

HOUSING FOR OLDER CANADIANS:

The Definitive Guide to the Over-55 Market



VOLUME

4

Designing the Project

67664 23-10-12

Canada

CMHC SCHL
HOME TO CANADIANS



CMHC—HOME TO CANADIANS

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

Together with other housing stakeholders, we help ensure that the Canadian housing system remains one of the best in the world. We are committed to helping Canadians access a wide choice of quality, environmentally sustainable and affordable housing solutions that will continue to create vibrant and healthy communities and cities across the country.

For more information, visit our website at **www.cmhc.ca**

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.

The information in this publication is a result of current research and knowledge. It is not intended for the content to be relied upon as professional or expert advice or opinions. Readers should evaluate the information, materials and techniques cautiously for themselves and consult appropriate professional resources to see if the information, materials and techniques apply to them. The images and text are guides only. Project and site-specific factors (climate, cost, aesthetics) must also be considered.

Library and Archives Canada Cataloguing in Publication

Housing for older Canadians. Volume 4, Designing the Project [electronic resource]:
The Definitive Guide to the Over-55 Market

Electronic monograph in PDF format

Issued also in French under title: Le logement des aînés au Canada. Volume 4, Concevoir le projet,
le guide du marché des plus de 55 ans

Issued also in printed form

ISBN 978-1-100-21179-4

Cat. no.: NH15-295/4-2012E-PDF

1. Older people--Dwellings--Canada--Planning.
 2. Older people--Dwellings--Canada--Design and construction.
 3. Old age homes--Canada--Planning.
 4. Old age homes--Canada--Design and construction.
 5. Older people--Housing--Canada.
- I. Canada Mortgage and Housing Corporation
II. Title: Designing the project.

HD7287.92 C3 H693 2012

363.5'9460971

C2012-980167-4

© 2012 Canada Mortgage and Housing Corporation

All rights reserved. No portion of this book may be reproduced, stored in a retrieval system or transmitted in any form or by any means, mechanical, electronic, photocopying, recording or otherwise without the prior written permission of Canada Mortgage and Housing Corporation. Without limiting the generality of the foregoing, no portion of this book may be translated from English into any other language without prior written permission of Canada Mortgage and Housing Corporation.

TABLE OF CONTENTS

<i>Introduction and Overview</i>	6
<i>Creating Housing and Communities for All Ages: the Principles of Universal Design</i>	7
<i>Universal Design and Adaptable Housing Models</i>	11
<i>FlexHousing™</i>	11
<i>Accessory or Secondary Units</i>	12
<i>Grow Home</i>	12
<i>Lifetime Homes</i>	13
<i>Beyond Universal Design: Additional Imperatives in Designing Housing for Older Canadians</i>	13
<i>Healthy Indoor Environments</i>	13
<i>General Considerations in Designing Housing for Older Canadians</i>	16
<i>Mobility, Convenience and Social Interaction</i>	16
<i>Sight, Perception and Lighting</i>	16
<i>Sound and Hearing</i>	16
<i>Safety and Security</i>	16
<i>Technology and Automation</i>	17
<i>Neighbourhood Design</i>	17
<i>Applying Universal Design Principles to a Housing Unit</i>	18
<i>Entryway</i>	18
<i>Living/Dining Room</i>	18
<i>Kitchen</i>	19
<i>Bedrooms</i>	19
<i>Bathrooms</i>	19
<i>Storage and Laundry Space</i>	20
<i>Patio and Balcony</i>	20

<i>Applying Universal Design Principles to Multi-unit Developments</i>	21
<i>Site and Building Entries</i>	21
<i>Outdoor Space</i>	21
Parking	21
Walkways	21
Gardens	21
<i>Semi-public Indoor Space</i>	22
Lobby	22
Corridors	22
Stairs	22
Dining Area	23
Lounges	23
Communal Washrooms	23
Recreational and Lifestyle Amenities	23
<i>Examples of Universal Design</i>	24
<i>Sustainable Aging in Place in a Small Island Community</i>	25
<i>High-density, High-amenity Seniors' Living in the City</i>	25
<i>Retirement Communities that Phase Development for a Range of Needs</i>	26
<i>A Master-planned, Intergenerational, Walkable Community</i>	26
<i>Conclusion</i>	27
<i>References</i>	28
<i>Acknowledgments</i>	30

INTRODUCTION

and Overview



What do older Canadians want in their homes? What do they want in their communities and neighbourhoods? How can design influence quality of place? What should developers consider when planning and designing housing for older Canadians? How can the application of good design principles create housing that better meets the needs of older Canadians in ways that satisfy the bottom line? To answer these and other related questions, this volume provides developers and sponsors of housing oriented to an older demographic with insights into the needs and demands of the changing seniors' market.

The housing market for older Canadians is growing rapidly and changing. Just as the demographic profile of the population is changing, so too are the options available to developers. The addition of baby boomers to the population of seniors seeking housing introduces very different expectations compared with previous generations. These expectations are founded on different self-perceptions and demands and an overall emphasis on optimizing independence and autonomy. A combination of increased life expectancy, better overall health and the way in which the line between middle age and “old age” is being effectively pushed back a decade or more translates into more active lifestyles and a desire on the part of older Canadians to continue to be involved in their communities.

Reports from the industry suggest that many people postpone the move to long-term care or assisted living facilities as long as possible. Today's older Canadians increasingly aspire to “age in place,” whether in the homes they have occupied for most of their lives or in the neighbourhoods where they feel at home. Members of the baby boom cohort do not see themselves in the same way as the seniors of their parents' generation

did. There is every indication that they want to live in vibrant, “age-friendly” communities and neighbourhoods that are closer in character to the places they have lived all their lives.

As well as changes in older Canadians' wants and needs, external changes also affect the seniors' housing market in Canada. These include the evolution of sustainable design and increasing opportunities for environmental efficiencies in buildings; evolving community planning concepts, like the growing interest in age-friendly cities; and economic factors which impact older Canadians' incomes. Although today's developers and sponsors of seniors-oriented housing may have to invest more upfront to address these changes in the market, effective, thoughtful design in the early stages of a project can minimize the costs of operations, both for project investors and for those who live in the housing.

This volume will provide guidance on the ways in which developers and sponsors of seniors' housing can accommodate the changing needs of people 55 and over through appropriate design of dwellings and communities. Examples of best practices will be described in terms of how good and environmentally

sustainable housing and community design have led to successful housing developments serving the needs of older Canadians.

Other volumes in the series include the following:

- *Volume 1: Understanding the Market*
- *Volume 2: Responding to the Market*
- *Volume 3: Planning the Project*
- *Volume 5: Services and Amenities*

This fourth publication in the series discusses both housing design and community design in the context of housing for older Canadians.

CREATING HOUSING AND COMMUNITIES FOR ALL AGES: the Principles of Universal Design



The overwhelming majority of postwar developments have catered to young families, resulting in the creation of a million or more single-detached dwellings built in car-dependent suburbs. Few of these dwellings are designed in a way that allows for aging in place or for the accommodation of disabilities.¹

As the population ages, a new approach to housing is needed that will allow for people of all ages and all levels of ability to live comfortably and independently for as long as possible. As Bernard Isaacs, the renowned British gerontologist, famously put it, “Design for the young and you exclude the old; design for the old and you include the young.”

The best-known approach to inclusive housing is known as universal design. The principles of universal design emerged from the creation of barrier-free housing for

persons with physical disabilities, but the principles have been expanded to help make communities accessible to people of all ages and levels of ability. Universal design has been defined as “The design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.”²

In Japan, one of the most rapidly aging societies in the world, the principles of universal design were officially adopted by the national government more than 15 years

¹ Gordon Harris (2005). “Suburbia is No Place to Grow Old,” *Ontario Planning Journal*, Volume 19, No. 3.

² This definition was taken from the CMHC website at http://www.cmhc-schl.gc.ca/en/co/renoho/refash/refash_041.cfm#principles.

ago. They are applied to government buildings and services and have been applied in the workplaces of corporations such as Panasonic and Toyota. As other countries recognize the need to support growing numbers of older citizens, their governments may also adopt these principles and encourage the private sector to do so as well.

The principles of universal design, which can be applied to the design of products, communications, built spaces, transportation and many other areas, are as follows:

1. **Equitable use:** the design is accessible and appealing to all users; if possible, one design should serve all users comfortably and safely, but if not, accessible alternatives should be available to those who cannot use the mainstream design.
2. **Flexibility in use:** users have choices in manipulating an object or navigating a space; the design can be used in a variety of ways by people of different ages, abilities and preferences.
3. **Simple and intuitive:** users can immediately see how to use an object or navigate a space, and they receive feedback on their progress.
4. **Perceptible information:** the design is clear and legible to all users, regardless of their level of ability, including differences in vision, hearing and mobility.
5. **Tolerance for error:** the design minimizes the potential for errors and dangers; if the user misuses an object or navigates the wrong way in a space, the effects are not harmful and mistakes are reversible.
6. **Low physical effort:** the design of objects and spaces does not require the user to exert great physical effort, to adopt an uncomfortable body position or to engage in tiring and repetitive physical tasks.
7. **Size and space for approach and use:** all users can reach and manipulate objects and navigate spaces comfortably.

Research carried out by the Canadian Urban Institute³ indicates that these principles can be usefully applied at a variety of design scales—from neighbourhood and block to project and unit (see figure 1).

What does universal design look like at the project, neighbourhood or even city scale?

One way to think about the transition from universal design in a single unit or building and universal design at the broader scale is to consider the role of

Figure 1: Universal Design at the Unit, Project and Neighbourhood Scale



³ See Glenn Miller, Gordon Harris and Ian Ferguson. (2006). "Mobility Under Attack—Are Older Canadians Ready to Live Without Their Cars?" *Ontario Planning Journal*, Vol. 21, No. 4; Glenn Miller, Gordon Harris and Ian Ferguson. (2006). "Aging and Mobility: What Other Countries Are Doing," *Ontario Planning Journal*, Vol. 21, No. 5; and Glenn Miller, Gordon Harris and Ian Ferguson. (2006). "Bracing for the Demographic Tsunami—Can Canada's Seniors Escape Un-Pleasantville?" *Ontario Planning Journal*, Vol. 21, No. 6.

transportation in a community. Just as in a well-designed home, the occupants can move about safely and easily, in a well-designed project, neighbourhood or community, all residents can move about safely and easily. In comparison, in a community in which residents need cars to get to work, school, shops and other destinations due to distances or little or no public transit, those who cannot, or prefer not to, drive could be at a disadvantage. A community developed using the principles of universal design would be accessible to, and navigable by, all people, whether or not they use a car—that is, destinations would be accessible by walking, taking public transit, cycling or using mobility scooters.

At the neighbourhood level, universal design has much in common with new urbanism—a movement that promotes the development of neighbourhoods incorporating some of the most attractive features of older cities, such as a mix of interconnected uses with good facilities for pedestrians. Another neighbourhood-level planning approach is LEED-ND (Leadership in Energy and Environmental Design, applied to Neighbourhood Development), which integrates sustainability principles with public health principles.⁴

At the city scale, it resembles smart growth—an idea first popularized in the United States that has taken hold in Canada. Smart growth is generally taken to mean the creation of compact, mixed use communities that counter the effects of suburban sprawl and allow for transit and walking as transportation choices. Another city-wide approach is that of healthy communities which promote an active lifestyle. Many Canadian provinces have launched initiatives related to healthy communities, which embody principles related to public health and fitness, social well-being and environmental health.

To these can be added another important approach that of age-friendly communities. The aim is to encourage cities to adapt their built environments and deliver services in a manner that is welcoming to and supportive of seniors.⁵

Table 1 provides examples of the use of universal design principles at the scale of an individual dwelling or building and at the neighbourhood or community scale.

⁴ Canada Green Building Council. Fact sheet: *LEED Canada for Neighbourhood Development*. Retrieved from <http://www.cagbc.org/AM/PDF/nd%20outline%20092209%20Eng.pdf>.

⁵ For more information see *Community Indicators for an Aging Population* at <http://www.cmhc-schl.gc.ca/odpub/pdf/66099.pdf?lang=eng> and Age-Friendly Communities initiative at <http://www.phac-aspc.gc.ca/sh-sa/ifa-fiv/2008/initiative-eng.php>.

Table 1: Universal Design at Different Scales

1. Equitable use The design is accessible and appealing to all users; if possible, one design should serve all users, but if not, then alternatives should be equally available to those who cannot use the mainstream design.	
In a single building Lever door handles on all doors, easy-grip fixtures, hands-free faucets	At the neighbourhood or community level Making all public buildings and outdoor spaces fully accessible including sidewalks, parks, transit and community facilities
2. Flexibility in use Users have choices in manipulating an object or navigating a space; the design can be used in a variety of ways by people as their ages, abilities and preferences change over the lifecycle of the building or space.	
In a single building Movable interior walls that allow for reconfiguration of the space, adjustable-height counters and shelving	At the neighbourhood or community level A community gathering space that can be used, for example, for public meetings, community events, neighbourhood organizations, public health, commercial space, senior residence
3. Simple and intuitive Users can immediately see how to use an object or navigate a space, and they receive feedback on their use as they proceed.	
In a single building Easy-to-locate entrances/exits; clear interior layout	At the neighbourhood or community level Clear and straightforward street networks, with landmarks that distinguish particular areas and flow patterns
4. Perceptible information The design is clear and legible to all users, regardless of their level of ability, including vision, hearing and mobility.	
In a single building Clear signage for entrances and exits, elevators, washrooms; emergency warnings that include flashing lights for the deaf and audible cues for the blind	At the neighbourhood or community level Clear street signs, markings, bells at crosswalks
5. Tolerance for error The design minimizes the potential for errors and dangers; if the user misuses an object or navigates the wrong way in a space, the effects are reversible.	
In a single building Automatic shut-offs for heating elements or taps; temperature-limiting controls for taps and showerheads	At the neighbourhood or community level Maximum connectivity; for example, no dead ends or culs-de-sac, sloped grade differences between bike, pedestrian and auto lanes, or low guards with many entrance and exit points
6. Low physical effort The design of objects and spaces does not require the user to exert great physical effort, to adopt an uncomfortable body position or to engage in tiring and repetitive physical tasks.	
In a single building Pull-out drawers rather than under-counter cupboards in kitchens and bathrooms, which open and close with minimum effort	At the neighbourhood or community level Street network connectivity to provide, for example, for short trips, easy rolling surfaces, gentle slopes, minor abrupt variations in surface heights (curbs, thresholds)
7. Size and space for approach and use All users can reach and manipulate objects and navigate spaces comfortably.	
In a single building Light switches and electrical outlets located at convenient heights for everyone; door and corridor widths adequate to accommodate mobility devices; under-counter spaces in kitchens and bathrooms	At the neighbourhood or community level Public spaces and features, such as picnic tables, and sidewalks and parks that can accommodate wheelchairs and electric scooters

UNIVERSAL DESIGN and Adaptable Housing Models



It is estimated that by the year 2036, more than half of all Canadian households will be headed by people 55 years or older.⁶ As the needs of homeowners change, they are demanding more versatility from their housing. Housing with flexible features that can accommodate occupants' changing requirements easily and inexpensively will be in high demand.

The key to meeting this demand is to make housing as adaptable as possible from the time of construction. An adaptable housing unit can be a standard-looking unit with features that can be tailored to the specific needs of residents as their particular needs evolve, without costly renovations or structural changes. Accessible features like wider doors and corridors, entrances without steps and lever hardware should be part of the unit from the outset. Wall reinforcement allows for the later installation of grab bars or rails; these are less expensive if incorporated during initial construction. Cabinets can be designed to be height-adjustable or removable.

Adaptable housing addresses some of the same concerns as universal design, while catering to an even wider range of needs. Adaptable housing can be upgraded, expanded, divided into extra units or used for a variety of purposes throughout its life. Several models have emerged that demonstrate the opportunities and benefits of adaptable housing.

Adaptability is also very relevant at the neighbourhood scale. A community that offers a range of housing forms (detached homes, row houses, apartments, and others) and of tenure options allows residents to choose different dwelling types and tenure arrangements as

their needs change without having to relocate to other neighbourhoods. Housing developments that offer a continuum of care, ranging from self-contained units for independent living, to housing with a higher level of support, to a full-care housing arrangement, enable residents to make these transitions without moving away.

FLEXHOUSING™

FlexHousing™ incorporates, at the design and construction stage, the option to make future changes easily and with minimum expense in order to meet the evolving needs of its occupants. This approach allows families and individuals to access more affordable housing, stay in the home longer and can help make these units more affordable for owners and renters.

As circumstances change, FlexHousing™ allows homeowners to adapt their existing housing relatively easily and economically rather than move. For instance, if a resident becomes less mobile and requires a bathroom on the main floor of the house, the design of the plumbing system will allow the owner to convert a closet or spare room into one. Similarly, the design of the stairs will allow for the installation of a stair-climbing mechanism. The inclusion of unfinished spaces

⁶ *Canadian Housing Observer 2011*, figure 5-22, page 71
http://www.cmhc-schl.gc.ca/en/corp/about/cahoob/upload/Chapter_5_EN_dec16_w.pdf

within a new home to reduce first costs provides an option for finishing at a later time as needs demand. FlexHousing™ also emphasises flexibility of tenure. A young family may need all floors of a house as children grow up but once they move out, the home should be easily subdividable to accommodate an income producing secondary suite (see “Grow Home” below).

Any home can be a FlexHouse—a suburban bungalow, high-rise condominium or infill townhouse.

FlexHousing™ is simply an approach to designing and building homes based on the principles of adaptability, accessibility, affordability and Healthy Housing™.

- **Adaptability** means thinking ahead during the construction of the house. This saves time, money and hassle later on by avoiding the need for costly renovations, for example roughing in plumbing to accommodate future needs for bathroom conversions, or providing an unfinished space in a new home that can be converted later.
- **Accessibility** means creating a home that is user-friendly to people of all ages and abilities. For example, wide doors and stairs, low windows, and easy-to-grasp lever handles benefit children and the elderly alike.
- **Affordability** may mean investing money up front in order to save in the future. While the up-front costs of an adaptable house may be greater compared with a normal home, homeowners benefit from the investment in the long term. For example, structural reinforcement of walls allows for the future addition of grab bars and other support features at a reasonable cost.⁷

Richmond, B.C., is home to a two-storey demonstration FlexHouse built to accommodate a variety of homebuyers. It has a floor plan that enables the house to be converted from a four-bedroom family home to a duplex or a set of rental suites. The house was also

designed using healthy materials and with energy efficiency and accessibility in mind. The Richmond FlexHouse Project is the result of a collaboration between CMHC, the City of Richmond and Pacific Western Developments Ltd., which built the house.⁸

Also in British Columbia, the City of Saanich has instituted a Basic Adaptable Housing bylaw that requires basic adaptable housing features in all newly constructed buildings that are serviced by an elevator and contain apartment or congregate housing uses.⁹

ACCESSORY OR SECONDARY UNITS

Adaptable housing may include residences such as accessory apartments that can accommodate an aging family member. Accessory apartments are adaptations that can be made to single-family homes so that aging parents can live close to their children and their families or so that caregivers can live in the homes of aging people. Accessory units can be created by transforming a suitable basement into additional living space or by creating a small residence such as a laneway house or a “granny flat” that is separate from, but on the same property as, the main family home. Accessory units can also provide rental income for older owners.

GROW HOME

Another approach to adaptable housing is the Grow Home, a housing design that is easily modifiable and can suit people of all ages and family situations. It is a townhouse design that can be extended up and to the rear or be subdivided as its residents’ needs change.¹⁰

The Grow Home was originally developed by Avi Friedman and Witold Rybczynski of the Affordable Homes Program in the School of Architecture at McGill University in 1990. They wanted to create a home that

⁷ Canada Mortgage and Housing Corporation. (2000). *Research Highlight: FlexHousing™: Building Adaptable Housing*.

⁸ City of Richmond. Flex House. Retrieved from <http://www.richmond.ca/services/socialplan/housing/flexhouse.htm>.

⁹ Saanich, B.C., *Basic Adaptable Housing*, Schedule F to Zoning Bylaw 8200.

¹⁰ Team Dunker, “Grow Home” from Seaton Handbook, 1995.

would be affordable to low-income households and could expand as the family grew. A Grow Home is a three-storey townhouse on a base measuring around 4 × 11 m (14 × 36 ft.), with a floor area of about 100 m² (1,000 sq. ft.). The Grow Home includes a finished first floor containing a kitchen, bathroom and living space. One or more upper floors are open-concept and left unfinished. Over time, the occupants can finish the upper floors as they prefer and expand the housing if they need additional room. Although the original idea was to make housing affordable, the Grow Home is a good example of adaptable housing that could allow for aging in place.¹¹

LIFETIME HOMES

In the United Kingdom, the Lifetime Homes standard, a concept developed in 1991, is intended to make homes more adaptable for lifelong use. The design of Lifetime Homes incorporates 16 design criteria, relating to:

- car parking width,
- access from car parking,
- approach gradients,
- accessible entrances,
- communal stairs and lifts,
- doorways and hallways,
- wheelchair accessibility,
- living room,
- entrance level bedroom space,
- entrance level toilet and shower drainage,
- bathroom and toilet area walls,
- stair lift / through-floor lift,
- tracking hoist route,
- bathroom layout,
- window specification, and
- controls, fixtures and fittings.

BEYOND UNIVERSAL DESIGN: Additional Imperatives in Designing Housing for Older Canadians



HEALTHY INDOOR ENVIRONMENTS

Most Canadians spend close to 90 per cent of their time indoors,¹² and indoor air can be much more polluted than outdoor air. Canadians are becoming aware of the

harmful effects of unhealthy buildings. Those who are most susceptible to unhealthy indoor environments are our oldest and youngest citizens; however, all Canadians can benefit from technologies and practices that can improve the indoor environment.

¹¹ For more information, see the CMHC website at http://www.cmhc-schl.gc.ca/en/inpr/afhoce/tore/afhoid/cohode/buhoin/buhoin_005.cfm.

¹² Health Canada. Indoor Air Quality. Retrieved from <http://www.hc-sc.gc.ca/ewh-semt/air/in/index-eng.php>

Healthy indoor environments are achieved by first reducing the amount of pollutants generated within the home by selecting low or non pollutant emitting materials and finishes. Taking steps, such as the installation of exhaust fans, to isolate and vent pollutants that are generated in the home are important as well. Providing fresh air and venting stale air by a heat recovery ventilator to provide general background ventilation helps maintain indoor air quality. Over the long term, diligent operation and maintenance can go a long way to ensuring conditions, such as leaks, moisture and mold, don't arise that can adversely impact indoor air quality as well as the condition of the home.

CMHC's Healthy Housing™ principles not only address the indoor environment but also extend to energy efficiency and renewable energy, reduced environmental impacts, resource conservation and affordability. Each one of these principles, or sustainable design objectives, has direct and indirect links to occupant health and well-being. For example, while energy efficiency and renewable energy systems can reduce emissions associated with the burning of fuels in furnaces, hot water heaters, fireplaces and electricity generation plants, it's important to understand and address the possible unintended consequences of reducing air leakage, adding insulation and installing new, innovative building systems on the indoor environment, durability and long-term operation and maintenance needs.

By including housing features that reduce environmental impacts and conserve resources, our natural environment can be better protected and this can result in a variety of positive outcomes including reduced pollutant emissions to the land, air and water which in turn support healthier living conditions. Affordability is included in the Healthy Housing™ principles as the more affordable healthy housing features can be made, the greater chance of wider market acceptance and uptake. This, in turn, can be expected to increase the availability of healthy housing options and reduce the impact of housing on our environment.

CMHC's Healthy Housing™ principles:

- Occupant health: this means better lighting, comfort, air quality and water quality, as well as the use of low-emission materials during construction.
- Energy efficiency: this means energy-efficient construction methods, heating systems, lighting and appliances to reduce energy demands to a minimum. Renewable energy systems can be applied to further decrease needs or even provide energy back to the grid.
- Resource efficiency: this means that building materials are efficiently used with low waste rates and all materials are durable. It also means that energy, water and other resources used to operate and maintain the house over time are efficiently used as well.
- Environmental responsibility: this means taking steps to reduce the environmental impact of the home. This may include smaller lots and generally reduced land resources and the creative and efficient use of space to reduce material needs. The selection of materials and products that have low environmental impact from "cradle to grave" is also important.
- Affordability: Healthy Housing should be more affordable over time given efficient operation and the durability of materials and products used. Affordable healthy housing features will enjoy greater consumer acceptance and this supports increased supply of healthy housing options in the marketplace.

Through the EQUilibrium™ Housing and Communities initiatives, CMHC has helped demonstrate how Healthy Housing™ principles and sustainable planning approaches can be applied in practice. EQUilibrium™ Housing, a national sustainable housing demonstration initiative led by CMHC, brought the private and public sectors together to develop and demonstrate homes that combined resource- and energy-efficient technologies with

renewable energy technologies in order to reduce their environmental impact.¹³ EQuilibrium™ housing includes such features as:

- healthy building materials and finishes;
- climate- and site-specific design;
- passive solar heating and cooling;
- energy- and resource-efficient construction;
- energy-efficient appliances and lighting;
- integrated renewable energy systems, such as photovoltaics, solar thermal and ground-source heat;
- natural daylighting;
- water conservation, rainwater harvesting and water reuse strategies;
- land and natural habitat conservation; and
- sustainable site design and green infrastructure practices.

The EQuilibrium™ Communities Initiative, a joint initiative of CMHC and Natural Resources Canada, extended the EQuilibrium™ Housing objectives to the neighbourhood level. The initiative was created to accelerate the adoption of sustainable approaches by demonstrating innovative approaches to the following aspects of sustainable community design practices:

- Energy: an energy-efficient community that balances energy supply and use to minimize greenhouse gas emissions;
- Land Use and Housing: a compact community with a balanced mix of activities, housing choices and commercial, institutional, recreational and industrial land uses;
- Water, Waste Water and Storm Water: a community that will minimize the use and disposal of water and negative impacts on watersheds;

- Transportation: a community that reduces fossil-fuel use from personal vehicle travel and provides opportunities for energy-efficient and healthy alternatives;
- Natural Environment: a community that protects, enhances and restores the natural environment; and
- Financial Viability: a marketable community that, through its design, operation, integration and financing, is economically viable over the long term.

While both initiatives demonstrated the extent to which housing and communities could be more sustainable, the technologies and practices featured can be more broadly applied in the full range of new and existing housing and communities. In particular, sustainable housing and community design and construction practices can bring many benefits to seniors' housing residents. Energy-efficient construction practices, technologies, appliance and lighting systems lead to lower energy bills and reduced pollutant emissions that contribute to smog. Highly insulated and airtight building envelopes reduce energy use and keep the dwelling more comfortable and will help preserve indoor temperatures longer in the event of a power outage.¹⁴ Healthy construction materials can reduce the amount of chemical contaminants emitted indoors and this leads to better indoor air quality and a healthier living environment.¹⁵ Sustainable housing and communities are therefore not only good for the environment; they are also good for the residents. Seniors especially stand to benefit from the comfort, healthy indoor environments, resiliency and economic benefits of sustainable design and construction practices and technologies.

¹³ For more information, see the CMHC website at <http://www.cmhc.ca/en/inpr/su/eqho/>.

¹⁴ Canada Mortgage and Housing Corporation (2009). *About Your House: Insulating your Home*. Retrieved from <http://www.cmhc-schl.gc.ca/odpub/pdf/62039.pdf?lang=en>

¹⁵ For more information, see <http://www.cmhc.ca/en/co/maho/yohoyohe/inaiqu/index.cfm>

GENERAL CONSIDERATIONS in Designing Housing for Older Canadians



MOBILITY, CONVENIENCE AND SOCIAL INTERACTION

As people age, they lose the ability to walk long distances or to go up and down steep grades and long flights of stairs. For this reason, flat and level pathways and entrances are important in housing for older Canadians. Multi-unit developments should also ensure clarity in wayfinding and signage, the provision of seating at regular intervals along walkways, and clear and easy access to and from public transportation, if possible. The design of corridors and common spaces can stimulate social interaction, so these spaces should be given special consideration.

SIGHT, PERCEPTION AND LIGHTING

Visual acuity declines with age, including decreased adaptability to changes in light levels, sensitivity to glare and defects in colour vision. Therefore, units designed with the aging population in mind need to provide higher light levels, control glare and allow for gradual changes in illumination levels. Wherever possible, indirect lighting is preferable, and task lighting is ideal for close work. Generally, people over 40 see more poorly with bright unshielded lighting than with lower levels of illumination and shielded fixtures. The colour of light is also significant: for many reasons, “white light”—the colour of light produced by many new outdoor fixtures—reduces the ability to see in areas with low illumination.¹⁶ In addition, sunlight, views and connections to the outside are extremely important psychologically.

SOUND AND HEARING

Age-related hearing loss is often frequency-specific, usually where the higher range is affected. The control of background noise and attenuation of lower frequencies can be helpful: carpeting or other sound-absorbent floor, wall and ceiling materials can help. Comfort and privacy can be enhanced through good attenuation of sounds from outside and between rooms. In multi-unit developments, the design should ensure that sound from public areas and entrances do not penetrate to private rooms and areas.

SAFETY AND SECURITY

People are increasingly vulnerable to accidents as they age. A single fall can have a radical effect on an older person’s life and independence. Therefore, developments should avoid unnecessary steps or changes in grades. Other safety devices include thermal-protection devices on stoves and induction ranges, as well as carbon monoxide and smoke alarms.

It is also important to consider methods of emergency evacuation of the housing in case of fire. This includes methods of alerting residents who may have hearing difficulties and the inclusion of safe refuges for people who may be unable to evacuate a building without assistance.¹⁷

Older people often feel (and can be) more vulnerable to occurrences of assault and burglary, so sophisticated security systems can help them feel safer. Defensible space strategies can also increase security—and the

¹⁶ Dick, Robert. (2010). “Smarter Ways to Think About Artificial Outdoor Lighting,” *Ontario Planning Journal*, Vol. 125, No. 6.

¹⁷ For a complete discussion on fire safety, see Canada Mortgage and Housing Corporation. Accessible Housing by Design—Fire Safety for You and Your Home. Retrieved from http://www.cmhc-schl.gc.ca/en/co/renoho/refash/refash_042.cfm.

perception of security—significantly. Defensible space (advocated by Oscar Newman, Jane Jacobs and Jan Gehl) is the creation of “a residential environment whose physical characteristics—building layout and site plan—function to allow inhabitants themselves to become key agents in ensuring their security.”¹⁸ This includes, for example, designing an area so that it can be surveyed before a person enters it. In larger developments, it means ensuring “eyes on the street”—that is, public areas that are overlooked by many windows.

TECHNOLOGY AND AUTOMATION

Technology has the potential to provide enormous help in increasing independence, safety, communication and care. For example, technology is now available whereby sensors placed around a house can track the movement of residents and detect potential problems. Sensors can be placed in washrooms, medicine cabinets, fridges and walkways to transmit information to a data centre. If the sensors detect that medications are not being taken regularly, a fridge door has been left open or the resident has been in a washroom for an inordinate amount of time, it will notify caregivers through e-mail or text messages. No audio or video is recorded, so independence and privacy are not compromised. While this technology has been applied only to retirement homes to date, it has the potential to be applied to private homes with alerts being sent to family members.

NEIGHBOURHOOD DESIGN

Seniors housing in Canada is rarely developed in the form of large, self-contained, master-planned communities. Most seniors housing is built in existing neighbourhoods. The design of the neighbourhood is as important as the design of residential buildings when creating housing that is responsive to the needs of older Canadians. Research shows that walkability, that is, short distances between destinations and the availability of sidewalks that are in good repair, are critical in allowing seniors to live independently and safely, and to avoid feelings of isolation. Closely related to walkability is easy access to services that meet the daily needs of residents, such as stores, banks, medical and dental offices, pharmacies and restaurants. The availability of transportation options, including good public transportation, is important for seniors who can no longer drive or for whom driving is stressful or exhausting. Better lighting, safe crossings, and design that encourages a high level of pedestrian activity among all neighbourhood residents help seniors to feel safe and encourages them to walk and to use public spaces without worrying about their personal security.¹⁹

¹⁸ Newman, Oscar. (1976). *Design Guidelines for Creating Defensible Space*, National Institute of Law Enforcement and Criminal Justice.

¹⁹ Canada Mortgage and Housing Corporation (2008). *Research Highlight (Socio-Economic series 08-014): Community Indicators for An Aging Population*. <https://www.cmhc-schl.gc.ca/odpub/pdf/66099.pdf?fr=1349968864671>

APPLYING

Universal Design Principles to a Housing Unit



The more the physical design of homes and housing units makes aging in place easy and affordable, the greater will be their attraction and potential resale value. Many of the features described in this section can be incorporated inexpensively into new housing. However, these features provide increased stability in neighbourhoods and result in a more efficient use of infrastructure and resources.

Traditionally, universal design or barrier-free design was considered a specialized concern for a minority of housing providers. As a result, an increasing number of buildings—as well as cities and neighbourhoods—now are in need of expensive modifications or additions to make them accessible to people with disabilities or to those who want to remain in their homes and communities as they age.

Applying universal design at the unit scale will ensure that buildings or products can be used by all people to the greatest extent possible, without the need for later adaptations. When the principles are applied effectively, an accessible unit does not look different from a standard unit, making it attractive and marketable to people who do not need or want features that emphasize differing levels of ability.

ENTRYWAY

In private dwellings, entries should be located near parking. Ramps and landings may be desirable; however, people using walking aids may find well-designed steps more comfortable than ramps. Doors should minimize thresholds to avoid tripping hazards. A bench or ledge for placing carried objects while opening the door can be welcome. A covered sitting porch at the entryway

offers the possibility of observation and interaction with neighbours, and a canopy or overhang provides shelter during bad weather.

Quick checklist for entries

- ☐ Good lighting at entrance
- ☐ Lever-style door handles
- ☐ No step up into the doorway
- ☐ Covered porch or other protection over exterior door
- ☐ Window to the outside accessible to those seated or standing

LIVING/DINING ROOM

Private dining and living rooms need to accommodate activities like watching television, reading, entertaining, playing table games and dining. These rooms must allow for flexible furniture arrangements and adequate space for wheelchairs and walkers. Natural light and views to the outside are psychologically important. Low window sills and a layout that allows seating to be placed against walls rather than windows will facilitate these views. For aging people moving to new residences, the ability to bring their own furniture and other items can allow for an easier transition.

KITCHEN

Universal design in the kitchen is critically important—including adequate space for wheelchair movement, removable lower counters, adjustable-height counters to provide for knee space, pull-out or open shelving, or units on castors. Cabinets, appliances and switches should be placed where they are most accessible, including to those in wheelchairs, and plugs should be placed where they are easy to use, with colour contrast to make them easy to find. Under-counter storage with deep drawers is desirable. As a general rule, it is good to locate short-term storage between knee and shoulder heights. Vertically divided refrigerators are also useful, as are full-height pantries and a broom closet. Exposed pipes should be insulated to avoid burns. Lever handles and hands-free faucets are important, and developers may want to consider remote controls for appliances, lighting and windows. Flooring should be non-slip, resilient and cushioned for safety. Additional safety features such as automatic timers or induction cooktops that are always cool to the touch may also appeal to older buyers.²⁰

Quick checklist for kitchens

- ☐ Non-slip flooring
- ☐ Good task lighting
- ☐ Accessible, adjustable storage space
- ☐ Accessible electrical outlets
- ☐ Lever-type faucets
- ☐ Adjustable-height workspace
- ☐ Colour-contrasting cabinets and counters
- ☐ Rounded corners on counters

BEDROOMS

In addition to sleeping and dressing, bedrooms may be used by older adults for watching television, practising hobbies, doing crafts and reading. Again, windows with low sills are optimal for viewing outside while seated

or in bed. An uncluttered furniture arrangement and sufficient space for ease of movement and storage of wheelchairs or walkers when not in use are advisable. Additionally, bedside storage and controls for lights, television and telephone within easy reach of persons in bed are suggested. Possible special needs for getting in and out of bed should be considered, and provision made for later installations.

BATHROOMS

It is a good idea to plan a large bathroom at the outset, if possible, or to either include a space such as a closet next to the bathroom or install removable cabinets that would allow for a later expansion. In a house of two or more storeys, allowing the option to create a full bathroom on the ground floor can help facilitate aging in place.

Universal design plays a key role in the bathroom and can be achieved by including reinforced mounting points for grab bars, adequate space for wheelchairs, removable lower cabinets, insulated pipes at lower levels and possible roll-in showers with adjustable-height showerheads. Bathtubs are more likely to lead to falls than showers but are enjoyed by many as a relaxing experience. Seats, steps and special tubs that facilitate stepping in and out can be helpful. Controls for showers and tubs should be so that they are accessible from both inside and outside the fixture and temperature-limiting

Quick checklist for bathrooms

- ☐ Non-slip flooring
- ☐ Non-glare lighting
- ☐ Lever-type faucets
- ☐ Adjustable-height shower head
- ☐ Wall reinforcement to allow for grab bars
- ☐ Adjustable-height vanity
- ☐ Standard-height toilet
- ☐ No step up or barrier to entry into shower stall

²⁰ For more ideas and tips on accessible kitchen design, see Canada Mortgage and Housing Corporation. Accessible Housing by Design—Kitchens. Retrieved from http://www.cmhc-schl.gc.ca/en/co/renoho/refash/refash_029.cfm.

controls to prevent scalding should be installed. A touchless bathroom (where lighting, faucets and toilets are automated) can improve safety, contribute to sustainability and reduce the risk of infection for those with immunity deficiencies. Emergency call systems are also an option and should be installed within reach from all points in the bathroom.²¹

STORAGE AND LAUNDRY SPACE

It is important to cater to the particular storage needs that aging adults may require, such as wheelchairs, walkers and electric scooters (including provision for battery recharging). It is desirable to provide plenty of space for items not used on a daily basis and to acknowledge that older people are very attached to items that hold important memories. High shelving or areas that require stooping should be avoided, and lighting provided to storage areas. Storage outside the living unit should be lockable and observable before entry.

Laundry areas require many of the same requirements as kitchens and bathrooms (for example, accessible switches and plugs, non-slip flooring and non-glare lighting). Laundry facilities are best located on the same floor as the living quarters, rather than in a basement. Front-loading machines are preferable to top-loading machines and are also generally more energy-efficient.²²

PATIO AND BALCONY

These areas can be very important for aging adults because they provide some private space with access and views to the outdoor environment. It is often preferable to allow for downward as well as horizontal views from balconies. They must provide sufficient space for moveable chairs and tables. Generally, a minimum depth of 1.8 m (6 ft.) for balconies ensures that people can sit facing each other comfortably. Provisions for visual and audio privacy should be considered.

Enclosed sunrooms, particularly if they receive direct sunlight, can be welcome areas for older people (as well as people of any age) who are confined indoors. In the Netherlands, erker windows provide a hybrid space: bay windows with French balcony doors that open inward and retractable awnings to control sunlight.²³ Auxiliary security devices can be added to prevent forced entry and enhance the security of patio and balcony doors.

Quick checklist for outdoor space

- ☐ Sliding or French doors wide enough to accommodate a wheelchair
- ☐ Balcony wide enough to accommodate a wheelchair
- ☐ Smooth, low threshold
- ☐ Railing or enclosure that does not restrict the view of a seated person
- ☐ Exterior lighting and electrical outlet

²¹ For more ideas and tips on accessible bathroom design, see Canada Mortgage and Housing Corporation. Accessible Housing by Design—Bathrooms. Retrieved from http://www.cmhc-schl.gc.ca/en/co/renoho/refash/refash_030.cfm.

²² For more ideas and tips on accessible laundry room design, see Canada Mortgage and Housing Corporation. Accessible Housing by Design—Appliances. Retrieved from http://www.cmhc-schl.gc.ca/en/co/renoho/refash/refash_031.cfm.

²³ Regnier, Victor. (1994). *Assisted Living Housing for the Elderly: Design Innovations from the United States and Europe*. Van Nostrand Reinhold.

APPLYING

Universal Design Principles to Multi-unit Developments



SITE AND BUILDING ENTRIES

Older people may experience difficulties in locating the entry to a building and finding their way inside a larger building. Therefore, in multi-unit developments, there is a strong need for clarity in layout, signage and entries. Entryways should also be clear of tripping hazards such as steps or bevelled thresholds. Protective canopies over entries are also desirable, as are vestibules that act as air locks in hot or cold weather. Buildings with multiple units should be convenient for vehicular pick-up and drop-off.

OUTDOOR SPACE²⁴

PARKING

Larger projects should be designed to provide for ease of circulation, minimal confusion, good lighting and clearly marked drop-off points. All parking areas should provide adequate, accessible spaces convenient to the building entry and spaces close to the residential units in multiple-unit schemes, rather than in one large lot. Parking areas should be designed to ensure that there are no concealment opportunities for intruders, and consideration should also be given to providing for charging and storage of electric mobility scooters.

WALKWAYS

When designing walkways with older adults in mind, it is important to consider non-slip surfaces, sufficient width for wheelchairs (and for wheelchairs to pass each other) and good lighting. Varied surface textures can also offer users cues about their location. Frequent

seating areas and a variety of stimuli along the way will encourage residents to use the walkways. The design should also take into consideration micro-climate issues such as snowdrifts, wind, sun and shade.

GARDENS

Researchers are becoming increasingly aware of the important psychological and therapeutic effects of human contact with nature (for example, research has demonstrated that patients with views of nature have shorter recovery times from surgery²⁵).

The importance of good landscape design therefore cannot be overstressed. Landscape architecture plays an important role in creating “outdoor rooms” and fostering residents’ relationships with nature and the surrounding neighbourhood. Yet it is frequently the first casualty of cost-cutting exercises, even though it can yield the most cost-effective design rewards.

In any development, views of gardens or pleasant landscapes from inside are important. For larger developments, attention to outdoor spaces can ensure that residents have places for healthy exercise, quiet contemplation or social interaction. Flowers and other plants can trigger memories, attract birds and butterflies, and provide hours of occupation for many residents. Water features can provide endless delight. They may also be connected to rainwater catchment systems.

Enclosed courtyards and gardens provide quiet and secure outdoor spaces in retirement and long-term care homes. Safe wandering gardens have been developed for those suffering from dementia, with different plants and other features providing visual and aromatic cues. For

²⁴ For more information see Canada Mortgage and Housing Corporation (2007). *Landscape Guide for Canadian Homes*.

²⁵ Ulrich, Roger S. (2002). Conference paper: “Plants for People,” International Exhibition Floriade.

those who wish to garden for themselves, raised planting beds provide access for people in wheelchairs or those who have difficulty kneeling. In larger projects, green roof gardens can greatly increase the provision and enjoyment of outdoor spaces.

Quick checklist for gardens

- ☐ Raised beds to allow older adults to garden
- ☐ Sheltered spaces for sitting
- ☐ Paths wide enough to accommodate wheelchairs
- ☐ Plantings that attract birds and butterflies
- ☐ Enclosures for safety
- ☐ Scented plants for enjoyment by those with restricted vision

SEMI-PUBLIC INDOOR SPACE

LOBBY

The main lobby in a multi-unit development can be a welcome high-activity community space—an area where residents can encounter each other and observe the comings and goings as in old-fashioned porches. However, a secondary entry may be desirable for residents who do not wish to be observed at all times. Alcoves or small sitting areas near the entry can provide discreet overlooks outside the main circulation. In assisted living accommodations, it is desirable to place a desk for a concierge, receptionist or greeter in the main lobby, but clear signage is still essential.

CORRIDORS

Corridors can be much more than simply areas of access and circulation. They may be places to meet people, or to display personal items and art work. Some European examples of corridors are glazed and well lit, and mimic

Figure 4: Corridor Handrail²⁶



lively interior streets. By varying colour, texture and lighting, corridors can avoid repetitious, disorienting layouts. Alcoves with seating provide rest places and encourage spontaneous conversations. Windows are desirable wherever possible, as views to the outside help orientation, but glare from glazing at the end of corridors should be minimized. It is also advisable to include handrails on both sides, and an institutional look can be avoided by integrating the handrail with wainscoting (see figure 4).

STAIRS

Stairs can be potential hazard areas for the visually impaired and those with difficulty walking. Making flights of stairs as short and straight as possible will help to lessen the hazard. Handrails should be provided on both sides and should be easy to grip. In addition, providing seats at the base, the landing and the top of stairs can offer helpful rest points and possible places for socialization in an assisted living environment. Using contrasting colours for risers and treads can also be helpful.²⁷

²⁶ Corridor handrail to provide non-institutional look. Image courtesy of Belmont Apartments, Toronto. Montgomery Sisam Architects.

²⁷ For more information on stair safety, see Canada Mortgage and Housing Corporation. Preventing Falls on Stairs. Retrieved from http://www.cmhc-schl.gc.ca/en/co/maho/adse/adse_001.cfm.

DINING AREA

Typically the most heavily used space in an assisted living facility, the dining area is an important space for residents. Dining is often the most pleasant activity of the day for those in assisted living accommodations, and it is therefore vital that the ambience of this room be welcoming. This can be accomplished by using carpets and soft furnishings to improve acoustics for hearing-impaired residents, by using good lighting and by locating the room so that it has a view onto a garden.

The distance from each resident's room to the dining area should be minimized. If the dining space is a single, multi-purpose room, adequate storage should be provided for tables and chairs. Space requirements can vary, but it is important to make adequate allowance for wheelchairs, walkers and other aids. While two- and four-person table arrangements are effective, some European assisted living projects offer family-style dining areas accommodating six to eight residents only.²⁸

Quick checklist for semi-public indoor space

- ☐ Automatic door openers
- ☐ Door and corridor widths to accommodate mobility devices
- ☐ Straight-run stairways with easy-to-grasp rails on both sides
- ☐ No interior doorsills to impede wheelchairs or walkers
- ☐ Non-slip flooring
- ☐ Clear signage
- ☐ Non-glare general lighting
- ☐ Seating in corridors and other public areas
- ☐ Materials chosen to mute excessive noise
- ☐ Views from windows toward green space

LOUNGES

The lounge can be a focal point for informal activities and social encounters. Activities can range from parties and entertainment to watching television, playing card games and chatting, so a flexible furniture arrangement is important. Alcoves and corners can serve as more intimate areas within a larger space. The creation of additional smaller lounges may also be desirable, where possible. A television is best included where it can be in its own space with sound isolation.

COMMUNAL WASHROOMS

In convenient locations for the lobby, dining room, lounge and activity areas, accessibility to washrooms is of utmost importance. Non-slip floors as well as mirrors and sinks at heights appropriate for wheelchairs are necessary. There should also be ample space to manoeuvre.²⁹

RECREATIONAL AND LIFESTYLE AMENITIES

Today's homes for older adults typically offer a vast array of recreational programs for their residents. These may include fine arts, crafts, music, performance, workshops, games, exercise, swimming, sports, cooking and gardening. Spaces in which these activities occur may be multi-purpose rooms, sunrooms, chapels, libraries and athletic centres. For more information on these types of amenities, see *Volume 5: Services and Amenities*.

²⁸ Regnier, Victor (2002). *Design for Assisted Living*. Wiley, John and Sons.

²⁹ For more ideas and tips on accessible bathroom design, see Canada Mortgage and Housing Corporation. Accessible Housing by Design—Bathrooms. Retrieved from http://www.cmhc-schl.gc.ca/en/co/renoho/refash/refash_030.cfm.

EXAMPLES of Universal Design



The planning and design of communities for older Canadians need to address the desire of many older Canadians to “age in place.” This can mean remaining in the same unit or dwelling as they age but, for many older Canadians, it will mean remaining in the same neighbourhood or community. The ability to move to new accommodation within a familiar neighbourhood is important, so that residents may continue to have access to the networks, activities and places they value. This is why developers and sponsors of seniors-oriented projects may wish to look at opportunities to create infill developments³⁰ that integrate into mature neighbourhoods, thereby providing residents with opportunities to stay in familiar surroundings.

The idea of the “apartment for life” is gaining strength in the Netherlands. A 195-unit housing development in Rotterdam has a three-storey landscaped atrium open to the public with a lounge, restaurant, grocery store, bistro bar and pond. Units are fully accessible, and social and medical services are tailored to individual needs. The idea is to provide a housing and service system that allows units to be altered to accommodate residents’ changing needs so that residents can remain in place for life.³¹

In a country as vast as Canada, seniors live in a variety of settings; urban, suburban, rural or remote. Aging in place can be relatively straightforward in some of these settings but, in others, it can be very challenging. For this reason, developers and renovators who create opportunities for older Canadians to age in place will be in high demand.

At the scale of the neighbourhood, universal design principles suggest that developers consider questions like these:

1. Equitable use: When planning vehicular access and parking, should provision be made for electric mobility scooters as well as cars?
2. Flexibility in use: Will residents be able to use alternative forms of transportation to get to shops and services, if they are forced to drive less or stop driving altogether?
3. Simple and intuitive: Is the neighbourhood well laid out with respect to wayfinding?
4. Perceptible information: Are there landmarks to help people find their way around the neighbourhood?
5. Tolerance for error: Does the neighbourhood offer a sense of safety and security?
6. Low physical effort: Does the site have any steep changes in grade?

³⁰ For residential intensification case studies, see http://www.cmhc-schl.gc.ca/en/inpr/su/sucopl/sucopl_001.cfm

³¹ Regnier, Victor (2002). *Design for Assisted Living*. Wiley, John and Sons.

7. Size and space for approach and use: If residents leave their house or apartment, are there sidewalks, and are there places to rest or take shelter along the way?

The examples of seniors housing provided below illustrate important features of housing for older Canadians. While each of these examples emphasizes some design principles more than others, all represent good neighbourhood design. Whether at the scale of a small residence, a retirement home, a new suburb, or a master-planned community, and no matter what the setting, the need to apply good design principles remains.

SUSTAINABLE AGING IN PLACE IN A SMALL ISLAND COMMUNITY

This project meets a particular need for aging residents of a small island by making aging in place a possibility. The residence is a conversion of a single-family dilapidated dwelling into a multi-unit seniors' residence. There are eight units, each of which can accommodate wheelchair access. All residents are given a private room and a garden or deck with clearly defined boundaries between neighbours, and each unit is directly accessible from the outside. The ground-floor units are "bed-sits," connected to shared amenities of kitchen, living room and laundry room, and encourage supportive living through these shared spaces. The second floor has two self-contained units, one of which can be used by a caregiver.

The project emphasizes sustainability through energy-efficient, environmentally friendly construction, site conservation, building form and orientation, energy conservation and water conservation. For aging residents of the island, the development enhances their quality of life, as their only other option would be to move off the island, leaving the networks and friendships they had formed throughout their lives.

HIGH-DENSITY, HIGH-AMENITY SENIORS' LIVING IN THE CITY

This high-rise seniors' living retirement community in a large city has a total of 248 units on 53 storeys, including one-, two-, three- and four-bedroom independent living apartments. In addition to independent living, the community offers a continuum of care with assisted living, memory support, rehabilitation and nursing care. These different care options operate on separate floors, but all residents have access to the same dining areas, staff and private living space.

The building offers many amenities, including several dining venues, three chapels, a meditation room, a fitness and aquatic centre, media and entertainment centre, business centre, arts studio, performance centre and day spa, but this exclusive level of service comes at a steep price. Accommodation requires an entrance fee of more than \$500,000, and monthly service fees are about \$3,000.

As the residence is situated in a highly urban location, residents also have the opportunity to enjoy the amenities of the city. Located beside a university campus, the community has a partnership in place that allows for lifelong learning opportunities for its residents. In order to appeal to a particular clientele with certain amenities and opportunities, it was imperative that this project be developed in an urban centre. As a result of its urban location, the facility has a high density, offers a mix of uses within one building and is close to transit. It also provides for a flexible range of care options on one site, which makes aging in place possible.

RETIREMENT COMMUNITIES THAT PHASE DEVELOPMENT FOR A RANGE OF NEEDS

These communities are an example of a continuum of care model that is developed in stages within retirement communities. These communities initially open as a long-term care facility. Full-service retirement living, assisted care, memory care and independent living options are added in subsequent phases. Because the options added in later phases are for seniors who are more independent and require less care than residents of long-term care facilities, the phased development initially responds to demand from new residents, not existing residents whose needs are changing. Once different options are in place, residents can move between different living options as their needs change.

The communities provide the features of a small town. Each has a town square and an indoor main street. They also offer lounges, indoor cafés, a general store, a chapel, a rehabilitation clinic, arts and crafts and hobby rooms, and a dining room. Some also offer underground parking, open landscaped areas, a library and a community centre, depending on the living choices available. Activities and social events take place in the middle of the village to draw people in and promote social interaction. The communities are usually located near churches, schools, malls, parks and transit.

The unique continuum model that these retirement communities employ is a challenge to replicate, because it requires relatively large land holdings. It could be replicated on “legacy” sites, but is more feasible in suburban markets where land is more available. Legacy sites are those where land has been endowed from a university, church or other institution.

A MASTER-PLANNED, INTERGENERATIONAL, WALKABLE COMMUNITY

This project is an example of a master-planned community that emphasizes walkability and offers housing for a broad range of residents in a mid-sized city. The development appeals to the mainstream market but also contains three apartment buildings designed specifically for seniors. These apartments will be leased units. In addition to leasing these apartments, seniors will have the option of accessing additional services such as maintenance (that is, small house repairs), personal care support and meals.

With a main street as the intentional focus of the town, the intergenerational mixed-use community prioritizes walkability and encourages physical activity wherever possible. The developer purposely created a neighbourhood structure and populated it with uses that appeal to the broader community. These include a grocery store, a bank, restaurants, a hardware store and a pharmacy. The shops were in place before the seniors’ housing was built, and anecdotal evidence indicates that residents outside the Town Centre have started shopping there because they enjoy the small-town ambience.

Intergenerational projects like this sometimes experience conflict between seniors and families in the use of streets, parks and parking lots. It appears that intergenerational communities work best when they occupy a larger area and when there are social and other links between the different types of housing. For example, this type of conflict tends not to occur in one development in Montréal, where seniors in assisted living units provided by a non-profit association are located near co-operative residences that accommodate families. Some of the families in the co-operatives have parents and grandparents in the assisted living accommodation, and some of the co-operative residents work in the seniors’ home.

CONCLUSION



Developers and sponsors of housing for older Canadians must take many factors into consideration when designing their projects. The changing demographics of Canadian society as well as the changes in the marketplace and in the self-perceptions of the aging population have created a demand for seniors' housing that maximizes aging in place and independence for as long as possible. Elements like scale, location and project type are key decisions that need to be made early on, as all of these factors will affect the design of the project. Whether at the neighbourhood, project or unit scale, adapted principles of universal design should be applied to ensure a project meets the needs of all residents. Depending on the location and size, some projects will be able to take advantage of the design of the existing surrounding community, while others will need to ensure that universal design is incorporated into their development to maximize accessibility for all. With careful planning and thoughtful design, developers and sponsors will be able to successfully address the changing needs of Canada's aging population.

REFERENCES

- Canada Green Building Council. Fact sheet: *LEED Canada for Neighbourhood Development (ND)*. Retrieved from <http://www.cagbc.org/AM/PDF/nd%20outline%20092209%20Eng.pdf>.
- Canada Mortgage and Housing Corporation (2009). *About Your House: Insulating your home*. Retrieved from <https://www03.cmhc-schl.gc.ca/catalog/productDetail.cfm?lang=en&cat=23&itm=7&fr=1330546368640>
- Canada Mortgage and Housing Corporation. Accessible Housing by Design—Appliances. Retrieved from http://www.cmhc-schl.gc.ca/en/co/renoho/refash/refash_031.cfm.
- Canada Mortgage and Housing Corporation. Accessible Housing by Design—Bathrooms. Retrieved from http://www.cmhc-schl.gc.ca/en/co/renoho/refash/refash_030.cfm.
- Canada Mortgage and Housing Corporation. Accessible Housing by Design—Fire Safety for You and Your Home. Retrieved from http://www.cmhc-schl.gc.ca/en/co/renoho/refash/refash_042.cfm.
- Canada Mortgage and Housing Corporation. Accessible Housing by Design—Kitchens. Retrieved from http://www.cmhc-schl.gc.ca/en/co/renoho/refash/refash_029.cfm.
- Canada Mortgage and Housing Corporation (2011). *2011 Canadian Housing Observer*. Chapter 7: Sustainable Housing and Communities. Retrieved from http://www.cmhc.ca/en/corp/about/cahoob/upload/Chapter_7_EN_dec16_w.pdf
- Canada Mortgage and Housing Corporation (2008). *Research Highlight (Socio-Economic series 08-014): Community Indicators for An Aging Population*. Retrieved from <https://www.cmhc-schl.gc.ca/odpub/pdf/66099.pdf?fr=1349968864671>
- Canada Mortgage and Housing Corporation (2007). *Landscape Guide for Canadian Homes*.
- Canada Mortgage and Housing Corporation. Preventing Falls on Stairs. Retrieved from http://www.cmhc-schl.gc.ca/en/co/maho/adse/adse_001.cfm.
- Canada Mortgage and Housing Corporation. (2000). *Research Highlight: FlexHousing™: Building Adaptable Housing*.
- City of Richmond. Flex House. Retrieved from <http://www.richmond.ca/services/socialplan/housing/flexhouse.htm>.
- Dick, Robert. (2010). “Smarter Ways to Think About Artificial Outdoor Lighting,” *Ontario Planning Journal*, Vol. 25, No. 6.

- Durrett, Charles. (2009). *The Senior Cohousing Handbook*, 2nd Edition, New Society Publishers.
- Fishman, Ted C. (2010). *Shock of Gray*, Simon and Schuster, Inc, New York.
- Harris, Gordon, "Suburbia Is No Place to Grow Old," *Ontario Planning Journal*, 2005. Vol. 19, No. 3.
- Health Canada. (n.d.) Indoor Air Quality. Retrieved from <http://www.hc-sc.gc.ca/ewh-semt/air/in/index-eng.php>.
- Hume, Christopher. "Bringing the suburbs in from the cold," *Toronto Star*, November 7, 2010.
- Lifetime Homes (n.d.) Case Studies. Retrieved from <http://www.lifetimehomes.org.uk/pages/the-green-house-by-barratt.html>.
- Miller, Glenn, Gordon Harris and Ian Ferguson. (2006). "Aging and Mobility: What Other Countries Are Doing," *Ontario Planning Journal*, Vol. 21, No. 5.
- Miller, Glenn, Gordon Harris and Ian Ferguson. (2006). "Bracing for the Demographic Tsunami—Can Canada's Seniors Escape Un-Pleasantville?" *Ontario Planning Journal*, Vol. 21, No. 6.
- Miller, Glenn, Gordon Harris and Ian Ferguson. (2006). "Mobility Under Attack—Are Older Canadians Ready to Live Without Their Cars?" *Ontario Planning Journal*, Vol. 21, No. 4.
- Newman, Oscar. (1976). *Design Guidelines for Creating Defensible Space*, National Institute of Law Enforcement and Criminal Justice.
- Ontario Ministry of Health and Long-Term Care. (2010). Public Information, Seniors' Care: Supportive Housing. Retrieved from http://www.health.gov.on.ca/en/public/programs/ltc/13_housing.aspx.
- Ontario Ministry of Health and Long-Term Care (2010). Public Information, Seniors' Care: Retirement Homes. Retrieved from http://www.health.gov.on.ca/en/public/programs/ltc/14_retirement.aspx.
- Ontario Retirement Communities Association. (2010). Residential Care Options, Retirement Residence. Retrieved from <http://www.orcaretirement.com/public/master2.php>.
- Public Health Agency of Canada. Age-Friendly Communities initiative. Retrieved from <http://www.phac-aspc.gc.ca/sh-sa/ifa-fiv/2008/initiative-eng.php>.

- Regnier, Victor. (2002). *Design for Assisted Living*. Wiley, John and Sons.
- Regnier, Victor. (1994). *Assisted Living Housing for the Elderly: Design Innovations from the United States and Europe*. Van Nostrand Reinhold.
- Saanich, B.C., *Basic Adaptable Housing*, Schedule F to Zoning Bylaw 8200.
- Team Dunker, “Grow Home” from Seaton Handbook, 1995.
- Ulrich, Roger S. (2002). Conference paper: “Plants for People,” International Exhibition Floriade.

ACKNOWLEDGMENTS

CMHC would like to thank the consultants, the Canadian Urban Institute and SHS Consulting Inc., and individuals who contributed to this guide:

Christian Fisker, Ontario Retirement Communities Association and Chartwell REIT

Mike Sharratt, Research Institute for Aging

François Vermette, Réseau québécois des OSBL d’habitation