the following:

- Cost (rent, meals, fees for services)
- Environment (accessibility, security)
- Amenities (outdoor space, recreational areas)
- Services (types of support, staffing)
- Staff and management (training)
- Location (proximity to friends and family)²⁹



Assisted living accommodation is designed for people who require only minimal to moderate care to be able to live independently. In this housing option, the accommodation is combined with some supports. These vary but may include meals, housekeeping or personal and health care services. Each province and territory has different regulations and requirements for assisted living facilities. The cost of this accommodation also varies throughout the country. In some provinces, residents are responsible for the full cost of their accommodation and services while in others, the government pays for a portion of the cost. If this is a housing option that is under consideration, you should check with the ministry responsible for housing and community services in your province or territory.

There are different types of assisted living that are appropriate for persons living with dementia based on the project size, the level of services provided and whether it is run by a non-profit or for-profit organization. One of the key benefits of assisted living/supportive housing for persons living with dementia is that there is the possibility of tailoring the services to meet their changing needs. In some cases, supportive housing can provide a level of care that is equivalent to a long-term care or nursing home facility. For further information, see the case studies in volume 3. There are different names for supportive housing in the different provinces. For example, in B.C. it is called assisted living, while in Saskatchewan it is called supported independent residences.



Retirement residences or **retirement homes** are another form of assisted living. Most retirement residences are privately owned and operated, although some are owned by a municipal government or non-profit organization. Most retirement homes offer meals, housekeeping, laundry and recreational and social programs in addition to accommodation, but the level of personal care and health services varies significantly as do the costs. For example, some retirement residences are geared toward independent living with the option of paying additional fees for personal care and health services. Retirement homes are often not subsidized by the government. The nature of regulation of these residences differs from province to province.

In addition, it should be noted that there are other supportive housing models, not discussed within this guide, aimed at meeting the needs of persons living with dementia who have very complex needs such as persons experiencing homelessness and/or additional mental health challenges. LOFT in the city of Toronto is one example.

Group homes are another form of assisted living. Residents live together in one house and there is usually a small staff to help residents. While this community-based living model is most often used for persons with developmental disabilities, the features of this model also work for persons living with dementia in the early and moderate stages because of its small-scale design, home-like feel, and good staffing ratios. For further information and examples of this form of assisted living, see the case studies in volume 3.



5.2.3 Long-Term Care

A long-term care home is a housing option for people who can no longer live independently and who need 24-hour/7-day nursing care and supervision, sometimes in a secure environment. Long-term care homes offer more personal care and health care services than what is offered in an assisted living facility. Long-term care homes are regulated by provincial governments and require a license to operate. These homes receive some form of government subsidy, often calculated on a per diem basis, to provide food, accommodation and health care services. In most cases, residents pay for the room and board costs, unless they qualify for a subsidy. There are different names for long-term care homes throughout the country but the type of accommodation and level of support services are often the same. For example, long-term care homes are called residential continuing care facilities in Yukon, special care homes in Saskatchewan, and centres d'hébergement et de soins de longue durée in Quebec. There may also be differences in costs of long-term care in the different provinces as well as in the costs subsidized by the government. For further information and some examples of long-term care homes, see the case studies section in volume 3.



5.2.4 Concept of “Campus of Care”

The *campus of care model* is a relatively new approach, which may include any combination of independent housing, supportive housing, assisted living, residential care and community programs. A campus of care offers an integrated continuum of housing, services and care, allowing residents to remain in a familiar setting and community of people as their needs change. A campus of care model also allows the sharing of amenity and support services, enhancing efficiency and reducing costs.³⁰ While this type of approach to care would appear optimal, in many provinces there are difficulties with seamless transitions due to issues with placement coordination (for example, in Ontario local community care access centres do assessments and organize long-term care placement wait lists). For further information and examples of full continuum providers, see the case studies section in volume 3.



5.3 Transitioning “Home”

The decision to move from home to supportive housing or long-term care is an emotional one. As such, it is important to listen carefully to the person living with dementia’s needs, concerns and expectations. The decision to move incorporates a number of considerations, which may take individuals living with dementia and caregivers time to understand and make decisions.

The “right” time to move from a person’s own home to supportive housing or long-term care is different for each person with dementia. Some signs that suggest the person with dementia is having difficulty living safely and independently at home include:

- being unable to prepare and eat nutritious food;
- forgetting to take medications as prescribed or making mistakes in taking medications;
- having falls and other accidents at home;
- creating unsafe situations, such as leaving the stove on;
- having difficulty handling emergencies;
- getting lost on familiar streets;
- making frequent visits to the hospital emergency room;
- caregiver(s) being concerned about leaving the person alone;
- having difficulty managing everyday household tasks;
- gradually losing the ability to look after oneself; and
- being unable to leave home and maintain social interests.^b

The ability of a person living with dementia to remain at home also largely depends on the support available from family, friends and community services. Some questions that the main caregiver should honestly ask himself/herself are:

- What is the effect on my own life of caring for my loved one at home?
- Do I have the physical and emotional resources to meet the person’s present and growing future care needs at home?
- Do I feel stressed and overwhelmed with my caregiving responsibilities?
- What are other available sources of support? Have we taken full advantage of them?
- Does the person accept receiving outside help at home?
- Is the outside help enough to meet the person’s present and future needs?
- What is the financial cost of arranging for adequate home care and supervision?
- Overall, does living at home compromise the physical and emotional health of the person with dementia or mine as a caregiver?

Once the decision has been reached to move, some factors to consider when deciding on the right supportive housing with support include the following:

- Cost (rent, meals, fees for services)
- Environment (accessibility, security)
- Amenities (outdoor space, recreational areas)
- Services (types of support, staffing)
- Staff and management (training)
- Location (proximity to friends and family)^c

^b Aminzadeh, F., W. Dalziel, F. Molnar, (2009). *From Home to Retirement Home: A Guide for Caregivers of Persons with Dementia*. Ottawa: Regional Geriatric Program of Eastern Ontario. Accessed at: <http://www.champlainhealthline.ca/pdfs/fromhometoretirementhome.pdf>

^c Advocacy Centre for the Elderly (2009). *A checklist if you are shopping for a retirement home*. Accessed at: <http://www.advocacycentreelderly.org/appimages/file/RH%20Checklist%20-%202009.pdf>

For more information:

[http://www.champlainhealthline.ca/pdfs/
fromhometoretirementhome.pdf](http://www.champlainhealthline.ca/pdfs/fromhometoretirementhome.pdf)

Information on legal considerations with regard to an individual's decision-making capacity can be found through the Attorney General Office:

[http://www.attorneygeneral.jus.gov.on.ca/english/family/pgt/
capacityoffice.asp#selecting](http://www.attorneygeneral.jus.gov.on.ca/english/family/pgt/capacityoffice.asp#selecting)

And through the Advocacy Centre for the Elderly:

[http://www.advocacycentreelderly.org/consent_and_
capacity_-_publications.php](http://www.advocacycentreelderly.org/consent_and_capacity_-_publications.php)

Guidelines for preparing a health care directive/plan can be found at:

http://www.health.gov.nl.ca/health/publications/ahcd_booklet.pdf

[http://www.seniors.gov.on.ca/en/advancedcare/docs/
AdvancedCare.Guide.pdf](http://www.seniors.gov.on.ca/en/advancedcare/docs/AdvancedCare.Guide.pdf)

6.0 Designing “Home”

6.1 Design for Persons Living with Dementia

The physical environment plays a big role in the quality of life of persons living with dementia. An environment that is familiar, easy to understand and home-like results in less agitation, aggression, depression and social withdrawal in persons living with dementia than more institutional settings. For example, ensuring that persons living with dementia have privacy and the opportunity to personalize bedrooms has been shown to result in less agitation. Furthermore, having distinctive and varied social spaces can also help to reduce depression, misidentification of items and places and social withdrawal.³¹ Some housing providers have a social hub and/or dining rooms on each floor to encourage residents to build rapport with one another. The smaller group settings also help residents to overcome challenges related to large groups.

Well-designed environments for persons living with dementia should:

- enable a healthy lifestyle;
- maximize abilities and independence;
- encourage involvement in life;
- compensate for loss of abilities and focus on strengths; and
- promote safety, security and belonging.³²

The best living environment for persons living with dementia is one that helps them to be as independent, comfortable and safe as possible. The home should:

- be familiar with recognizable and age-appropriate furniture and fittings with distinct purposes. For example, household items and decor should not be removed or changed unless they present a problem or an obstacle and different rooms should denote different functions;
- help the persons to know where they are or find where they want to go. A clear hierarchy of spaces, including private, semi-private/semi-public and public spaces helps people with dementia identify different spaces and helps protect their privacy and sense of home;^{33,34}

- support independence. Changes to the environment allow the persons to be as independent as possible rather than promote passivity, dependence, boredom and even depression;
- encourage participation in tasks and activities. Changes should encourage, not restrict, persons' involvement in their own personal care and in household tasks;
- promote confidence and self-esteem by helping them to succeed in activities of daily living;
- reinforce persons' senses of identity by stimulating their memory;
- be physically and psychologically comfortable; and
- promote safety in an unobtrusive way for both persons with dementia and their caregivers. For example, working toward a balance between safety, security and independence may involve limiting exposure to potential hazards (for example, removing sharp knives from cupboards) and encouraging activities that safely promote independence and well-being (for example, gardening or cooking with a caregiver present).³⁵

6.1.1 Design Elements for Private Homes

“A home is a place where you feel comfortable and safe. A place where you can be free to do what you want, when you want, with your family and friends.”



When a person is living with dementia, there are many factors that contribute to challenges experienced in performing daily living activities. As such, home adaptations should be undertaken according to which factors are contributing to the challenges faced by the person living

with dementia as well as his/her caregiver. Safety is one of the most common areas of need for persons living with dementia in their own homes. Some of the most common physical obstacles that can increase risk include the absence of handrails on stairs, misplaced or too many pieces of furniture and clutter.³⁶ Studies on stairs and handrail design note that even when handrails are available they are often not “graspable” enough (the ideal rail should be circular, with a diameter of 1.5 inches, so fingers can wrap around it in a power grip).

Regarding stairs – older homes in particular often have narrow treads that do not have room to plant one’s entire foot on the step. Any slight variability in the dimensions from step to step (either in the rise or the other dimensions) can result in a loss of balance.³⁷ When designing for persons living with dementia it is a good idea to consider a visit from an occupational therapist to provide a home safety assessment. This will provide suggestions for preventing falls, safely getting in and out of the house, and organizing the house to help persons living with dementia and their caregivers to best manage keeping the house clean, doing laundry and outdoor maintenance, keeping the bathroom and kitchen safe, getting in and out of bed, and staying active and involved in the community.³⁸

If possible, persons living with dementia should be included in deciding what home modifications to undertake. This will lessen the chance of confusion and irritation to changes within the home. As such, it is ideal to undertake home modifications as early as possible (for example, in the early stages of dementia).³⁹ When considering new building and renovations to existing buildings, architects, developers and planners should consider the accessibility of home in their designs as well as mobility within the home.⁴⁰

Whether or not the decision-making process related to home modifications involves the person living with dementia, it is important to consider his/her individual needs and preferences.⁴¹ As such, modifications and changes should be made only in response to specific problems or to encourage independence or participation. Standard modifications should not be installed for their own sake. For example, installing a fence to keep a person safe may actually cause the person to feel frightened and trapped and result in climbing and wandering.

While there are a range of home adaptations, it is important to try simple, temporary modifications first. For example, instead of implementing electronic tracking systems right

away, consider first a sign inside the front door to take their phone in case of emergency or removing the person’s jacket or walking shoes to avert wandering.

The following questions can guide decisions on choice of home adaptations/modifications:

Diagnosing the problem

- Is it a result of dementia, side effect of medication or completely unrelated to the dementia?
- Is it the result of some physical need, such as thirst, hunger or pain?
- Are they bored, sad, lonely or looking for someone?
- Are they frustrated or angry? Are they trying to do a task that they had always been able to do?
- Have they lost something?
- Does the problem relate to using some equipment or to some practice from the past?
- What has changed lately that may have precipitated the problem?
- Is the caregiver doing something different?
- Has something been changed in the home?
- Has the community support staff changed?
- What problem has emerged now?
- What usually precedes or precipitates the problem?

Assessing solutions

- What emotional impact would there be for the person living with dementia?
- What impact would each possible solution have on the person’s skills?
- Does the solution allow the person to continue to use his/her skills or does it remove a task and ultimately make him/her less independent?
- Is the person living with dementia allowed to help as much as possible?
- What impact would the modification/adaptation have on the person’s environment?
- What risks are involved? What is the worst that could happen?
- What is the most likely result of the modification/adaptation?
- What impact would the modification/adaptation have on the caregiver?

The Dementia Services Development Centre (DSDC) at the University of Stirling has identified four priority areas for home adaptation for persons living with dementia:

- Improving lighting.
- Ensuring flooring/paving is consistent in tone, flat and has a non-slip surface.
- Ensuring the toilet is easy to find.
- Ensuring good contrast in the bathroom (that is, ensuring colour of toilet seat contrasts with toilet and bathroom floor; proper lighting to see what they are doing and minimization of shadows).⁴²

Additional factors to keep in mind when undertaking home adaptations for persons living with dementia include the following:

- Avoid modifying too much at once. Persons living with dementia may have difficulty adjusting to change.
- Take into account person's strongest memories when considering changes. Dementia impairs recent memory first.
- Ensure normal levels of light to help persons living with dementia be able to make sense of their environment, perform tasks, and reduce difficulties with regulating their body clock.
- Include objects that are familiar from the person's past or intuitive to use. The design of the person's environment must be easy to understand: clarity and simplicity should be the key goals.
- Focus on design changes that will help a person living with dementia see where things are and where to go.
- Choose well-designed signs and mount them low, with the optimal height for signage being 1.2 metres from the ground so that those that are walking stooped, and/or using walkers or wheelchairs can see them.
- Minimize contrast for unwanted distractions such as elevator doors, or tile flooring where alternating dark and light tiles may cause a person living with dementia with visual impairments to see the dark tiles as holes in the ground.

- Avoid contrast changes where different flooring surfaces meet. Persons living 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, whether or not they have dementia.
- Avoid modifications that make the home environment seem "institution like" (for example, nursing stations might better be situated as a "kitchen" or other unobtrusive room for observation and paperwork).
- Give external areas equal attention with internal areas, as the former can be equally disabling.⁴³
- Create distinctive environments, spaces and features to help capture people's attention and concentration and enhance their living environment while helping them to find their way around.⁴⁴

In addition to the above considerations, there are several 'virtual environments' that help illustrate the various design elements by room and by housing type. Some examples include:

The Dementia Centre (United Kingdom)
<http://dementia.stir.ac.uk/design/virtual-environments>

Alzheimer's Australia
<http://www.enablingenvironments.com.au/>

According to the Dementia Services Development Centre (DSDC), the top ten home adaptations include:

1. double the usual levels of lighting in the home to help with visual impairments as well as possible shadows and misperceptions;
2. pay attention to acoustics and reduce noise pollution to reduce possible agitation and confusion;
3. ensure there is good signage mounted low enough for people who may be bent over using a walker or using a wheelchair;
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 as well as 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 (for example, avoid modern fixtures that turn on automatically and consider hot and cold fittings for taps);
8. ensure that people can see important rooms such as the bathroom, 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 a.m. or p.m. and use large, clear and accurate analogue clocks; and
10. ensure doors where possible be visible on entering the dwelling to indicate clearly what is in each room. Cupboards should be glass-fronted or open to help people with dementia know what is in them and prompt them to use them.⁴⁵

For additional information on factors to consider when making the decision on what home modifications to undertake, please refer to:

Adapting Your Home to Living with Dementia:
<http://www.cmhc-schl.gc.ca/odpub/pdf/66495.pdf>

Dementia Design Series: Improving the Design of Housing to Assist People with Dementia: <http://www.jitscotland.org.uk/resource/improving-housing-design-assist-dementia/>

At home with dementia: A manual for people with dementia and their carers: http://www.adhc.nsw.gov.au/_data/assets/file/0011/228746/at_home_with_dementia_web.pdf

Improving the design of housing to assist people with dementia:
<http://www.cih.org/resources/PDF/Scotland%20general/Improving%20the%20design%20of%20housing%20to%20assist%20people%20with%20dementia%20-%20FINAL.pdf>

For an example of a dementia-friendly community, this video discusses how the community of Bobcaygeon is making efforts to make it dementia-friendly through its 'blue umbrella program': <http://globalnews.ca/video/1596011/living-with-dementia-pt-4-making-communities-dementia-friendly?hootPostID=fd26996f3b21e1853d87c6804ca18e5d>

6.1.1.1 Lighting

Lighting for older adults, whether they have dementia or not, should be twice what is required for another person. Good lighting should be provided in areas where people undertake complex tasks, such as reading, cooking or eating, and where they spend a lot of time. Before considering artificial light, every effort should be made to let as much natural light in as possible—including regular exposure to natural daylight outdoors. Suggested lighting levels for different areas around the home are:

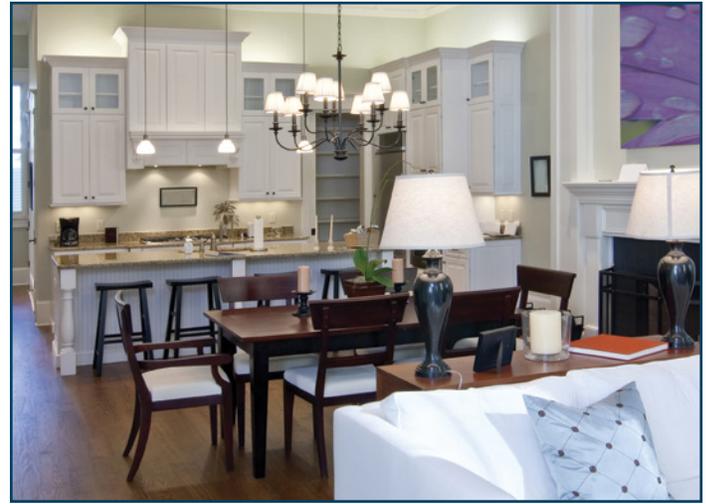
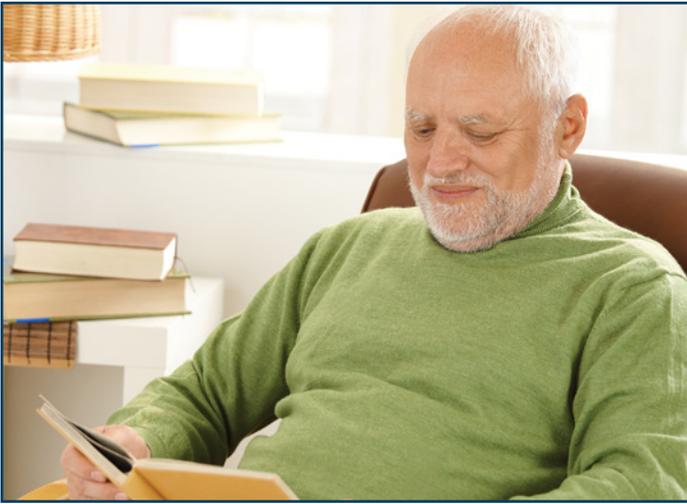
Area	Average Horizontal Illuminance (in lux)
Living rooms	300
Recreation	300 + 300 of daylight
Kitchens	600
Bathrooms	300
Bedrooms	200
Hallways	100 – 150
Stairs	150

Source: *Dementia Design Series: Improving the Design of Housing to Assist People with Dementia*

Other lighting considerations include:

For new construction

- Orient buildings to maximize natural light (for example, large windows with lighting shelves built in to help avoid glare).
- Extend curtain rails beyond windows so they are fully exposed when curtains are open.
- Provide different types of lighting (for example, overhead lighting, natural lighting and task lighting).
- Include dimmer switches for electric lights with several circuits and controls according to usage and for dimming corresponding to time of day and season (for example, it gets dark earlier in the winter – light can be bright until near bedtime and then begin to dim).
- Ensure light switches contrast with walls; install coloured plates at switches or coloured finger plates around switches.^{46,47}



For renovations and home adaptations

- Do not use hanging lace curtains (for example, sunlight through lace curtains can cause shadows that can lead to misperceptions and possible unwanted behaviours).
- Increase the number of lamps while ensuring the cords pose no trip hazards.
- Replace light bulbs immediately when they burn out.
- Ensure switches contrast with walls; install coloured plates at switches or coloured finger plates around switches.
- Extend curtain rails beyond windows so windows are fully exposed when curtains are open.⁴⁸

General considerations

- Make sure landscaping does not block natural light or cause shadows in the home.
- Remove furniture/objects that may be blocking windows.
- Create transitional spaces for area where lighting goes from bright to dim or dim to bright (for example, front door awnings, front door and hallway lighting, benches to sit at while eyes adapt).
- Provide light sensors to control artificial light and avoid a harsh transition from darkness to bright light.⁴⁹

The guide prepared by the University of Stirling, Joint Improvement Team, Dementia Services Development Centre, and CIH Scotland provides further information. See <http://www.jitscotland.org.uk/resource/improving-housing-design-assist-dementia/>.

The Alzheimer Knowledge Exchange provides lighting recommendations. See <http://www.akeresourcecentre.org/Design>.

6.1.1.2 Doors

Being able to identify doors is critical for wayfinding. When designing a new home, ensure that all doors are immediately visible 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. Sliding doors should be avoided since persons living with dementia can find them hard to use.

Consider rehanging bathroom doors so they open outwards. This can allow easier access should someone fall against the door from the inside. Also, "Dutch doors" where the door is split between a bottom and top half or a locked screen door may allow someone to see outside but remain safely inside, although for some people, this may instead create frustration with not being able to get out. Doors should contrast with the adjacent wall unless they are not meant to be accessed by the person living with dementia. In this case, they can be painted the same tone to 'disguise' them.

Evidence-based design recommendations and strategies for doorways developed by the Alzheimer Knowledge Exchange Design and Dementia Community of Practice include the following:

- Visual redirection from restricted areas – Adapt doorways to restricted areas, co-resident rooms and exit doors from dementia units for visual redirection/ blending. This can be done by painting doors the same shade as the surrounding walls and placing large bold grid lines, a sign with the resident's name, or a large STOP sign.
- Therapeutic redirection – Make pleasant seating/ special interest areas available in areas away from exit doors and promote their use.
- Enhanced access to safe areas – Provide doorway design that enhances access to safe wandering areas, such as making these doorways visually distinctive from the wall or using lever handles for independent use.

- Positioning of prompts – Posting fire exit instructions at eye level.
- Doorway entrance seating – Provide seating just inside building entrances to allow vision time to adjust, and avoid seating areas near dementia unit entrances.
- Limitations to doorway/elevator traffic – Ensure exits from dementia units are low-traffic areas.
- Door code redirection – Incorporate door/elevator code pads into visual redirection adaptations, for example, by making a keypad part of a bookshelf design or wall painting, or incorporating upside down code pads.⁵⁰

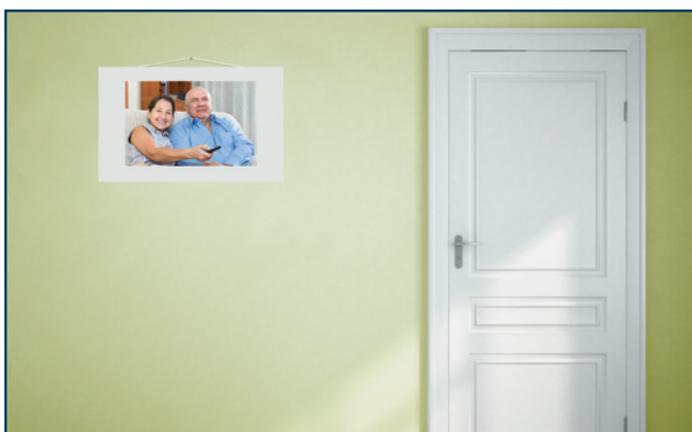
Further information on doors and doorways can be found at <http://www.jitscotland.org.uk/resource/improving-housing-design-assist-dementia/> and http://www.adhc.nsw.gov.au/data/assets/file/0011/228746/at_home_with_dementia_web.pdf

6.1.1.3 Signs

When using signs to help persons with dementia understand their environment or find their way about their home, it is important to ensure they are:

- consistent in style;
- mounted with their lower edge no higher than 1.2 metres from the floor;
- contrasted with the door or wall;
- incorporate capital letters by lower case letters and include a graphic or photograph; if the sign is for a person in his/her own home, it may be possible to tailor it using either words, a graphic, or a combination, depending on his/her 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; and
- include directional signage if a location is not obvious.

Further information on signs can be found here: <http://www.jitscotland.org.uk/resource/improving-housing-design-assist-dementia/>



6.1.1.4 Noise and Room Acoustics

For older persons generally, unwanted and excessive noise can produce stress, anxiety and confusion; increased heart rate, blood pressure and fatigue; delayed wound healing; decreased weight gain; impaired immune function and impaired hearing. For persons living with dementia, the effects can be even more marked. This does not mean eliminating all noise, as this can lead to under-stimulation. Rather, it means providing the right kind of noise at the right level and right time.

The following are strategies to address unwanted noise:

- Locate bedrooms away from unwanted noise, such as from the street.
- Monitor and minimize background noise.
- Consider using acoustical ceiling and wall products, low pile carpeting and heavy curtains to help absorb noise.
- Schedule intrusive noise, such as vacuuming, when the person living with dementia is out of the house or engaged in another room.

Further information can be found on the Alzheimer Knowledge Exchange Resource Centre website: <http://www.akeresourcecentre.org/Design>.

6.1.1.5 Floors

Caregivers and providers should avoid waxing and polishing floors, as shiny floors can cause glare, be confusing or disturbing and dangerous/slippery. Better choices include low pile carpeting or other shock absorbing materials in case of falls.

Floors should be one consistent tone that is the same between rooms. Often builders will change the colour and type of flooring depending on the function of a room; however, this can cause people with dementia having issues with depth perception to consider changes

in colour or pattern as obstacles. Changes in tone could be misinterpreted as steps, increasing the risk of falling. Stripes or patterns should be avoided.

Other considerations related to perceptual difficulties include the following:

- Threshold strips can be perceived as a step, causing people to stop and falter so they should be avoided where possible.
- Doormats that are a dark colour can look like a hole in the floor; so they should be the same tone as the floor.
- 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.
- Different flooring types laid adjacent to each other should have light reflectance values that are as similar as possible.⁵¹

Further information on floors can be found here: <http://www.jitscotland.org.uk/resource/improving-housing-design-assist-dementia/> and http://www.adhc.nsw.gov.au/_data/assets/file/0011/228746/at_home_with_dementia_web.pdf



6.1.1.6 Stairs

Persons living with dementia may need several different cues to alert them to stairs, over and above building code requirements. Install solid, reinforced handrails on both sides of stairs. Outline edges of steps with bright coloured paint or tape and install rubber treads or non-skid adhesive strips on uncarpeted stairs. Sloping or stepped skirting and highly visible sloping handrails will give extra information to someone who may no longer be able to perceive 3D. 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. Avoiding strong tonal changes near stairs but still ensuring there is a change in texture will assist both people with dementia and those with sight impairments to use them safely.⁵²

Further information on stairs can be found here: <http://www.jitscotland.org.uk/resource/improving-housing-design-assist-dementia/> and http://www.adhc.nsw.gov.au/_data/assets/file/0011/228746/at_home_with_dementia_web.pdf

6.1.1.7 Handrails

The installation of handrails is one of the most common home modifications as it allows the person living with dementia to move around with extra safety. It also helps the caregiver when assisting the person living with dementia. As mentioned above, handrails should be “graspable” (for example, with a diameter of 1.5 inches) and secure firmly to the wall. Rounded handrails are easier to grip and some products have rounded ends for safety and a

non-slip surface for better grip. Handrails should contrast with the wall and include a feature to indicate where they end, such as a knob or the rail turning inward. This will help the person using it to feel when they have reached the end.⁵³

Further information on handrails can be found here: <http://www.jitscotland.org.uk/resource/improving-housing-design-assist-dementia/> and http://www.adhc.nsw.gov.au/_data/assets/file/0011/228746/at_home_with_dementia_web.pdf

6.1.1.8 Kitchens

The kitchen may be the most difficult room to adapt to a person living with dementia. When modifying kitchens for persons living with dementia, the following considerations are helpful to keep in mind:

- Things the person needs to use most must be easily visible and reachable so cupboards may need to have glass doors or no doors, and be lowered if necessary. Key appliances may also need to be left on work tops to avoid reaching and dropping them, and to prevent injury.
- 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.
- If a person is still able to use the stove, a whistling kettle can remind them that their water is hot.



- Hazardous items may need safety devices, such as heat and smoke sensors, that can switch them off if necessary. It is generally not a good idea to disable a stove or oven fully as it may then cause confusion or frustration when the person tries to operate it.
- Noise should be minimized by ensuring sound absorbent surfaces are used where appropriate (for example, linoleum versus hardwood, laminate or tile).
- Maximize lighting, using both strip lighting above kitchen surfaces and spotlights for task lighting.
- Speckled surfaces should be avoided, as the specks can be interpreted as crumbs, bugs or other small items.
- The stove and countertops should be the same height as it may be difficult for people with dementia to judge differences in height and they may be more prone to break things.⁵⁴

Further information on the design of kitchens for persons living with dementia can be found here: <http://www.jitscotland.org.uk/resource/improving-housing-design-assist-dementia/>.

6.1.1.9 Bathrooms

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. Appropriate use of contrast is important in bathroom design. For example, the toilet seat should contrast with both the floor and the bowl. If grab rails are installed, they should contrast with the wall and the floor:

Where possible, there should be at least two overhead lights positioned in locations that will minimize 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 with overhead waterspouts can be very frightening, so a handheld shower head is usually preferable. This lets the person with dementia see where the water is coming from and have some control over it, which reduces fear and helps avoid an angry response.



The existing bathtub has been modified to make it safer for people with limited mobility to enter and exit the shower



An insert allow the bathtub to be used for bathing

A free-standing shower seat with arm rests may be needed. If provided, 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.

Some suggestions for bathroom designs for persons living with dementia include the following:

For new construction or renovations

- Avoid standard packs of white equipment; tonal contrast is important.
- Use taps, plugs, cisterns, etc. that are traditional in appearance.
- Maximize natural light.
- Install two lights, neither of which should be above the bath.
- Ensure showers are easy to use and understand.
- Ensure wash basins are big enough for soap, toothbrush, mug, etc.
- In wet rooms, which often have covered 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 flooring; avoid threshold strips or ensure they blend in.

For home adaptations

- Ensure that all equipment contrasts with walls and floors (for example, grab rails that contrast with the floor and walls; toilet seat that contrasts with both the pan and the floor).
- Ensure that the shower seat contrasts with the floor.
- Install non-slip flooring with a similar tone to any adjacent hall or bedroom flooring; avoid threshold strips or ensure they blend in.⁵⁵

Further information on the design of bathrooms for persons living with dementia can be found here: <http://www.jitscotland.org.uk/resource/improving-housing-design-assist-dementia/>.



6.1.1.10 Bedrooms

Bedrooms need to be quiet and look as familiar as possible. They also need a lot of light. Furniture that allows the person to see what is inside can be helpful. For example, a wardrobe with an open side or glazed door can be used to contain the clothes for that 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. Other suggestions include the following:

For new construction or renovations

- Locate bedrooms on the quiet side of the building away from elevators or stairwells if possible.
- Avoid built-in furniture, which is hard to recognize.
- Ensure plenty of light.
- Consider installing movement-operated lighting for the ensuite as an option for those who need it.

For home adaptations

- Choose furniture designed for people with dementia, such as wardrobes with clear, glazed doors.
- Signs on drawers may be required.⁵⁶

Further information can be found here: <http://www.jitscotland.org.uk/resource/improving-housing-design-assist-dementia/>.



6.1.1.11 Dining Rooms

As indicated earlier, there should be no tonal contrast of the floor covering at the dining room door to avoid people living with dementia stopping at the door and not entering. The room should be traditional in style with cues such as a sideboard, dresser, and or signage to indicate its purpose. Ensure the furniture also contrasts with the walls and floor. The same applies to the surface of the table or table mats, which should contrast with the plates, bowls, glassware and cutlery so that people can see them. Other suggestions include the following:

- Ensure plenty of natural and artificial light to promote a positive mood and encourage eating.
- If new tableware is required, ensure that it contrasts with the table; do not choose designs with distracting patterns or that are childish.
- Consider also purchasing plates, bowls and cutlery that have been modified to assist those with physical disabilities (for example, large handled cutlery for people who have difficulty grasping).⁵⁷



6.1.1.12 Living Room

Furniture and fittings should give strong cues as to the purpose of the room and furniture should contrast with the floor. People are likely to spend a lot of time in this room so careful consideration is needed to ensure light levels are adequate. This may mean reducing the size of the valance and the swag of the curtains. Natural light is typically much brighter than artificial light and should be maximized as much as possible.

The room needs a focus, but this should not be the TV, as people living with dementia may find this frightening and noisy. When switched off, TVs can also alarm them by showing a reflection of their faces, so a cover or cupboard should be used. A fireplace with a mantelpiece is the traditional focus of a living room. It may be necessary to remove the heating element from an electric fireplace, although if it incorporates a light that gives off a flame-like glow, this should be kept. There should be a good alternative source of heating as well.

Other suggestions include the following:

For new construction or renovations

- Ensure plenty of natural and artificial light with large windows that have low sills.
- Provide space on each side of windows so that curtains can be drawn back beyond them.
- Create a traditional layout with a fireplace/ mantelpiece.
- Ensure curtains or trees/shrubs outside are not reducing natural light.
- Ensure furniture contrasts with the floor.
- Consider the location of the TV and ensure the screen can be covered when not in use.
- Consider carefully the location of alarm call pulls/ buttons and door entry handsets.

For home modifications

- Consider replacing fireplaces if they pose a danger; choose a fireplace with a traditional appearance.
- Consider changing cushions, etc. to ensure furniture is visible.
- Ensure the TV screen can be covered or hidden when not in use.
- Ensure curtains, trees/shrubs outside are not reducing natural light.⁵⁸

Further information can be found here: <http://www.jitscotland.org.uk/resource/improving-housing-design-assist-dementia/>.

6.1.1.13 Wandering

Wandering may be a behavioural expression of a basic human need, such as the need for social contact, or a response to environmental irritants, physical discomforts or psychological distress. Wandering is of particular concern for people living on farms or large properties. The person may wander out of sight of their caregiver and become lost on a large property or fall on an uneven walking surface. There may not be any neighbours close by who might notice and informally monitor the wandering, behaviour and general health of the person. Adequate monitoring of someone with dementia who lives alone on a property is particularly difficult as they may get cut off due to bad

weather or flooding. As with other behaviours related to dementia, it is important to observe and learn as much as possible about the individual and their particular pattern of wandering.⁵⁹

In the early stages, people may start to wander and not be able to remember how to return home or forget their keys and not be able to re-enter their home. Some strategies to help the person living with dementia remain independent in these early stages include:

- a door key on a chain or cord around the person's neck or on a string pinned inside his/her handbag;
- a sign inside the door to encourage the person to take his/her jacket, key and telephone;
- a wander alert bracelet with the "Safely Home" Registry of the Alzheimer Society of Canada that has information about where the person lives and alerts the police how to return him/her safely home. Visit <http://www.alzheimer.ca/en/Living-with-dementia/Day-to-day-living/Safety/Safely-Home>.

Whether a person with dementia lives at home or in a communal setting, wandering can often be managed with meaningful programming such as "walking programs," meaningful engagement in other activities that reduce the desire to wander (often done out of boredom) and other creative outlets for this behaviour.

Recommendations (see below) are provided based on the following goals:

- To encourage, support and maintain residents' mobility and choice, allowing them to move about safely and independently.
- To ensure that causes of wandering are assessed and addressed with particular attention to unmet needs.
- To prevent unsafe wandering and successful exit seeking.⁶⁰

The issue of wandering can be addressed as follows:

- Find the most likely cause of the wandering.
- Ensure the person is free from pain and is physically comfortable.
- Make the environment safe for wandering but change as little as possible.

- Encourage plenty of exercise and independent mobility.
- Ask for neighbourhood support.
- Provide for activity but do not overstimulate.
- Consider risks and decide on an appropriate level of security to achieve a balance between independence and safety.
- Aim to distract but not restrain; don't lock someone in who lives alone.
- Assist the caregiver to know when the person is wandering and even track them if necessary.

Some problems and concerns related to wandering are:

- getting out of the house without the caregiver knowing;
- going out and having problems finding the way home; getting lost while out;
- wandering around the house at night and interrupting the caregiver's sleep;
- being at risk of injury from traffic;
- being at risk of physical danger from other people; and
- constant pacing in the house causing stress to the caregiver.⁶¹

Some strategies to employ inside the house to discourage wandering are:

- using dimmed lighting to help the person to remember it is night time and to stay in bed;
- using comfortable bedroom temperature and bedding, which may reduce nighttime wandering;
- having a large clock by the bed to orient the person to time;
- installing adequate lighting;
- putting locks on windows and sliding locks at the top of doors;
- placing high vertical railings on verandahs and balconies to prevent falling;
- removing any barriers and loose mats or rugs that may cause falls;

- considering moving furniture back to allow room for a walking path;
- removing small pieces of furniture that will get bumped into and ornaments that will get knocked over; however, keep rooms as familiar to the person as possible;
- preventing frustration at the end of dead-end corridors by placing a chair, potted plant and even a favorite picture on the wall to encourage the person to rest;
- considering having an armchair in the kitchen and a bed in the living room to encourage the person to rest while being near company and activity;
- using notices and signs (that have words or pictures) to help the person find where they might be wanting to go;
- putting stickers on glass doors for safety; and
- putting stickers or hangings on windows and glass doors to distract the person from wanting to get out.⁶²

Strategies that can be used in the yard to help address wandering:

- Sensor or night lights if the aim is to facilitate safe wandering.
- Improved access with ramp and handrails.
- A level walking path with points of interest along the way—no 'dead ends.'
- A pleasant destination—a garden seat in a sheltered spot near a flower bed.
- A garden with a variety of plants, colours and smells and poisonous or sharp plants removed.
- Safe, outside gardening equipment such as a hose, raised garden bed or a shed with a safe variety of gardening tools to attract the person's attention and participation.
- Secure fencing and gates, such as that is used for enclosing pools and gates with child-proof locks. Planting along the fence line, solid fencing or brush fencing may prevent the cue to go outside the fenced area.
- An outside toilet with the door left open and signs as visual cues.⁶³

Strategies to employ beyond the home:

- If the person wanders outside the home alone, encourage them to wear suitable clothes, comfortable non-slip shoes and an identification bracelet with first name and information about memory impairment and the contact name and phone number of the caregiver. Don't include address details to avoid vulnerability to crime. Similar information can also be placed in a wallet, handbag or inside clothing and jacket if the person does not like wearing jewelry.
- For nighttime, consider getting them to wear light-coloured or reflective clothing.
- Look into programs that are designed to provide rapid and accurate identification and the safe return of a person who has wandered.
- Create a support network by advising trusted neighbours and shopkeepers about the person's condition so they can help the person if they wander.
- Keep enlarged copies of current photographs of the person to help police if required.
- Consider attaching a tracking device to the back of the person's clothing when they go out walking alone.⁶⁴

Locking someone in their own home should be considered carefully as the person may feel trapped and become frustrated and angry, which can then lead to dangerous actions and safety risks. Locking exit doors at night or installing door alarms (particularly the types that alert the caregiver but may not give off loud sounds) may be one possible solution for live-in caregivers. These strategies keep the person living with dementia in the house but allow them to wander within the house. This will address the need to wander but also allow the caregiver to sleep without worrying that the person may become lost or injured.

Some strategies to use as alarms or monitors:

- Squeaky doors
- Bell chimes hung low in the doorway to detect movement
- Battery or electric alarm systems on exit doors to detect movement and alert caregivers

- Wrist tag transmitter monitors that work on a watch, wrist tag or pendant, or are attached to the belt or back of clothing, on which the transmitter activates an alarm connected to a sensor device
- Electronic tracking devices worn on a bracelet, pendant or belt
- An intercom monitor to wake and alert a caregiver when the person gets out of bed at night

Some of these products are quite costly so find out as much as possible about the equipment first before buying as there may be less costly alternatives or they may not be absolutely necessary.⁶⁵

Further information on wandering can be found here: http://www.adhc.nsw.gov.au/_data/assets/file/0011/228746/at_home_with_dementia_web.pdf



6.1.1.14 Outdoor Spaces

Many people living with dementia will spend a lot of time looking out of the window so ensuring that there is something to watch can help enhance quality of life. Try to ensure that communal rooms have a view of the garden or other areas where things are happening, such as a car park or footpath. For many people, getting outside may be beneficial as it may reduce aggressive behaviour. To encourage people outdoors, 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 appreciated by people who want to go outside but are anxious about the weather. These areas can provide a 'halfway' outdoor experience. Some strategies for getting a person living with dementia outside are:

- maximizing opportunities for getting outside, including balconies, roof terraces and roof gardens;
- installing doors that are easy to see and operate;
- ensuring thresholds provide level access; and
- providing a porch/balcony where possible.

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. Outside space must be secure and the enclosing element should ideally be 'disguised' by planting or 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 living with dementia and should be disguised as much as possible to minimize attention.

Outside surfaces must be non-slip, of a consistent tone and as level 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 person to get up should be available as well as 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 living 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 as exercise and vitamin D helps in maintaining bone and muscle quality and access to natural light is also necessary to help regulate the circadian rhythm.

Strategies for outside spaces include the following:

For new construction and renovations

- Ensure level thresholds.
- Ensure no contrast in tone between flooring inside and paving outside.
- Provide a secure, concealed perimeter without obvious gates.
- Provide non-slip paving of consistent tone.
- Provide handrails on slopes and steps.
- Prioritize protection from the weather.
- Provide prompts for activities, such as raised beds, washing lines, sheds.
- Provide robust and comfortable seating and tables.

For home adaptations

- Provide ramps where required.
- Consider things to do in the garden as a way of getting people outside.
- Provide robust and comfortable seating and tables.

Further information can be found here:

<http://www.jitscotland.org.uk/resource/improving-housing-design-assist-dementia/>.

6.1.2 Design Elements for Supportive/Community-Based Housing

While many design elements can help improve the quality of life for persons living with dementia and assist their caregivers, designers and operators of supportive/community-based housing⁶⁶ should ensure that these elements meet building and fire codes, and long-term care regulations.

As discussed above, it is important to aim to create a home-like environment in an assisted living/long-term care facility, for example, by designing the kitchen to open into the dining space, similar to a private home, or removing nursing stations and having staff undertake paperwork in the common areas with the other residents. Additional strategies that have been used by some housing providers include:

- a one-storey design;
- smaller units;
- incorporating pictures, furniture, artwork and other belongings from the residents' past to make them feel more comfortable; and
- good circulation of air and ensuring that residents get fresh air.

Housing providers consulted in developing this guide noted the need for flexibility in the design to better respond to the changing needs of residents. Additional suggestions from stakeholders involved in developing this guide include:

“Printed family albums, smaller ones that can be carried around, the iPod and music help her too.”

“If it is not possible to bring furniture “based on photographs of the furniture, have it recreated.”

“Spaces that are flexible can respond to people as their needs change.”

More information from the Alzheimer Knowledge Exchange Resource Centre can be found at <http://www.akerresourcecentre.org/Design>

6.1.2.1 Lighting

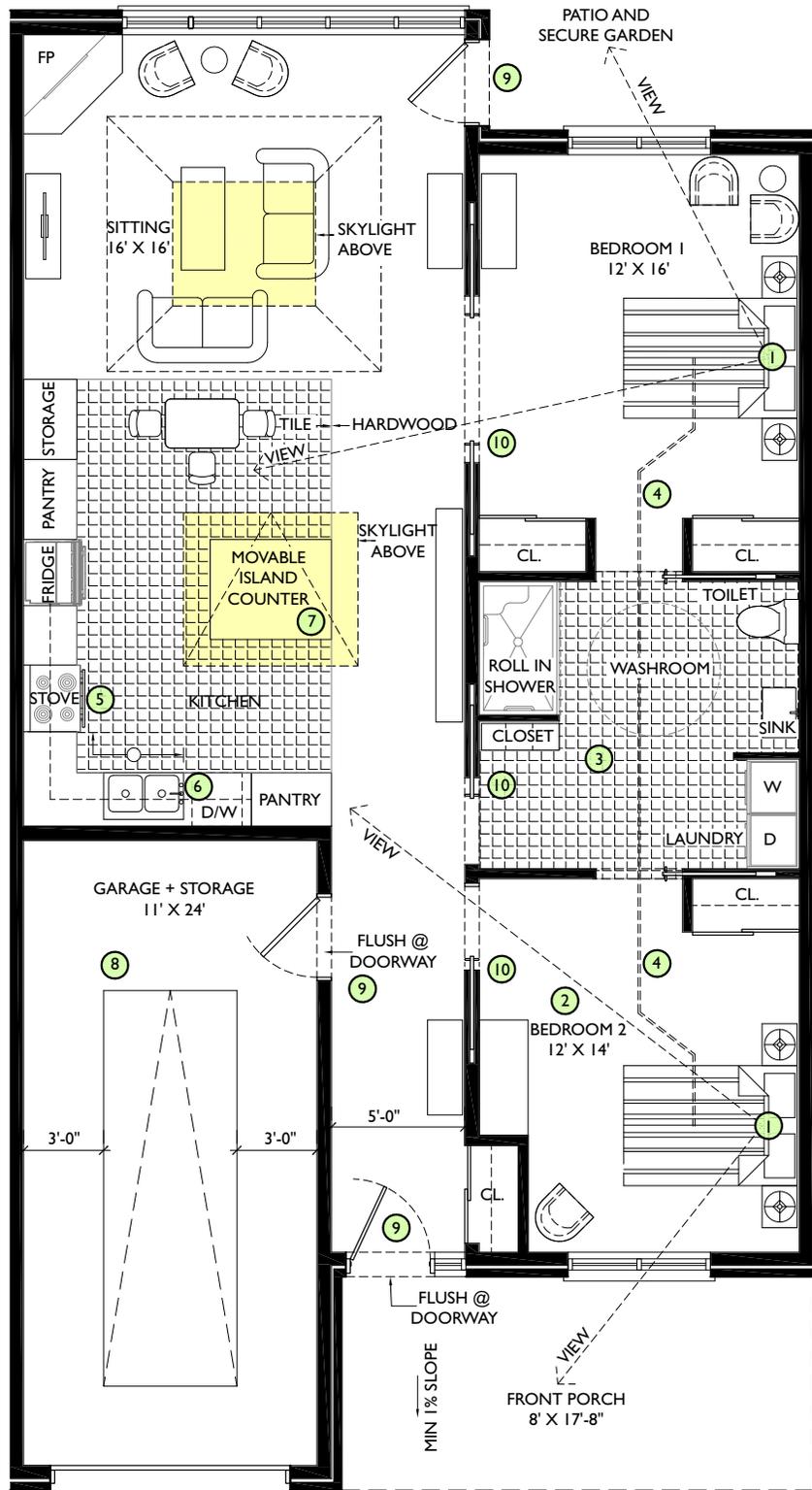
Good lighting is one of the most important design details for supporting the ability of older adults, whether they are living with dementia or not, to perform their normal daily living activities. Good lighting prevents falls and plays an important role in managing biological and psychological processes in the human body, including sleep patterns.

The effects of adequate lighting on persons living with dementia include the following:

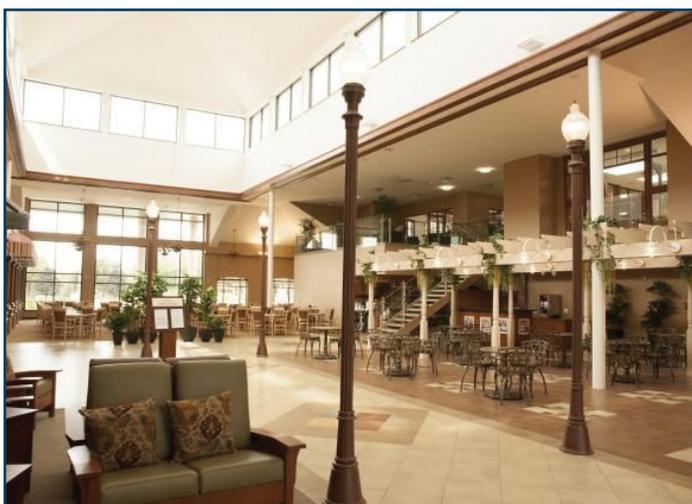
- Dissipating shadows.
- Reducing mood disturbances.
- Positively affecting eating.
- Optimizing communication opportunities.
- Encouraging well-being.
- Increasing natural activities.



- NOTES:**
1. Room around bed for mobility equipment and view from bed to home activity and outdoors
 2. Second (alternate) bedroom on one floor for possible use as caregiver's room to enable 24/7 passive supervision
 3. Washroom sized and adaptable to provide space as well as for caregiver and mobility equipment (good space for canopy)
 4. Provision for overhead rail transport from bed to washroom
 5. Front control appliance and time control
 6. Side faucet for kitchen sink
 7. Moveable island counter/table
 8. Garage. Space around the vehicle for mobility equipment
 9. Flush access all exterior doors
 10. Sliding/pocket doors
- Radiant in-floor heating system
 - All light switches at 32" above floor
 - Low-level night light (floor)
 - All lighting should be incandescent/LED no fluorescent
 - Emergency call (dial out) in bedrooms, washroom and kitchen
 - Maximize daylight and views



CASE STUDY - SUPPORTIVE HOME
Snyder Architects Inc.



The best lighting solutions use abundant natural light, as bringing daylight into a building provides both high levels of energy-efficient light and a strong cue as to the time of day. It also provides a connection with the outside world.

Some strategies and recommendations for appropriate and adequate lighting in an assisted living/long-term care facility include the following:

- Lighting with a high colouring rendering index providing 30 to 70 foot candles (1 foot candle = 10 lux) for indoor illumination in main areas and activity areas; lighting that mimics natural sunlight.
- Task lighting (direct illumination) of vertical surfaces at higher levels than ambient lighting, on average 700 lux.

- Access to natural light and windows overlooking outdoor areas to promote well-being.
- Graduated lighting from indoors to outdoors, for example, awnings and brighter interior lights in entranceways.
- Lighting that can be adjusted throughout the day and act as a cue for daytime and nighttime, for example, dimming the corridor lighting in late evening/near bedtime.
- Lighting that has even distribution throughout an area and surfaces that are free from glare; elimination of pooled lighting and shadows, which create false illusions of depth.
- Individual preferences for lighting are respected and balanced with safety, for example, using dimmers for built-in flexibility to accommodate individual needs.
- Appropriate practices including lighting policies and maintenance standards in place, for example, ensuring windows are kept clean and pulling down shades and dimming lights at bedtime.⁶⁷

Further information can be found on the Alzheimer Knowledge Exchange Resource Centre <http://www.akeresourcecentre.org/Design>.

6.1.2.2 Doors

Whenever and wherever possible, the attention of a person living with dementia should be led away from exit doors using positive cues or redirection with other interesting stimuli.

Some recommendations and strategies for doors include the following:

- **Visual redirection from restricted areas** – Adapt doorways to restricted areas, co-resident rooms and exit doors from dementia units for visual redirection/blending. This can be done by painting doors the same shade as the surrounding walls and placing large bold grid lines or a sign with the resident's name or a large STOP sign.
- **Therapeutic redirection** – Make pleasant seating/special interest areas available in areas away from exit doors and promote their use.

- **Enhanced access to safe areas** – Provide doorway design that enhances access to safe wandering areas, such as making these doorways visually distinctive from the wall or using lever handles for independent use.
- **Positioning of prompts** – Post fire exit instructions at eye level.
- **Doorway entrance seating** – Provide seating just inside building entrances to allow vision time to adjust and avoid seating areas near dementia unit entrances.
- **Limitations to doorway/elevator traffic** – Ensure exits from dementia units are low-traffic areas.
- **Door code redirection** – Incorporate door/elevator code pads into visual redirection adaptations, for example, making a keypad part of a bookshelf design or wall painting or incorporating upside down code pads.⁶⁸

Further information can be found on the Alzheimer Knowledge Exchange Resource Centre: <http://www.akeresourcecentre.org/Design>.

6.1.2.3 Handrails

Similar to private homes, the installation of handrails in an assisted living environment allows the person living with dementia to move around with extra safety while providing the caregiver additional help when assisting the person living with dementia. Handrails should contrast with the wall and include a feature to indicate where they end, such as a knob or the rail turning inward. This will help the person using it to feel when they have reached the end. Rounded handrails are easier to grip and some products have rounded ends for safety and a non-slip surface for better grip.⁶⁹

Further information on handrails can be found here: <http://www.jitscotland.org.uk/resource/improving-housing-design-assist-dementia/> and http://www.adhc.nsw.gov.au/_data/assets/file/0011/228746/at_home_with_dementia_web.pdf



6.1.2.4 Noise and Room Acoustics

Unwanted and excessive noise increases stress, which results in higher anxiety and confusion, increased heart rate, blood pressure and fatigue, delayed wound healing, decreased weight gain, impaired immune function and impaired hearing. These effects are even greater for a person living with dementia. When considering noise and room acoustics, the most important parameters are sound pressure level and reverberation time. It should be noted that addressing noise sensitivity in persons living with dementia does not mean eliminating all noise as this can lead to under-stimulation. Rather, it is providing the right kind of noise at the right level and right time.

The following are strategies and recommendations to address unwanted noise in assisted living/long-term care environments:

- Dementia unit layout and design – Locate resident rooms and activity areas such that the impact of noise is minimized, for example, locating bedrooms away from high-noise areas such as utility rooms and ensuring that quieter lounge areas are available for those who do not want to be part of noisy activity.
- Background noise – Regularly assess, monitor and minimize background noise. Persons living with dementia may not be able to ‘screen out’ or ignore unwanted noise and this can make them anxious and unable to perform tasks.
- Ensure that noise level assessments are conducted routinely in formal care settings. It is important to ensure that knowledgeable staff use a sound level meter to complete occupational health and safety noise level assessments and, in addition, conduct informal noise assessments on a regular basis. Noise assessments include measuring the volume or sound levels as well as the number of occurrences and duration.
- Reduce noise echoes – Use acoustical ceiling and wall products.
- Scheduling of intrusive noise – Implement a sound management schedule in high traffic areas, for example, schedule vacuuming at times when the fewest number of people will be disturbed or when the person with dementia is engaged in another room.

- Fire alarms – Consider choice, distribution and location of audible devices; plan fire alarm testing to be sensitive to the needs of persons living with dementia.

The following are aimed at encouraging staff and caregivers to minimize certain types and duration of stressful or intrusive noise:

- Communication techniques – Ensure all staff understand environmental factors that contribute to intrusive noise and implement dementia-specific communication strategies when interacting with persons living with dementia. For example, use less vocalization and more gestures and/or facial expressions to assist persons living with dementia to understand the message or request being conveyed; use simple, language-specific and culturally relevant statements and set routines and reminders to wear hearing aids and check batteries.
- Sensory assessment and accommodation – Regularly assess and accommodate for vision and hearing loss of persons living with dementia. Some strategies include ensuring hearing assessments and referrals are available, arranging formal hearing tests, and using gesture and visual cueing versus shouting.
- Monitoring distress – Regularly assess the effect of noise levels on persons living with dementia and make efforts to counter any distress by reducing intrusive noise.⁷⁰

Further information can be found on the Alzheimer Knowledge Exchange Resource Centre: <http://www.akeresourcecentre.org/Design>.



6.1.2.5 Floors

Floors should be one consistent tone that is the same between rooms. Stripes or patterns should be avoided. Changes in tone could be misinterpreted as steps, increasing the risk of falling. Avoid waxing and polishing floors as shiny floors can be confusing or disturbing and slippery. Other considerations include the following:

- Threshold strips can be perceived as a step, causing people to stop and falter so they should be avoided where possible.
- Doormats that are a dark colour can look like a hole in the floor so they should be the same tone as the floor.
- 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 which are as similar as possible.

Further information on floors can be found here: <http://www.jitscotland.org.uk/resource/improving-housing-design-assist-dementia/> and http://www.adhc.nsw.gov.au/_data/assets/file/0011/228746/at_home_with_dementia_web.pdf

6.1.2.6 Stairs

Persons living with dementia may need several different cues to alert them to stairs, over and above the requirements of the building code. Install solid, reinforced handrails on both



sides of stairs. Outline edges of steps with bright coloured paint or tape and install rubber treads or non-skid adhesive strips on uncarpeted stairs. Sloping or stepped skirting and highly visible sloping handrails will give extra information to someone who may no longer be able to 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. Avoiding strong tonal changes near stairs but still ensuring there is a change in texture will assist both people with dementia and those with sight impairments to use them safely.

Further information on stairs can be found here: <http://www.jitscotland.org.uk/resource/improving-housing-design-assist-dementia/> and http://www.adhc.nsw.gov.au/_data/assets/file/0011/228746/at_home_with_dementia_web.pdf

6.1.2.7 Bathrooms

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. Appropriate use of contrast is important in bathroom design. For example, the toilet seat should contrast with both the floor and the pan. If grab rails are installed, they should contrast with the wall and the floor.

Where possible, there should be at least two overhead lights positioned in locations that will minimize 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 so a handheld shower head is usually preferable. This lets the person with dementia see where the water is coming from and have some control over it, which reduces fear and helps avoid an angry response.

A free-standing shower seat with arm rests may be needed. If provided, 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.

Some suggestions for bathroom designs for persons living with dementia include the following:

For new construction or renovations

- Avoid standard packs of white equipment; tonal contrast is important.
- Use taps, plugs, cisterns, etc. that are traditional in appearance.
- Maximize natural light.
- Install two lights, neither of which should be above the bath.
- Ensure showers are easy to use and understand.
- Ensure wash basins are big enough for soap, toothbrush mug, etc.
- In wet rooms, which often have covered 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 flooring; avoid threshold strips or ensure they blend in.

For home adaptations

- Ensure that all equipment contrasts with walls and floors (for example, grab rails that contrast with the floor and walls; toilet seat that contrasts with both the pan and the floor).
- Ensure that the shower seat contrasts with the floor.

- Install non-slip flooring with a similar tone to any adjacent hall or bedroom flooring; avoid threshold strips or ensure they blend in.

Further information on the design of bathrooms for persons living with dementia can be found here: <http://www.jitscotland.org.uk/resource/improving-housing-design-assist-dementia/>.

6.1.2.8 Wayfinding

Wayfinding is the process that allows a person to navigate to a particular place and back. The autonomy and quality of life of persons living with dementia is strongly linked to their ability to reach certain places within their environment. Effective wayfinding is critical to the safety and well-being of persons living with dementia and will promote self-sufficiency, comfort and a sense of security.

In an assisted living/long-term care environment, home-like settings that are small in scale are less of a challenge to persons living with dementia. The cluster or neighbourhood concept eliminates the confusion of long hallways.

Other strategies for wayfinding include the following:

- Ensure floor plans are simple and easy to follow to increase wayfinding ability.
- Floor plans that place the kitchen, dining and activity room next to each other, or within sight of each other, can help persons living with dementia to reach these rooms with reduced anxiety.
- Hallways should be clutter-free, with few decision points between destinations and clearly visible endings to provide a safe pathway and improved orientation for persons living with dementia.
- Consider the placement of cueing devices or 'landmarks' to assist with place recognition and orientation, including at decision points where navigational choices must be made, such as at doorways, corners or intersections of corridors; for example, using a picture of a dining table to show where the dining area is.

- Create memory boxes or personalized collages by the room doors of persons living with dementia, which contain objects that are special to each individual.
- Toilets should be visually accessible and easy to find for persons living with dementia. The setup of the toilet areas should encourage and cue independent use through visual access and legibility.
- Use meaningful engagement to draw familiar life experiences, past roles and include everyday life events. Activities should be significant to the person living with dementia and not just a diversion.⁷¹

Further information can be found on the Alzheimer Knowledge Exchange Resource Centre: <http://www.akeresourcecentre.org/Design>.



6.1.2.9 Outdoor Spaces

Safe, attractive and carefully planned outdoor spaces will help persons living with dementia to maintain an active lifestyle that supports their physical and emotional well-being. Easy access to a well-planned garden can form part of a holistic treatment plan providing the opportunity for physical exercise to relieve tension, reduce aggression and provide personal space for reflection and privacy. Landscape design should reflect changing needs both related to the seasons and persons living with dementia to allow for activities throughout the year that are familiar and encourage regular participation. Persons living with dementia who had a garden in their own home may become distressed if they are no longer able to go outside once they transfer to an assisted living facility; access to safe gardens and other external areas is very important.

While each site will be different, there are a number of landscape design principles to consider that may help improve the quality of life of persons living with dementia, including the following:

Access, movement and orientation

- Provide access to garden areas from communal rooms or private patios.
- Routes through external areas should be laid out in a clear manner, and be level and barrier-free.
- Maximize views into the garden.
- Provide clear routes and entrances.



- Introduce 'circular' walking routes which return the resident to their starting point; routes should never terminate at a dead end, and exit gates should be concealed.
- Provide clear navigational markers, such as garden features and strongly scented plants.
- Design external space based on themes and colours which follow an overall design concept to aid orientation.
- Introduce paths wide enough for two people and wheelchair use; ensure plenty of opportunities to pause or sit along routes.

Memory and mental mapping

- Access to external space and the attributes of a garden can trigger positive memories and provide a sense of normality and security.

Sensory stimulation

- Introduce stimuli for the visually impaired through colour and textural contrast.
- Avoid polished materials which may generate glare or may be mistaken for water or slippery surfaces.
- Water should be introduced in a safe, controlled way, such as in shallow reflective pools.

- Use strongly scented plants as 'markers.'
- Encourage people to touch plants by raising beds.
- Illuminate pathways, trees and features within the garden to enhance security and enable the gardens to be enjoyed at night.

Shelter and shade

- Consider the provision of a heated summer house or winter gardens containing indoor plants to enable year-round access to the garden environment.
- Avoid locating seating areas where they would be subject to bright light and glare.
- Ensure seating areas are sheltered.

Maintenance and gardening activities

- Introduce kitchen gardens or raised planters to provide residents who have limited mobility the opportunity to participate in gardening activities.
- Provide locations for a greenhouse and potting shed.

Planting strategy

- Create a planting palette which reflects 'seasonal change' to facilitate association with natural timelines and chronology.



- Consider a 'sensory' planting scheme, using species combinations selected for their texture, colour and scent within a clearly defined scheme; use strongly scented plants alongside footpaths so fragrance is released as residents brush past.
- Avoid toxic, thorny plants or species with serrated leaves; place plants with bright berries or inedible fruits out of reach.
- Consider small to medium-size trees to provide dappled shade for seating areas.

Safety considerations

- Provide level access thresholds.
- Avoid strong tonal contrast in adjacent surface finishes.
- Use recessed utility covers which appear as part of the paved environment.
- Avoid steps or sudden changes in level.
- Provide barriers or handrails in compliance with current building regulations.



- Consider observation and surveillance of the space from the building.
- Consider defensive/barrier planting to ground floor windows for privacy and security.
- Site boundaries must be secure and well screened with a combination of physical barriers and defensive planting.
- Provide a canopy or some form of shelter at entrances to allow eyes to adjust to the change from indoor to outdoor light levels and assist people who may suffer from anxiety due to the weather.⁷²

Further information can be found on the Alzheimer Knowledge Exchange Resource Centre: <http://www.akerresourcecentre.org/Design>.

6.2 Safety for Persons Living with Dementia

Every person with dementia will have different requirements for keeping a safe environment, whether he/she is in his/her own home or in a supportive living/assisted living facility. Some of these changes include the following:

- Decreased balance and reaction time
- Visual-perceptual problems/difficulty processing and interpreting visual information
- Difficulty walking
- Difficulty understanding spoken or written language
- Memory impairment
- Decrease in judgment abilities
- Less insight into his/her environment and situations⁷³

6.2.1 Safety in Private Homes

To manage and accommodate for these changes and to provide as safe a home environment as possible (be it the person's own home or in assisted living), the following safety considerations are recommended:

- Putting scatter rugs in storage and securing the carpet to the floor to prevent falls.
- Ensuring the stairways are safe (for example, in good repair and with handrails).
- Ensuring sufficient lighting to eliminate shadows that may cause confusion or fright (for example, full spectrum lighting for general purposes and task lighting in areas where persons with dementia are working/eating/dressing).
- Installing safety equipment in the bathroom (for example, grab bars, elevated toilet seat, non-slip mat).
- Monitoring, minimizing or avoiding the use of electrical appliances in the kitchen and bathroom.
- Install a thermostatic tempering valve on your faucets to avoid possible burns.
- Depending on how the person with dementia is managing, there is a need to consider if there are medications, cleaning substances or gardening chemicals that should be locked away.

As the dementia progresses, safety may also involve monitoring when they have a cigarette, or possibly the removal of items in the household that confuse the person with dementia (for example, pictures, mirrors).⁷⁴

Caregivers may also want to discuss the use of monitoring technology with the person with dementia to help address any new or potential behaviours that could be unsafe (for example, leaving taps on, wandering).

Based on the resource guide titled *Home-Sense for Dementia*, the Alzheimer Society of Niagara Region further suggest common sense safety precautions that both the person with dementia or his/her caregivers can take including the following:

- Focusing on prevention – Take care to look around and see potential hazards such as carpets that may cause a fall, poisons that are easily accessible, a gas-fire stove top, small objects that could choke, and doors that could lock accidentally and trap someone inside.



- Using patience and slowing down – Rushing does not work for someone with dementia.
- Simplifying routines – Personal care can become more challenging for someone with dementia, so avoid accidents by breaking down complicated procedures into simpler, step-by-step processes.
- Having an emergency plan – Be ready in case of emergency by keeping a working fire extinguisher nearby, a fully stocked first-aid kit on hand, and a list of emergency numbers by the phone.⁷⁵

Misplaced or abundant furniture and clutter can also present physical obstacles to moving about the home and possibly increase the risk for falls.⁷⁶

Occupational therapists can provide advice about equipment that can help around the house such as bath lifts, stairlifts and a range of other options.

Additional tips for ensuring that the person living with dementia, as well as his/her caregiver, is safe can be found in the Alzheimer Society of Niagara Region's *Home Sense for Dementia: Helping You at Home*, which can be accessed at: <http://www.alzheimer.ca/niagara/~media/Files/chapters-on-niagara/Home-Sense%20for%20dementia%20Guide%202013.pdf>.

There are also additional tips on making the private home environment safe for persons living with dementia from: <http://www.alzheimer.ca/en/niagara/We-can-help/Living-Safely/Tips-on-making-your-environment-safe>.

6.2.2 Safety in Supportive/Community-Based Housing

Many of the same safety considerations that apply to persons living with dementia in their own homes also apply to those living in group homes, assisted living, and long-term care homes/nursing homes.

In congregate living environments and long-term care homes there will be additional considerations regarding regulations and legislated requirements related to building and fire codes (for example, related to fire alarms and sprinkler systems). While good housing with care recognizes the challenges of persons living with dementia, aims to enhance their experience of independence, empowerment and accessibility and responds with appropriate support, resources and surroundings,^d some of these codes and protocols can actually work against certain behaviours of persons living with dementia (for example, fire exits need to be clearly marked; however, this does little to discourage elopement and wandering behaviours). Therefore, it is recommended to work with your architect, builder, local fire marshal and compliance advisor to ensure that the environment does its best to manage and accommodate these potential issues.

6.3 Assistive Technology for Persons Living with Dementia

6.3.1 Assistive Technology in Private Homes

Different types of monitoring technology are now being developed for people living in their own homes, including sensors that can provide information on their status and record their activities. These allow caregivers to observe any changes in behavioural patterns and alert them when there is cause for concern (for example, prolonged inactivity in one room possibly indicating a fall).

The potential for assistive devices, including information and communication technology (ICT), is increasingly being explored to support persons living with dementia who are living in their own homes.

Seniors have noted that in-home monitoring would likely help them to maintain their independence, detect signs and symptoms of possible cognitive decline and allow sharing

^d Housing and dementia research consortium (2010). *Living beyond dementia a guide to dementia and housing with care* accessed at: http://www.housinglin.org.uk/library/Resources/Housing/Support_materials/Other_reports_and_guidance/Living_Beyond_Dementia.pdf

important information about changes in their behaviour with their physicians and/or family members and caregivers. They also noted that the trade-off between privacy and the usefulness of the information provided by monitoring would be worth it.

Caregivers, who participated in focus groups, had the following suggestions for persons living with dementia:

- Massage chair
- Specially designed telephones (through CNIB)
- Modified TV remotes (only frequently used buttons)

Another suggestion was to work with the local pharmacy to fill pill dosettes.

Global positioning systems (GPS)

GPS is a monitoring technology that can electronically track the location of persons living with dementia both within and outside the home environment.

For persons living alone in the community, this has the potential to enhance their safety by monitoring any potential wandering or elopement behaviours and being able to locate them easily if they get lost. The use of electronic tracking is also thought to be less restrictive in addressing wandering compared to using medication, physical restraints or locked environments.

While there are many acclaimed benefits to using GPS and other monitoring systems for both persons living with dementia and their caregivers, there are concerns surrounding the ethics in their use. These issues include persons with dementia's right to self-autonomy, their right to privacy and issues of consent. Because this issue is delicate, in some cases, professional caregivers are reluctant to assist informal caregivers and/or family members to use this

technology. Before making the decision to use monitoring systems, it is important that proper information is provided to family members and informal caregivers as well as the person living with dementia. In addition, initiating such monitoring early in the progression of dementia can help to assist with issues of consent as persons with dementia in the early stages will be more likely to appreciate and understand the monitoring process (both the logistics of, and rationale for, the monitoring) and therefore give their consent.

Other devices

There are also a range of sensory devices that can be used around the home to monitor activity. Sensors can be used to detect factors such as:

- normal daily activity such as flushing the toilet, turning on taps, and opening the fridge;
- getting out of bed at night;
- floods – if sensors are fitted to floor boards in kitchens or bathrooms;
- extreme temperatures;
- gas;
- falls – sensors worn on the body (i.e. on the hips) can detect the impact of a person falling; and
- unexpected absence from a bed or chair.⁷⁷

There are other devices that are currently under development or in the testing phase that are meant to help persons living with dementia and their caregivers. These include door chimes/alarms, wireless motion sensors, automatic light and bed sensors, fall monitoring systems, and automatic cut-off switches. Often even when assistive technology is available, its adoption remains largely absent in the homes of persons living with dementia.⁷⁸

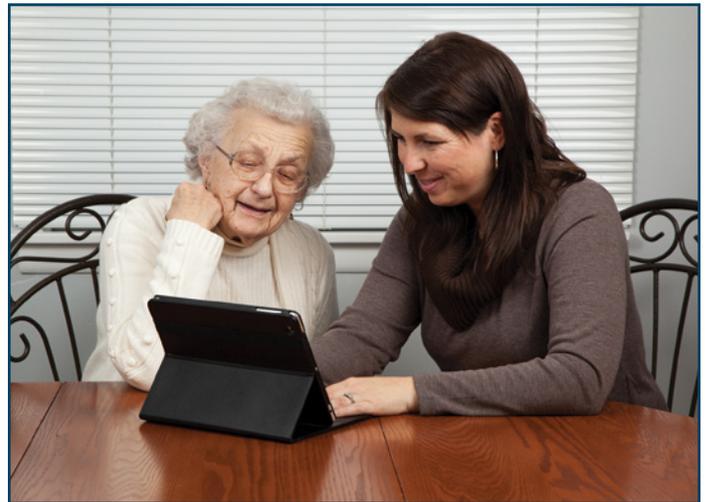
An example of some technological systems and products under investigation in Europe are described in reports by the *ENABLE* project. The *ENABLE* project looked into whether it would be possible to help people living with dementia to live independently and promote their well-being through the use of technological systems and products. It was found that the success of these products was often tied to the motivation of the person living with dementia and his/her caregiver as well as to having a supportive physical and social service environment. These products include the following:

- Bath water level and temperature monitor and controller to prevent overflowing or temperature that is too hot.
- Cooker usage monitor that will shut off the gas if a pan is overheating.
- Automatic bedroom light that turns on when a person gets out of bed.
- Automatic calendar that shows whether it is morning, evening or night as well as the day of the week and date.
- Programmable telephone with large buttons and ability to place pictures on the speed dial buttons.
- Locator for lost objects such as keys or purse whereby pressing a picture button causes the lost item to beep until it is picked up.⁷⁹

For more information: <http://www.enableproject.org/>

6.3.2 Assistive Technology in Supportive/Community-Based Housing

The assistive devices described above for persons living with dementia in private homes can also be used in assisted living/long-term care environments. For example, electronic monitoring can alert staff when a person's door is opening or address issues related to wandering in unsecured environments. Other devices include lights in hallways turning on when a person gets out of bed and door alarms for larger facilities. While these devices are quite effective, housing providers noted that there are challenges associated with using these devices in assisted living environments. For example, this might create a barrier for other residents who do not require monitoring.



Endnotes

- ¹ Health Council of Canada (2012). *Seniors in need, caregivers in distress: What are the home care priorities for seniors in Canada?* Retrieved June 1, 2014 at: http://www.alzheimer.ca/durham/-/media/Files/on/Media%20Releases/2012/April%202012/HCC_HomeCare_2d.pdf
- ² Alzheimer Society of Canada (2010). *Rising Tide: The Impact of Dementia on Canadian Society*
- ³ Government of Canada and Neurological Health Charities Canada (2014). *Mapping Connections: An Understanding of Neurological Conditions in Canada.*
- ⁴ Alzheimer Society of Canada (2010). *Rising Tide: The Impact of Dementia on Canadian Society* accessed at: http://www.alzheimer.ca/-/media/Files/national/Advocacy/ASC_Rising_Tide_Full_Report_e.pdf
- ⁵ Mental Health Foundation (n.d.). Dementia. Accessed from: <http://www.mentalhealth.org.uk/help-information/mental-health-a-z/D/dementia/>
- ⁶ Alzheimer Society of Canada (2010). *Rising Tide: The Impact of Dementia on Canadian Society* accessed at: http://www.alzheimer.ca/-/media/Files/national/Advocacy/ASC_Rising_Tide_Full_Report_e.pdf
- ⁷ Alzheimer Society of Canada (2010). *Rising Tide: The Impact of Dementia on Canadian Society*
- ⁸ Ibid.
- ⁹ World Health Organization and Alzheimer's Disease International (2012). *Dementia: A public health priority* accessed at: http://www.who.int/mental_health/publications/dementia_report_2012/en/ and Alzheimer Society of Canada (2008). *The Progression of Alzheimer's Disease – Overview*
- ¹⁰ Alzheimer Society of Canada (2010). *Rising Tide: The Impact of Dementia on Canadian Society*
- ¹¹ Alzheimer Society of Ontario. (2007). *A Profile of Ontario's Home Care Clients with Alzheimer's Disease or Other Dementias: Drawn from RAI-HC Assessments, 2005* prepared by ideas for Health, University of Waterloo. Accessed from: <http://www.alzheimer.ca/durham/-/media/Files/on/PPPI%20Documents/Profile-of-Home-Care-Clients-April-2007.pdf>
- ¹² National Institute of Health (2012). Alzheimer's Disease: Accessed from: <http://nihseniorhealth.gov/alzheimersdisease/causesandriskfactors/01.html> and New South Wales Department for Ageing, Disability and Home Care, Australia (2011). *At Home with Dementia: A Manual for People with Dementia and their Carers.*
- ¹³ Alzheimer Society of Canada (2007). Quality of Life
- ¹⁴ Alzheimer Society of Canada (2011). *Guidelines for Care: Person-centred Care of People with Dementia Living in Care Homes – Framework*
- ¹⁵ Alzheimer Society of Canada (2007). Quality of Life Fact Sheet
- ¹⁶ Ibid.
- ¹⁷ Alzheimer Society of Canada (2013). Culture change towards person-centred care. Accessed from: <http://www.alzheimer.ca/en/About-dementia/For-health-care-professionals/culture-change-towards-person-centred-care>
- ¹⁸ Alzheimer Society of Canada (2014). PC P.E.A.R.L.S.: 7 key elements of person-centred care. Accessed from: <http://www.alzheimer.ca/en/About-dementia/For-health-care-professionals/culture-change-towards-person-centred-care/seven-key-elements-of-pcc>
- ¹⁹ New South Wales (NSW) Government Australia (ND) Department of Family and Community Services, Ageing, Disability and Home Care. *At home with dementia: A manual for people with dementia and their carer.* p.1 Accessed at: http://pandora.nla.gov.au/pan/129899/20111012-www.adhc.nsw.gov.au_data/assets/file/0011/228746/at_home_with_dementia_web.pdf
- ²⁰ Ibid.
- ²¹ New South Wales (NSW) Government Australia (ND) Department of Family and Community Services, Ageing, Disability and Home Care. *At home with dementia: A manual for people with dementia and their carer.* p.2 Accessed at: http://pandora.nla.gov.au/pan/129899/20111012-1105/www.adhc.nsw.gov.au_data/assets/file/0011/228746/at_home_with_dementia_web.pdf
- ²² Brawley, E. (2006). *Design Innovations for Aging and Alzheimer's*
- ²³ Lum, J., J. Sladek, A. Ying et al. (2007) Fact Sheet for the Canadian Research Network for Care in the Community (CRNCC) *Supportive Housing from the Ground Up: Frequently asked questions.* Accessed at: <http://www.ryerson.ca/crncc/knowledge/factsheets/pdf/InFocus-SupportiveHousing-FromtheGroundUp-FrequentlyAskedQuestions.pdf>
- ²⁴ Hollander, 2006 in Lum et al. (2007)
- ²⁵ Goodwin, N., A. Dixon, G. Anderson, W. Wodchis (2014) *Providing integrated care for older people with complex needs. Lessons from seven international case studies.* Kings Fund. Accessed at: http://cdn.basw.co.uk/upload/basw_102418-7.pdf

- ²⁶ Morton, F. (2010). *Dementia Care: Diversity, Access, Coordination Final Report*. Prepared on behalf of the Alzheimer Society of Toronto for the Toronto Central Local Health Integration Network Dementia Care Project. Accessed September 12, 2012 at http://www.dementiatoronto.org/aboutus/DementiaCareFinalRpt_2010.pdf
- ²⁷ Morton, F. on behalf of the Alzheimer Society of Toronto for the Toronto Central LHIN (2010) *Dementia Care: Diversity, Access, Coordination Final Report* accessed at: http://www.dementiatoronto.org/aboutus/DementiaCareFinalRpt_2010.pdf
- ²⁸ Lum, J., J. Sladek, A. Ying, et al. (2007) Fact Sheet for the Canadian Research Network for Care in the Community (CRNCC) *Supportive Housing from the Ground Up: Frequently asked questions*. Accessed at: <http://www.ryerson.ca/crncc/knowledge/factsheets/pdf/InFocus-SupportiveHousing-FromtheGroundUp-FrequentlyAskedQuestions.pdf>
- ²⁹ Advocacy Centre for the Elderly (2009). *A checklist if you are shopping for a retirement home*. Accessed at: <http://www.advocacycentreelderly.org/appimages/file/RH%20Checklist%20-%202009.pdf>
- ³⁰ Community Care and Assisted Living Fire and Life Safety Provisions Advisory Committee (ND). *Assisted Living and Residential Care: Fire and Life Safety*. Page 5.
- ³¹ Brawley, E. (2006). *Design Innovations for Aging and Alzheimer's*
- ³² Housing Learning and Improvement Network (2012). *At a Glance: a Checklist for Developing Dementia Friendly Communities*
- ³³ Ibid
- ³⁴ Dementia Services Development Centre (2012). *Dementia Design Series: Designing interiors for people with dementia*. University of Stirling.
- ³⁵ NSW Government, Family and Community Services (n.d.). *At home with dementia: A manual for people with dementia and their carers* and Housing Learning and Improvement Network (2012). *At a Glance: a Checklist for Developing Dementia Friendly Communities*
- ³⁶ Marquardt, G., Johnston, D, Black, B., Morrison, A., Rosenblatt, A., Lyketsos, C., and Samus Q. (January 1, 2011). *A Descriptive Study of Home Modifications for People with Dementia and Barriers to Implementation*. *J Hous Elderly*, 25(3): 258-273.
- ³⁷ Teotonio, Isabel (November 18, 2011). *Why falling is a downward spiral to death*. Accessed at: http://www.thestar.com/life/2011/11/18/why_falling_is_a_downward_spiral_to_death.html
- ³⁸ CMHC (2009). *Adapting your Home to Living with Dementia: A Resource Book for Living at Home and Guide to Home Adaptations*
- ³⁹ Marquardt, G., D. Johnston, B. Black, A. Morrison, A. Rosenblatt, C. Lyketsos and Q. Samus (January 1, 2011). *A Descriptive Study of Home Modifications for People with Dementia and Barriers to Implementation*. *J Hous Elderly*, 25(3): 258-273.
- ⁴⁰ Ibid.
- ⁴¹ Dementia Services Development Centre, University of Stirling, Joint Improvement Team, and CIH Scotland (2013). *Dementia Design Series: Improving the design of housing to assist people with dementia*.
- ⁴² Ibid.
- ⁴³ Ibid.
- ⁴⁴ Housing Learning and Improvement Network (2012). *At a Glance: a Checklist for Developing Dementia Friendly Communities*
- ⁴⁵ Dementia Services Development Centre, University of Stirling, Joint Improvement Team, and CIH Scotland (2013). *Dementia Design Series: Improving the design of housing to assist people with dementia*.
- ⁴⁶ Ibid., p. 26.
- ⁴⁷ Alzheimer Knowledge Exchange (2013). *Dementia-Friendly Design Considerations – Lighting*
- ⁴⁸ Ibid., p. 26.
- ⁴⁹ Ibid.
- ⁵⁰ Alzheimer Knowledge Exchange (2013). *Dementia-Friendly Design Considerations – Doorways*
- ⁵¹ Dementia Services Development Centre, University of Stirling, Joint Improvement Team, and CIH Scotland (2013). *Dementia Design Series: Improving the design of housing to assist people with dementia*.
- ⁵² Ibid.
- ⁵³ Ibid.
- ⁵⁴ Ibid.
- ⁵⁵ Ibid.
- ⁵⁶ Ibid.

⁵⁷ Ibid.

⁵⁸ Ibid.

⁵⁹ New South Wales (NSW) Government Australia (ND) Department of Family and Community Services, Ageing, Disability and Home Care. *At home with dementia: A manual for people with dementia and their carer.* p.2 Accessed at: http://pandora.nla.gov.au/pan/129899/20111012-1105/www.adhc.nsw.gov.au/_data/assets/file/0011/228746/at_home_with_dementia_web.pdf

⁶⁰ Alzheimer's Association (2009). *Dementia Care Practice Recommendations for Assisted Living Residences and Nursing Homes*

⁶¹ New South Wales (NSW) Government Australia (ND) Department of Family and Community Services, Ageing, Disability and Home Care. *At home with dementia: A manual for people with dementia and their carer.* p.2 Accessed at: http://pandora.nla.gov.au/pan/129899/20111012-1105/www.adhc.nsw.gov.au/_data/assets/file/0011/228746/at_home_with_dementia_web.pdf

⁶² Ibid.

⁶³ Ibid.

⁶⁴ Ibid.

⁶⁵ Ibid.

⁶⁶ Many of the same principles would also apply to long-term care facilities.

⁶⁷ Alzheimer Knowledge Exchange (2013). *Dementia-Friendly Design Considerations – Lighting*

⁶⁸ Alzheimer Knowledge Exchange (2013). *Dementia-Friendly Design Considerations – Doorways*

⁶⁹ Dementia Services Development Centre, University of Stirling, Joint Improvement Team, and CIH Scotland (2013). *Dementia Design Series: Improving the design of housing to assist people with dementia.*

⁷⁰ Alzheimer Knowledge Exchange (2013). *Dementia-Friendly Design Considerations – Noise*

⁷¹ Alzheimer Knowledge Exchange (2013). *Dementia-Friendly Design Considerations – Wayfinding*

⁷² Delhanty, T. (2013). *Landscape Design for Dementia Care – Factsheet*

⁷³ Alzheimer Society of Niagara Region website Tips on making your environment safe accessed at: <http://www.alzheimer.ca/en/niagara/We-can-help/Living-Safely/Tips-on-making-your-environment-safe> and Housing and dementia research consortium (2010). *Living beyond dementia a guide to dementia and housing with care*, p. 4. accessed at: http://www.housinglin.org.uk/_library/Resources/Housing/Support_materials/Other_reports_and_guidance/Living_Beyond_Dementia.pdf

⁷⁴ Ibid.

⁷⁵ Rushford, N. for Alzheimer Society of Niagara Region.(ND) *Home-Sense for Dementia: helping you at home* <http://www.alzheimer.ca/niagara/-/media/Files/chapters-on/niagara/Home-Sense%20for%20dementia%20Guide%202013.pdf>

⁷⁶ Marquardt, G., D. Johnston, B. Black, A. Morrison, A. Rosenblatt, C. Lyketsos and Q. Samus (January 1, 2011). *A Descriptive Study of Home Modifications for People with Dementia and Barriers to Implementation.* J Hous Elderly, 25(3)pp. 258-273.

⁷⁷ Care and Repair. (ND) *Making your home a better place to live with dementia.* Accessed at: <http://www.housingcare.org/downloads/kbase/3248.pdf>

⁷⁸ Marquardt, G., D. Johnston, B. Black, et al. (2011) *A descriptive Study of Home Modifications for People with Dementia and Barriers for Implementation,* J Hous Elderly. 1; 25(3): 258–273.

⁷⁹ UK Study assessment 2004 <http://www.enableproject.org/download/Enable%20-%20National%20Report%20-%20UK.pdf>

15-04-15



60967