



Session #: 701: Accessible & VisitAble Housing by Design

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What Is Accessible House Design?

- Accommodates everyone including people with disabilities.
- Includes houses that are minimally accessible, houses that can easily be made accessible at a later date.
- Some of the most common types of accessible house designs are:
 - **Visitable**
 - **Adaptable**
 - **Accessible**
 - **Universal**
 - **Aging in Place**



Housing for Older Canadians

- **A Five Volume Online Guide**

Intended for those Developing Seniors Housing



2

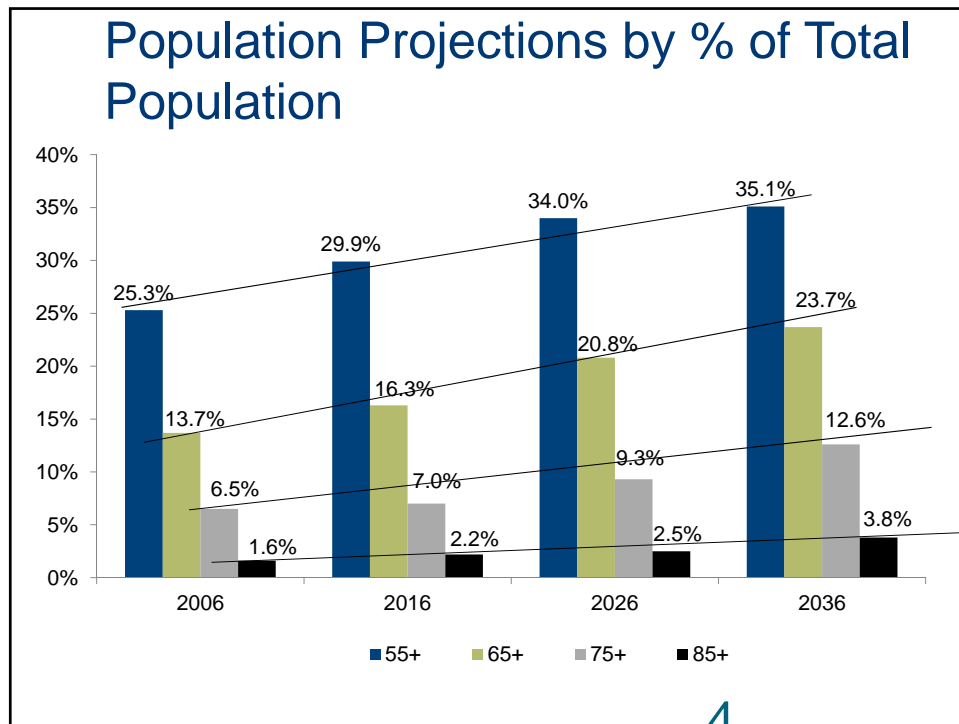
Housing Older Canadians

- **A Five Volume Online Guide**

1. Understanding the Market
2. Responding to the Market
3. Planning the Project
4. Designing the Project
5. Services and Amenities



3



The proportion of seniors and senior households will grow steadily in the coming decades

Projections show that by 2036:

- persons aged 65+ will account for 23% to 25% of Canada's population
- 34% of Canadian households will be headed by persons aged 65+ (up from 21% in 2006)
- 26.5% of Canadian households will have a primary household maintainer aged 70 or older (up from 15 % in 2006)



Senior's Health

- In 2006, about 41% of seniors 65 + had some form of disability
 - The presence of a disability increased with age from 17% for those 65 to 74, to 24% for the 75+
 - The severity of a disability also increased with age from 2% for those 65 to 74, to 4% for the 75+
- In 2006, 16% of seniors with disabilities required help with everyday housework
 - The proportion of seniors with disabilities who need help with everyday activities increases with age from 7% for those 55 to 64, to 25% for the 75+
 - The proportion of seniors with disabilities who require help with personal care increased from 2% for those 55 to 64, to 10% for the 75+



6

Planning

Considerations

Mobility, convenience and social interaction - Flat and level pathways and entrances

Sight, perception and lighting - Higher light levels and control of glare

Safety and security - Avoid unnecessary steps or changes in grades

Sound and hearing - Sound absorbent floor, wall and ceiling materials

Technology and automation - Sensors (washrooms, medicine cabinets, and walkways)

Neighbourhood design - Walkability, availability of sidewalks



7

Conclusion – Housing Older Canadians

The size of the senior population is growing faster than the total population in Canada.

Housing needs are changing as a result of population aging.

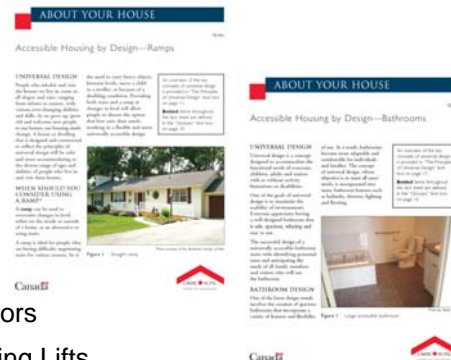
The extent of the aging trend can vary by jurisdiction and type of community, but the trend is present everywhere.



8

Accessible Housing by Design Series—Topics

- Ramps
- Appliances
- Kitchens
- Bathrooms
- Living Spaces
- Home Automation
- Lifts and Residential Elevators
- Residential Hoists and Ceiling Lifts
- Fire Safety for You and Your Home
- House Designs and Floor Plans



9

Accessible Housing by Design Series

- for use by persons with disabilities, architects, occupational therapists, renovators, builders and the general public
- for use in designing and modifying homes to ensure they are accessible for everyone
- take into consideration the field of **universal design**, new technologies and continually evolving design solutions



10

Universal Design:

“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.”

•The principles of universal design

- Equitable use
- Flexibility in use
- Simple and intuitive
- Perceptible information
- Tolerance for error
- Low physical effort
- Size and space for approach and use



Universal Design

Recognizes a diverse range of abilities

- Larger doorways
- Better lighting
- Leveller handles
- Handrails on both sides of stairs
- Level entranceways



Universal Design:

Entryway

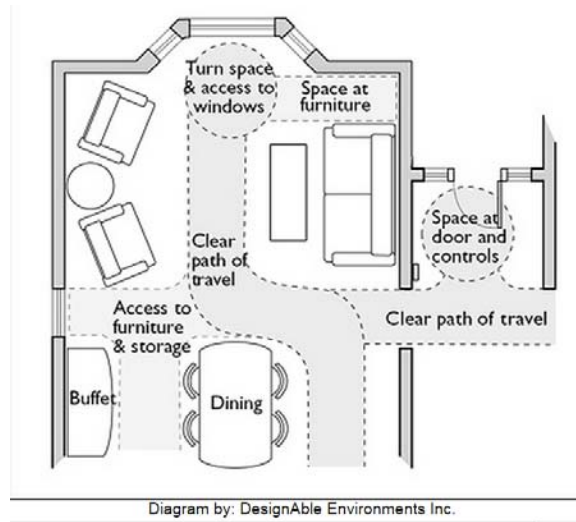
- Should be located near parking
- Doors should minimize thresholds to avoid tripping hazards
- A bench or ledge for placing carried objects while opening the door

Living/Dining Room

- Must allow for adequate space for wheelchairs and walkers
- Natural light and views to the outside are psychologically important



Path of Travel

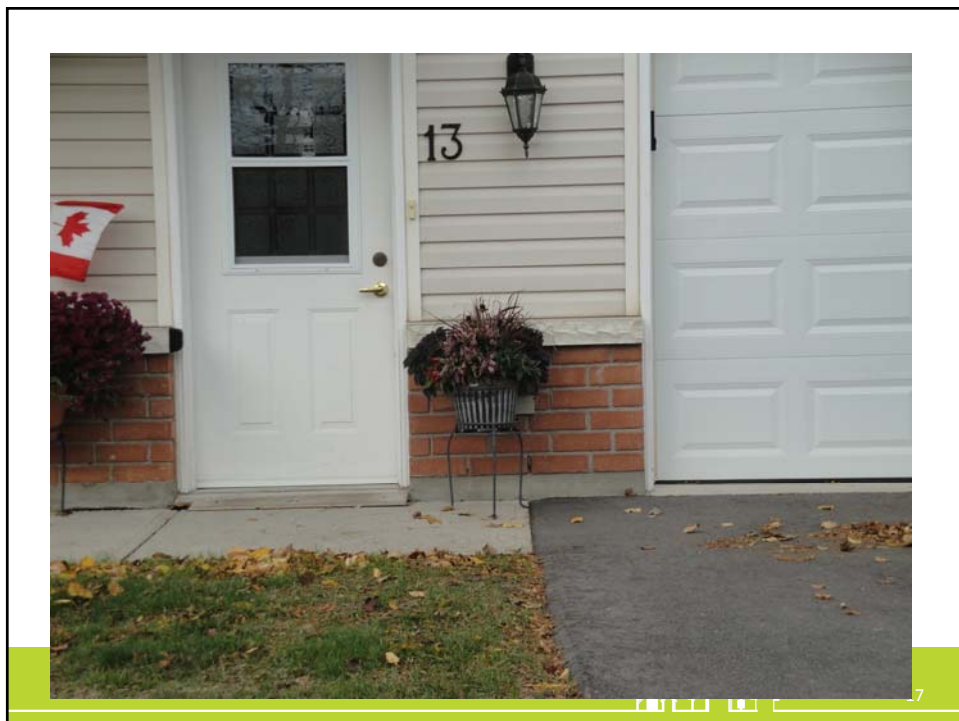


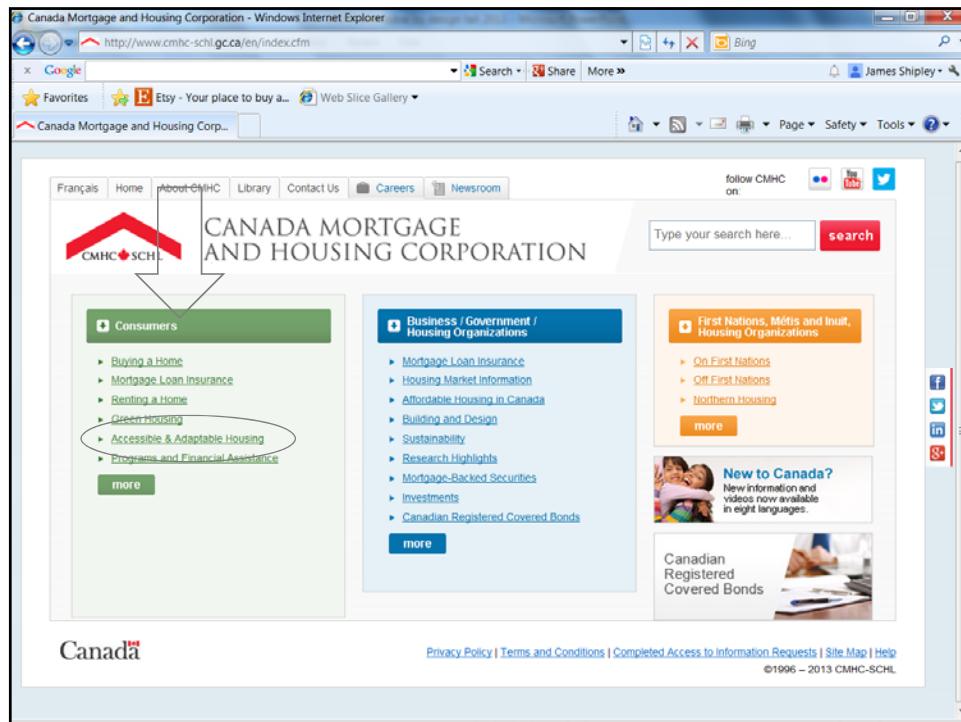
14

Height of Controls




15






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Aging at Home


[At Home With Alzheimer's](#)
[Preventing Falls on Stairs](#)
[Garden Suites](#)

[Maintaining Seniors' Independence: A Guide to Home Adaptations](#)


Flexhousing™

[FlexHousing™](#)
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20



CANADA MORTGAGE
AND HOUSING CORPORATION

Home
Français

Exterior/Entrance
Kitchen
Bathrooms
Bedrooms
Living Room
Attic
Hallways/Stairs



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CMHC FlexHousing™

What is FlexHousing™?

CMHC's FlexHousing™ is an innovative approach to home design, renovation and construction that is able to adapt and convert affordably as a household's lifestyle and needs change. As the needs of the household occupants change, ideally the floorplan, amenities and services of the home can be easily, and cost-effectively adapted.

Find out more about FlexHousing™


21

Accessible Housing by Design — Bathrooms | CMHC - Windows Internet Explorer

http://www.cmhc-schl.gc.ca/en/co/ach/acho_003.cfm

Accessible Housing by Design — Bathrooms | CMHC

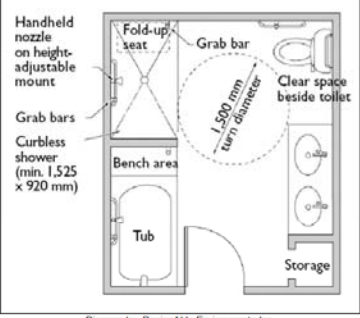


Diagram by: DesignAble Environments Inc.

Figure 8 — Bathroom with shower and tub, two washbasins, toilet and storage space

Design Elements

The elements of universal bathroom design are:

- Lighting
- Flooring materials
- Switches and controls
- Doors
- Vanities, drawers and storage
- Grab bars
- Toilets
- Showers

Accessible Housing by Design — Kitchens | CMHC - Windows Internet Explorer

http://www.cmhc-schl.gc.ca/en/co/ach/acho_004.cfm

Accessible Housing by Design — Kitchens | CMHC

The following fact sheet is part of the [About Your House — General Series](#)

Accessible Housing by Design — Kitchens

Universal Design

People who inhabit and visit the houses we live in come in all shapes and sizes, ranging from infants to seniors, with various ever-changing abilities and skills. As we grow up, grow old and welcome new people to our homes, our housing needs change. A house that is designed and constructed to reflect the principles of universal design will be safer and more accommodating to the diverse range of ages and abilities of people who live in and visit these homes.

Everyone appreciates having a kitchen that is safe, spacious and easy to use. The successful design of a universally accessible kitchen starts with identifying potential users and anticipating their needs.

Kitchen Design

People are demanding functional, usable and flexible kitchen designs that will work for their families. Core universal design concepts are being incorporated into many aspects of kitchen design ensuring appliances, cabinets, lighting and flooring.

Also gaining in popularity is the concept of "[aging in place](#)." By providing design features that follow the principles of universal design and FlexHousing™ and by incorporating flexibility and adaptability into kitchen design, the life and usability of a kitchen are increased and families, couples and individuals are able to stay in their homes and neighbourhoods as they grow and age.

Design Considerations

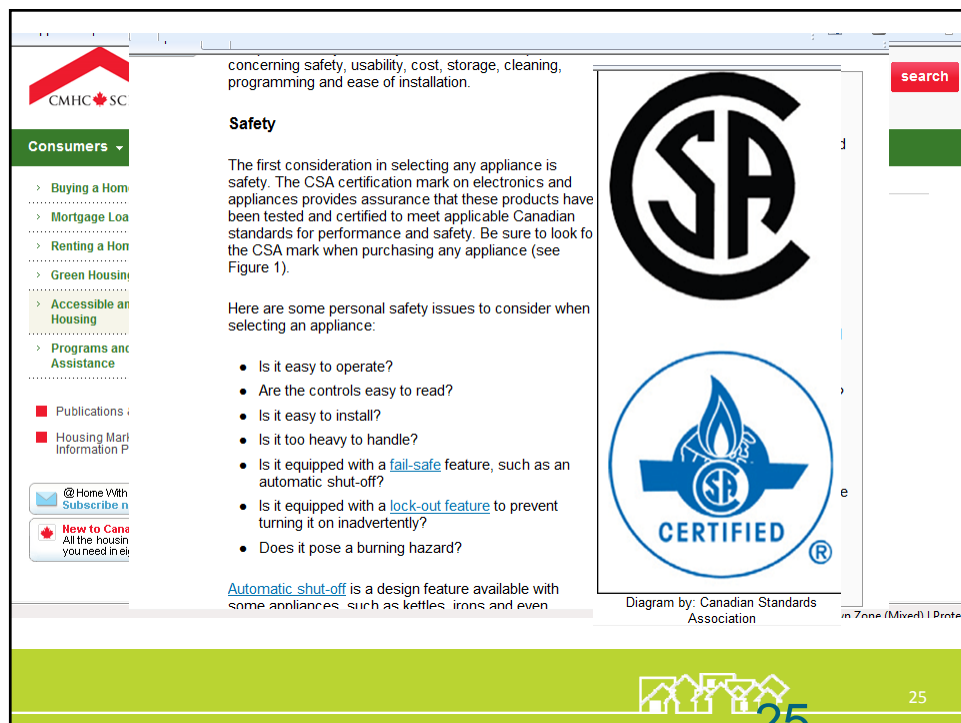
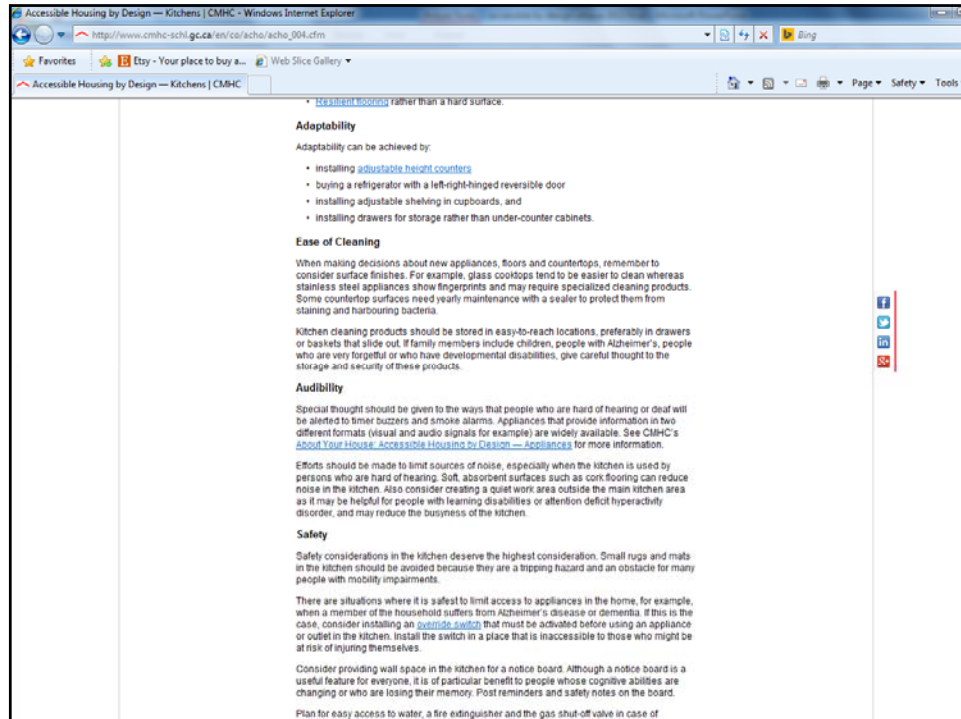
A universally designed kitchen is comfortable and safe for all family members. It considers all the design elements of a kitchen:

- its location in the house
- location of appliances and workspaces
- floor, wall and counter surfaces
- types of lighting
- ways to reduce noise, and
- overall use of colour and space.

Ask Yourself

- Are you a gourmet cook or do you just microwave prepared food?
- Do you have a disability that affects the way you prepare food?
- Are there usually two or three cooks in the kitchen at one time?
- Does a caregiver do most of the cooking?
- Do you have a child you need to keep an eye on while preparing meals?

An overview of the key concepts of universal design is provided in "[The Principles of Universal Design](#)" text box at the end of the document.



Controls

Controls should be easy and intuitive to operate for everyone, regardless of language, cognitive ability, ability to grasp and use of fine motor skills (see Figure 3). Also, since the controls will be used by different people, they should be clearly visible and within the reach of both seated and standing persons.

Controls that are easy to operate:

- incorporate good colour contrast for instructions and other characters (either dark text on a light-coloured background or light text on a dark-coloured background)
- are located on non-reflective and non-glare surfaces
- do not require too much strength to operate
- provide information for people who rely on sight, hearing or touch
- have [tactile features](#) and colour-contrasting markings to clearly indicate the on – off positions, for safety.

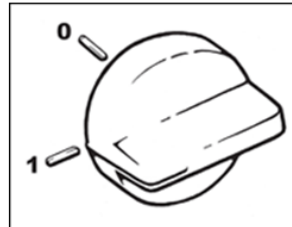


Diagram by: DesignAble Environments Inc.

Figure 3 — Tactile control with high-contrast text

Storage

Designing storage space for various appliances is often left to the last minute. Careful consideration of the storage requirements for small appliances will increase efficiency and usability, as well as reduce the likelihood of home accidents. For example, storing a heavy mixer at the bottom of a cupboard will likely mean it is seldom used. There are a number of storage systems available to homeowners that assist in the efficient use of space, such as a swing-up



26

Storage Space

Storage

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Cleaning

The ability to easily clean an appliance is an important health and safety consideration and can also be a factor in the proper functioning of the appliance itself. A self-cleaning feature in an oven is not only convenient and labour-saving, but also enhances safety by limiting the need for using chemical cleaners and removing the need to bend and reach into the oven for cleaning — an advantage for all users.

Check that racks, drawers and shelving in refrigerators, stoves, toaster-ovens, etc., can be easily removed for cleaning. Some small appliances incorporate removable parts that can be put in the dishwasher for cleaning. Be sure to investigate all the options when choosing your appliance.

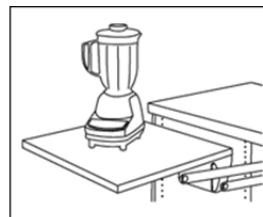
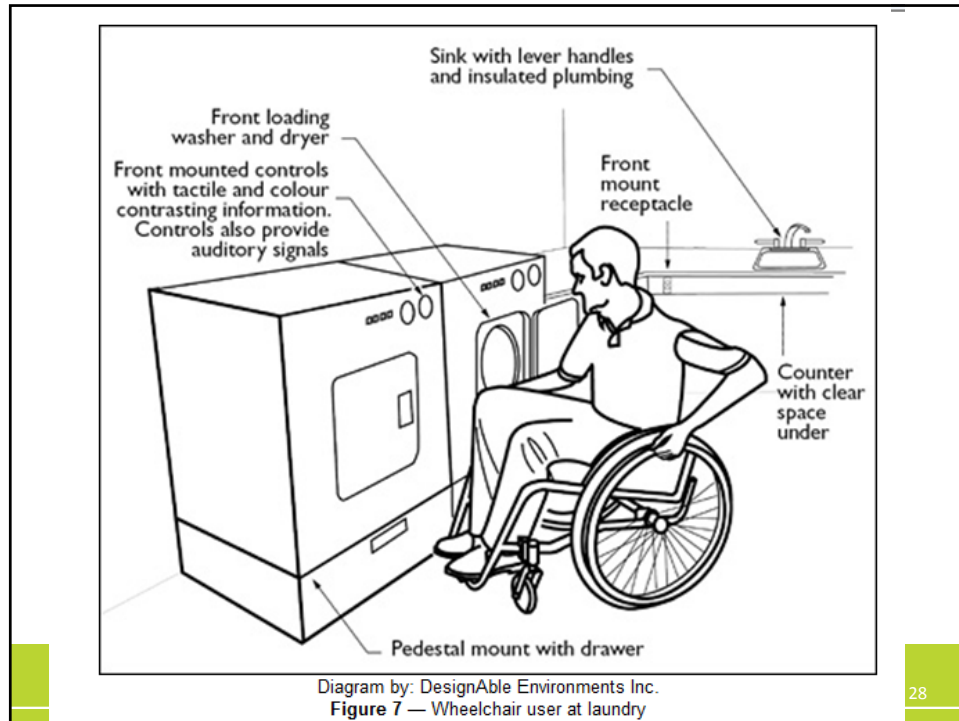


Figure 4 — Swing-up shelf for small appliances



27



Home Automation

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The following fact sheet is part of the [About Your House — General Series](#)

Accessible Housing by Design — Home Automation

Universal Design

People who inhabit and visit the houses and homes we live in come in all shapes and sizes. They range in age from infancy to old age with a variety of ever-changing abilities and skills. Housing needs change for all of us as we grow-up, grow old and welcome new people to our homes. A home that is designed and built to reflect the principles of universal design is safer and more accommodating to everyone who inhabits or visits it, no matter what their age or physical ability.

The philosophy of universal design is that your home should be comfortable, pleasant, safe and usable by everyone in your family, be it your children, you or your spouse, aging parents or a relative with a disability. The use of technology and automation can help create living spaces that are convenient and energy efficient, minimize the potential for accidents and result in a house that is able to adapt to life's changes — whether caused by changing family composition or the changing abilities of family members.

Using Technology in the Home

Devices originally designed for people with disabilities are found in every home. The remote control was originally developed to help people with limited mobility control their environment. Today remote controls are used by everyone.

An overview of the key concepts of universal design is provided in "[The Principles of Universal Design](#)" text box at the end of the document.



What is Home Automation?

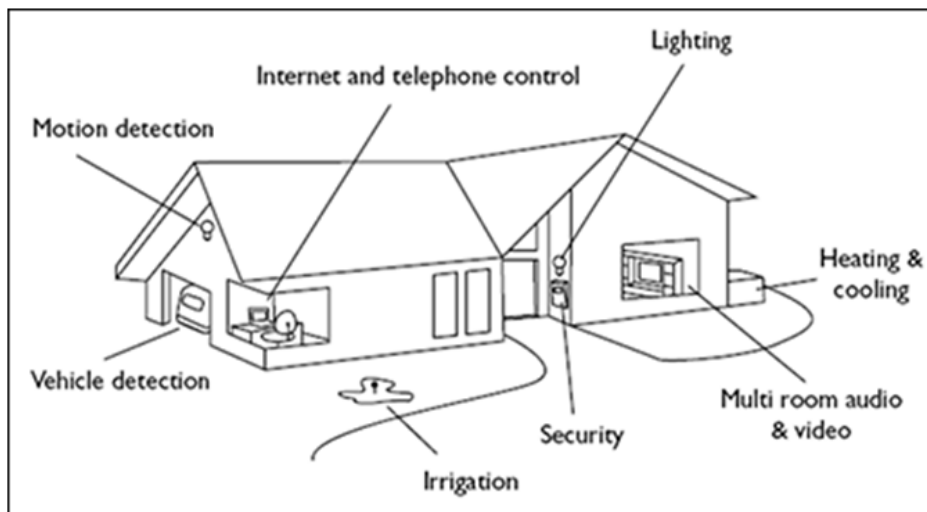


Figure 1 — Automating the whole home



30

Ask yourself the following questions to see if a home automation system meets your needs:

- Does it have an appropriate interface, switch or control that can be easily used by you and your family?
- Is it simple and intuitive to use?
- Is there enough power to run it?
- Is there a minimal time delay between control operation and feedback?
- Is there some forgiveness for error?
- Will it save time, money or energy?
- Does the system reset to default settings?



31

RESEARCH HIGHLIGHT

May 2011
Socio-economic Series 11-003

Smart Grab Bars: A Potential Initiative to Encourage Bath Grab Bar Use in Community-Dwelling Older Adults

INTRODUCTION

Falls among seniors are a growing concern, as they are among the leading causes of injuries, hospitalizations and functional disabilities in this population. Many fall prevention programs promote the use of bathroom aids, including bath grab bars, to minimize the effects of many age-related deficits, such as impaired balance, coordination, range of motion, and muscular strength and endurance, and to allow for safe and independent bathing among the elderly. Although studies report that community-dwelling individuals commonly own grab bars, some results suggest that they may not always use them. In fact, in one study, only one participant reported using the grab bars present at the time of a fall; most participants did not use grab bars because they felt awkward or unsafe to use. Many participants in that same study reported relying on other structures (for example, soap dishes, bath rims or curtain rods). This can be a hazardous practice, as these structures are not intended for such a purpose and may not be able to withstand the person's weight. Other initiatives must be put in place to encourage grab bar use in order to decrease the risk of falls in this population.

Literature review

Lately, technology and artificial intelligence have been used to make living environments safer and more responsive to the health needs of seniors. Several researchers have used different means of artificial intelligence to monitor the daily activities of seniors. Computerized prompts have been

individuals with dementia. In one study, the computer provided reminders (only when necessary) of the sequence of steps involved in handwashing, and continually monitored the user's progress. The pre-recorded verbal prompts (male voice) decreased the overall number of interactions required with the caregiver. Another study compared verbal with audiovisual prompts. Results showed little difference in efficacy between the number of handwashing steps completed with assistance from audiovisual prompts and the number completed with verbal prompts; however, audiovisual prompts resulted in statistically fewer caregiver interactions. Most of the research has been done with people suffering from different levels of dementia. But such an approach could potentially be useful to community-dwelling seniors. From this hypothesis stems the idea for a smart grab bar. This grab bar has been adapted to provide cues to encourage its use during bathtub transfers. The bars provide a visual cue, an auditory cue or an audiovisual combination of cues activated by a motion detector system to elicit grab bar use.

Purpose of the study

This study sought to determine the ability of the smart grab bar to increase grab bar use among community-dwelling seniors. More specifically, it assessed the effects of an auditory cue, a visual cue and the combination of both cues on the frequency of use of a grab bar in older adults; recorded the reactions of community-dwelling seniors to these cues; identified any areas for improvement

32

2014 ONPHA Conference and Trade Show



HOUSING RESEARCH

July 8, 2013

■ Feature

Landscaping - Maintaining a property is just as important as maintaining a home. In this section, you and your clients can benefit from CMHC research in the following areas: [Low-Maintenance Lawns](#), [Rain Gardens](#), [Improve Stormwater Management in Your Yard](#), [Water-Saving Tips for Your Lawn and Garden](#), [Landscape Guide for Canadian Homes](#)

■ Did you know...

that the Canadian Housing Observer has now updated two Interactive Charts and selected on-line EXCEL tables.

Interactive Charts
[Average Rent for Two-Bedroom Apartments, 1992-2012](#)
[Average Residential Price, 2002-2012](#)

EXCEL Tables
[Housing Construction](#) (Total Housing Starts, Single Housing Starts and Multiple Housing Starts)
[Homeownership Market](#) (Teranet-National Bank National Composite House Price IndexTM, 1990-2012)
[Rental Market](#) (Rental vacancy rate, average rent for two bedroom apartments)
NEW: [Urban Housing Conditions, Canada and Provinces, 2002-2009 \(SLID\)](#)

■ CMHC at Large

Download [CMHC's Seniors' Housing Report—Canada and Regions](#) and find out more about Canada's fastest growing demographic. This Report, based on the Seniors' Housing Survey results provides a description and analysis of the seniors' housing market in Canada and the regions, including vacancy rates, rents, and universe data.

■ Events and Items of Interest

Find out what is new and upcoming with CMHC. Visit our [Events Calendar](#).

To find out what is going on in the industry, see this [List of other Housing-Related Events and Conferences](#).



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34