Beyond the ADA: Residential Universal Design

Presented by the AIA Universal Design member created community on AIA KnowledgeNet

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Course Description

Over 90% of existing housing in the United States is not accessible and the demand for accessible housing is rapidly increasing as our population ages. Every year millions of Americans adjust to the difficult challenge of living with physical limitations. Living in a conventionally designed house impedes even the simplest daily living functions, compounds their hardship and is hazardous. This workshop will go beyond basic ADA standards and focus on applying the principals of Universal Design in private residences. Participants will learn the history of the Universal Design movement, compare examples of current accessible building codes regulations, and examine coming trends. We will examine the growing Aging-In-Place market and how architects can effectively provide services to the senior community. The presentation will include case studies of accessible residential projects such as; no-step entries, accessible kitchens and safe bathrooms.

Learning Objectives

1. Learn about the history of accessible residential building codes, and how to improve occupant safety.
2. Learn about current codes and how to advocate for changes in regulations at the local municipal level.
3. Learn about future trends in universal design for private residences.
4. Learn about the growing Aging-In-Place market and how architects can provide services to the senior community.

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Andrew Robinson, AIA, LEED AP, CAPS
Owner, Andrew Robinson Architect

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Owner, Abadi Accessibility
Moderator

Submit a question to the moderator via the Chat box. They will be answered as time allows.

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Beyond the ADA

Residential Universal Design

Laura Montllor AIA

- The Need
- Universal Design
- ADA ,Visitability, Building Codes
- Design Ideas
- Age-in-Place

Need for Accessible Housing

11.5 million Americans have physical disabilities that make going outside the home difficult or practically impossible

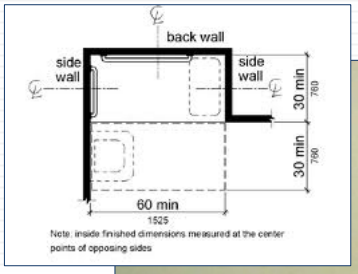
- Is urgent
- Increasing as our population ages

Source: US Census

It is estimated that ONE THIR of Americans are disabled, chronically ill o over age 65.

Less than 1 in 10 homes
are designed to accommodate the needs of this growing population.

Source: HUDUser.org



9% of Americans have a disability that makes walking and climbing stairs difficult.

- 32% of those 65 and older

Source: Journal of the American Planning Association (JAPA) Aging and Disabilities - 2008

In 2050, 21% of US households will have at least one person with physical limitations.

Source: JAPA – Report
Aging and Disability : Implications for the Housing Industry and Housing Policy in the United States June 2008

95% of Americans over want to remain in their current homes

- Age-in-Place

Source: AARP – Report
Increasing Home Access: Designing for Visitability
August 2008

Approx. 70% of Americans live in single family homes

Source: Journal of the American Planning Association (JAPA)
Aging and Disabilities - 2008

How do we, as Architects, explain Universal Design principals and educate the public and our clients?

Universal Design

"Products and environments that can be used effectively by all people, to the greatest extent possible, without the need for adaptation or specialized design"

Source: North Carolina State University, 1997
Architect , Ron Mace, FAIA

Design
for
ALL

Design
for
ALL

7 Principals of Universal Design

1. Equitable Use
2. Flexibility
3. Simple and Intuitive
4. Clear Information
5. Tolerance for Error
6. Low Physical Effort
7. Approachable

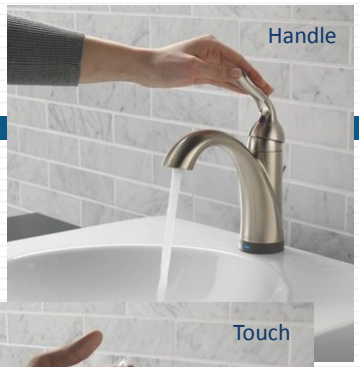
Credit – IDEA Center SUNY Buffalo

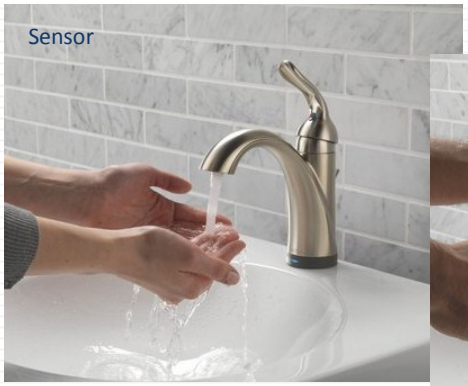
1. Equitable Use

USE
"C" STREET
ENTRANCE
AT REAR OF
BUILDING

2. Flexibility in Use

- Provide choice in methods of use





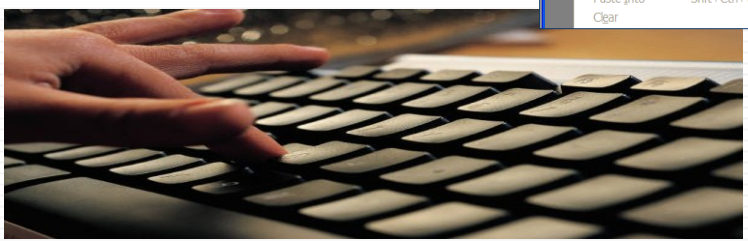
3. Simple and Intuitive Use

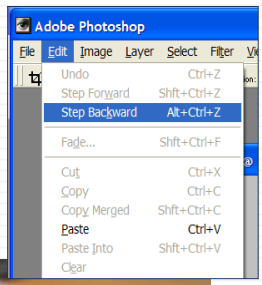
- Easy to understand and use

?

4. Perceptible Information

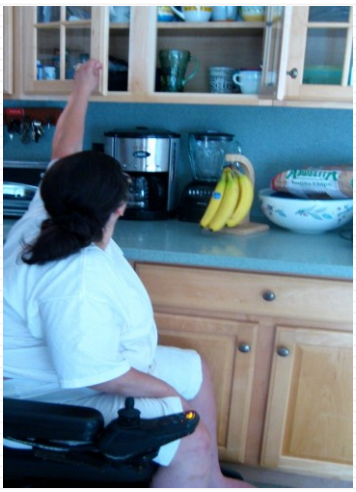
5. Tolerance for Error





6. Low Physical Effort

7. Approachable



Benefits of Universal Design

- Used by ALL
- Accommodate changing households and family lifestyles
- Increases Safety
- Not more expensive
- Not “hospital” looking - beautiful
- Adds value to property

Brief History

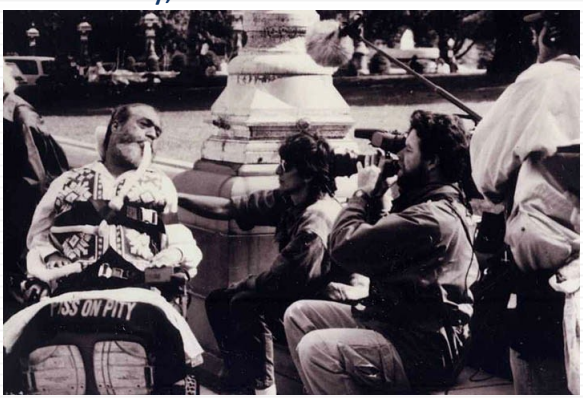
1960’s - Civil Rights movement

Architecture and Design Schools starting teaching “ergonomic design” and Universal Design

Credit : Rockford Register Star, Rockford, IL

Brief History

- 1970s - The Independent Living Movement is born. The Center for Independent Living is started by Edward Roberts in Berkeley, California.



Brief History

- 1968 – Federal Buildings – Architectural Barriers Act
- In 1970's architecture schools started teaching universal design
- 1984 IDEA center was established at University of Buffalo by architect Edward Steinfeld
- 1989 – Center for Universal Design established by Architect Ron Mace at North Carolina State University

Brief History

- 1980's the VISITABILITY movement was started by grass roots disability advocate Eleanor Smith in Atlanta, GA
- Public Housing
  - Fair Housing Amendments of 1988 (Section 504)
  - American National Standards Institute (ANSI) Standards A117.1-1986

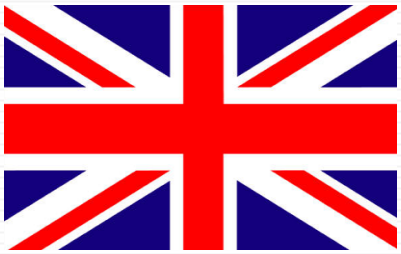
President George H.W. Bush at the signing of the Americans with Disabilities Act on the South Lawn on July 26, 1990.

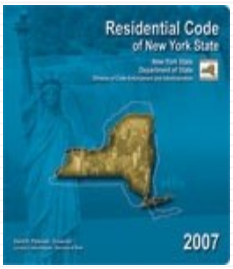
Most existing and new housing, even in the wealthiest nations, lack basic accessibility features.

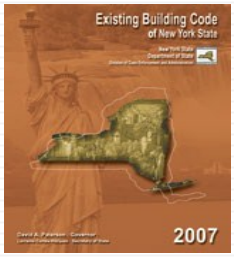
What country has the most advanced residential accessibility codes?

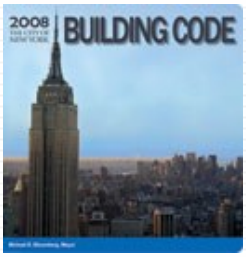
1999 - UK Parliament passed Section M

an amendment to residential building regulations requiring basic access in ALL new homes.







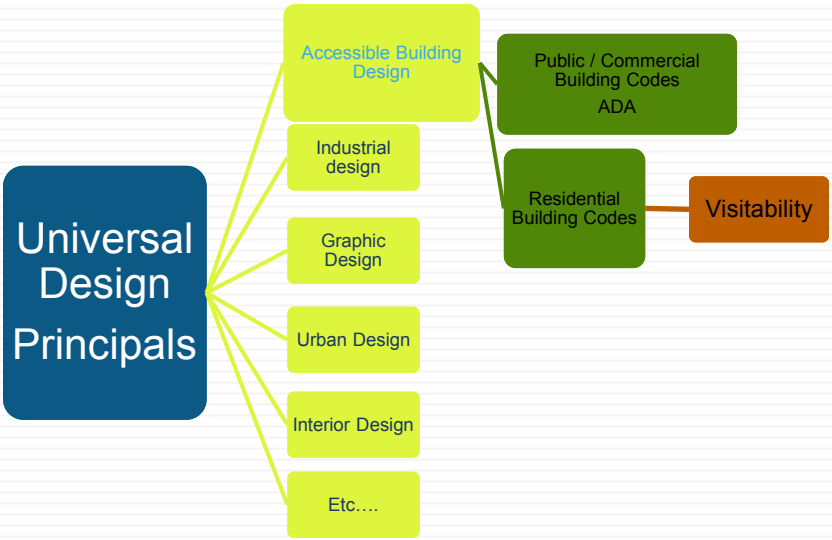


Advocate

Each Local County/ Town has it's Own Zoning Codes

- Atlanta, Georgia 1992
- Bolingbrook, IL 2003
- Pima county, Arizona, 2001
- San Antonio, Texas, 2002

1992 Atlanta City Ordinance


Universal Design Principals
Accessible Building Design
Industrial design
Graphic Design
Urban Design
Interior Design
Etc….
Public / Commercial Building Codes
ADA
Residential Building Codes
Visitability

Visitability

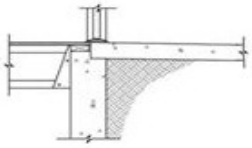
"is a few specific universal design features that make homes easier for people who have mobility impairments to live in and visit"

Source: Concrete Change

3 Features of Visitability

1. At least one zero-step entrance approached by an accessible route
2. Wide passage doors
3. Accessible bathroom on the main floor

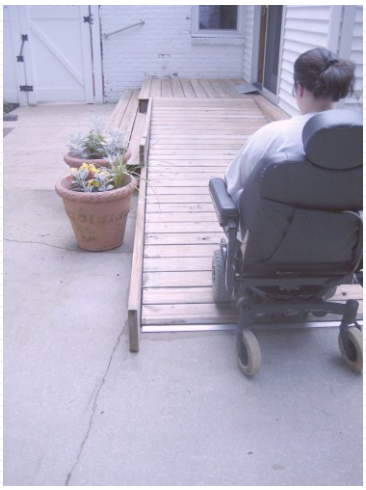
No-Step Entry



threshold edge ¼” or less,
or ¾” max. with a beveled edge

Credit: Guidebook to the Accessible Home, ASSIST of Utah

An Accessible Route



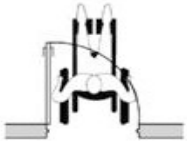
Walkway on a firm surface no steeper than 1:20, proceeding from a driveway or public sidewalk

Ramp no steeper than 1:12

Credit: accessibilityathome.org

A zero-step entry does not isolate or segregate anyone.

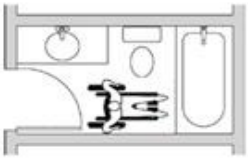
Adequate Doorways



Doors to bathroom, kitchen and bedrooms = 32” minimum / 36”

Credit: Guidebook to the Accessible Home, ASSIST of Utah

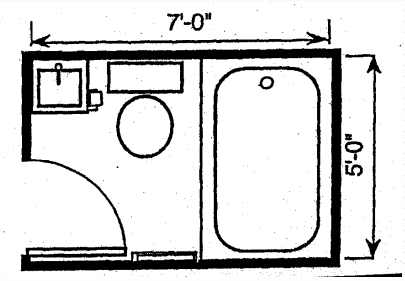
Usable Bathroom



Bathroom Renovation Case Study

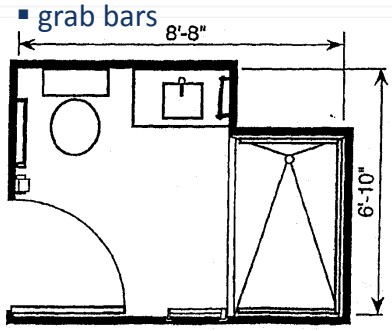
Typical Bathroom

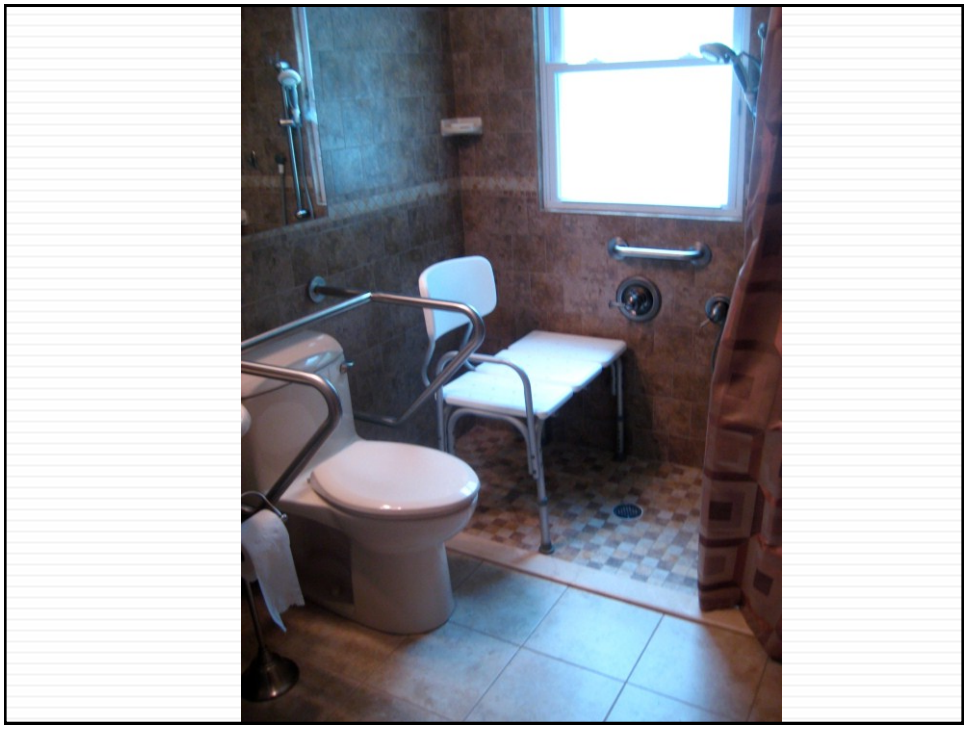
- **7'x 5' = 35 Sq. Ft.**
  - Too small, no turnaround
- **Door** = 28"
  - Too narrow
  - Opens inwards
  - Standard threshold
- **Sink** enclosed in cabinet
  - No space for knees
  - Faucets impossible to reach
- **Medicine cabinet/mirror**
  - Impossible to reach
- **Toilet** - low 16"
  - No transfer space
  - No grab bars
- **Tub**
  - No transfer space
  - No grab bars



Accessible Bathroom

- **Area = 47 sq.ft.**
  - Only 12 Sq.Ft larger
  - Space for turnaround
  - Space for caregiver
- **Door** wider = 32” to 36”
  - Can reach to close
  - Low threshold
- **Sink** - Open space for knees
  - Faucets reachable
  - Side space for balance
- **Medicine cabinet / mirror**
  - On side & reachable
- **Toilet** - height 17” to 19 ”
  - transfer space
  - grab bars
- **Shower** - walk / wheel-in
  - transfer space
  - grab bars





Building Codes

Keep in mind:

- ADA Codes are **minimal** standards;
- Good design goes **beyond** the ADA.

Design Ideas

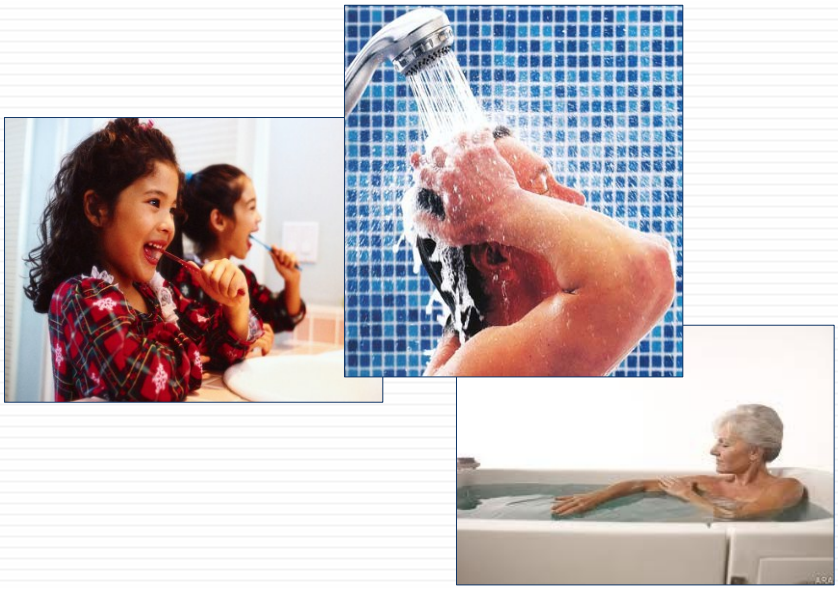
AIA 2009 Small Projects
Honor Award in the
Accessible Design Category

Green Lake Residence
Emory Baldwin, AIA
Seattle, WA

A covered porch adds protection from rain and snow.

Credit: Acton Ostry Architects, Vancouver, Canada

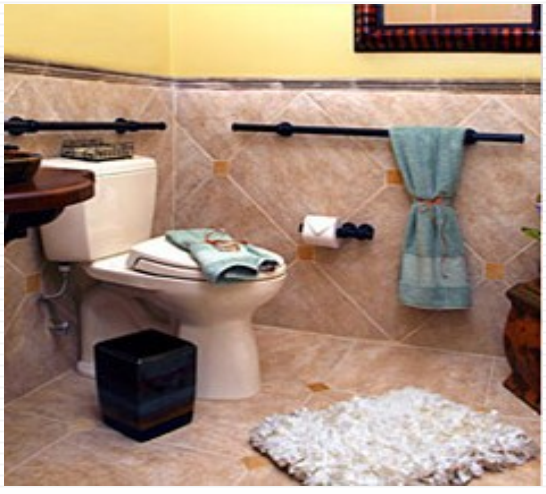
Credit: Concrete Change



17”

Beautiful Grab Bars

Credit: Great Grabs



Credit: Great Grabs

Credit: Great Grabs

Credit: Moen

European style zero threshold shower.

Credit: Kraftmaid

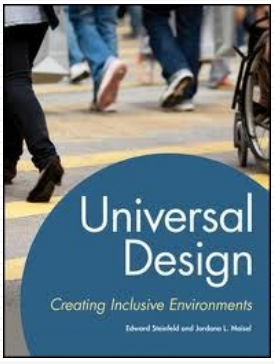
High toe kick space makes countertops more approachable and easier to reach.

Space under sink and pull out chopping board can be used when seated or standing.

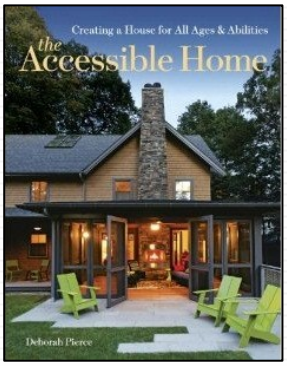
Credit: Whirlpool

Resources

Universal Design: Creating Inclusive Environments
By Edward Steinfeld, AIA, and Jordana Maisel



The Accessible Home, by Deborah Pierce, AIA



Resources

http://HomeFreeHome.org

Beyond the Code Design for Successful Aging

ANDREW ROBINSON AIA LEED-AP CAPS

DESIGNS for INDEPENDENT LIVING

Do you do what you did ?

"Do not try to live forever
- You will not succeed"

George Bernard Shaw

But, you still do what you do

Aging in Place

The AARP's "Fixing to Stay" study also found that:

- People 50 and older who said that their homes would not meet their needs as they grew older were almost twice as likely to feel isolated.
- Older consumers want a means of identifying professionals they can trust.
- Those professionals need to be reliable, honest and have training in the proper skill-sets to modify, design and build a safe, barrier-free home.

Defining Successful Aging

Defining Successful Aging

1. Avoiding Disease

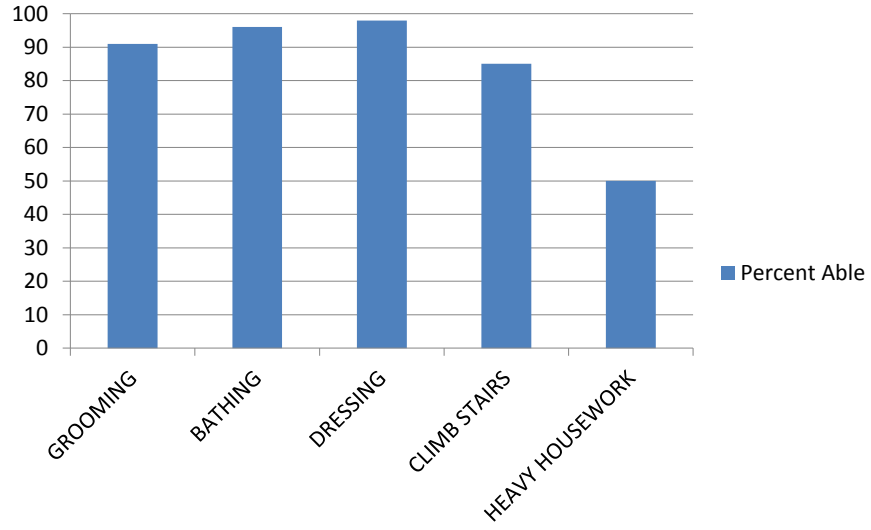
Defining Successful Aging

1. Avoiding Disease
2. Maintaining High Cognitive and Physical Function

Defining Successful Aging

1. Avoiding Disease
2. Maintaining High Cognitive and Physical Function
3. Engagement with Life

The Framingham Disability Study



American Journal Public Health 1981

Redefining Independence

Some define "independent" as:

- Seeking a desire for freedom
- Not subject to control by others
- Not requiring or relying on others
- Not looking to others for one's opinions or guidance

Redefining Independence

- **<u>Empowering</u> Definitions of "independent"**
  - Seeking a desire for freedom
  - Not subject to control by others
- **<u>Limiting</u> Definitions of "independent"**
  - Not requiring or relying on others
  - Not looking to others for one's opinions or guidance

Achieving and Maintaining Independence Throughout Our Lifetime

A. Maintaining independence requires help throughout our lifetime.
B. Assistance comes in many forms– e.g. home repair, cleaning person, mailman, garbage man, doctor, lawyer, financial planner, health care workers.
C. People who plan ahead *and* accept assistance remain "independent".
D. This is a new way to look at "independence".

Steps to take to be in charge of One's Independence

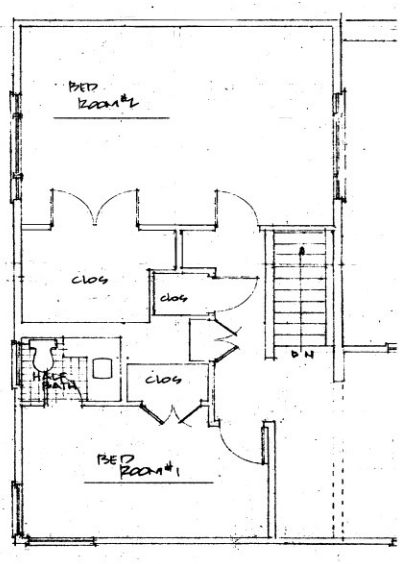
- Personal Planning
- Health and Prevention Planning
- Financial Planning
- End-of-Life Planning
- Legal Matters

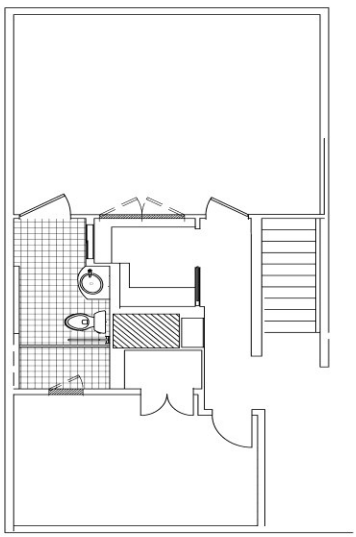
Why Don't People Take These Tips?

- **Tips**
  - Have regular annual medical and dental check-up's
  - Enjoy healthy eating habits, regular exercise Keep working and/or volunteer, become and remain regularly engaged with others
  - **Evaluate your home for safety – present and future**
  - Be honest about present needs and anticipated lifestyle changes – plan in advance
  - **Architects can design a new home or modify an existing home to adapt.**
- **Obstacles**
  - Don't see the need
  - Don't have time

The client was using this bathroom some distance from his bedroom

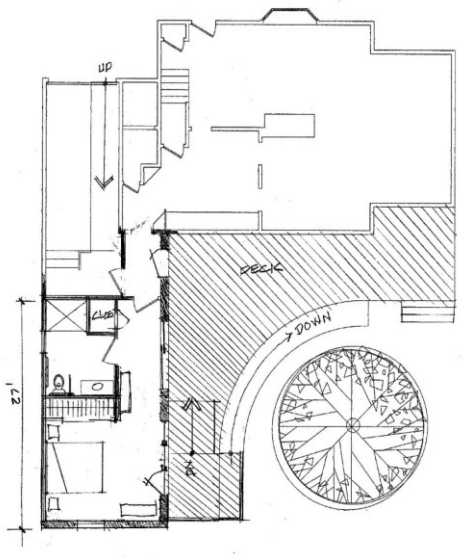
The new master bath used the existing piping locations.

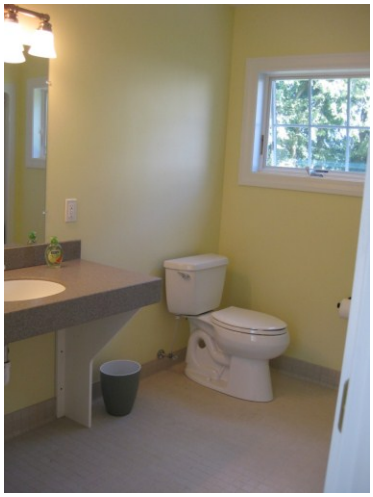


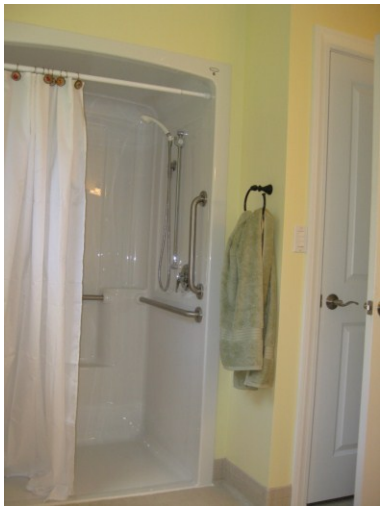


An accessible master suite

Entry ramp from driveway is concealed in garage





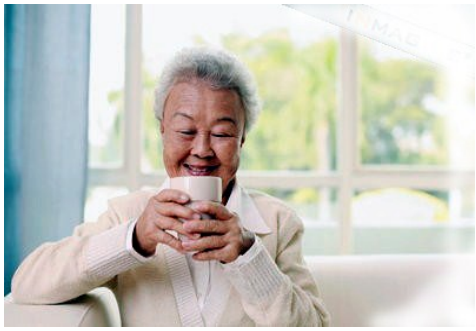


Living at Home

Growing older can mean loss of ability to move around and perform daily functions. But, by making some changes, the home can be a major factor in maintaining an independent lifestyle.

AARP surveys indicate that up to 89 percent of participants aged 55 and older want to live where they currently reside.

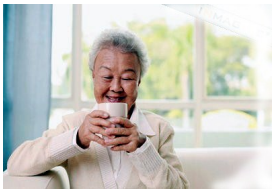
One can make the choice to stay in their home. Home, where our most meaningful objects and best memories of our experiences are.



Why Not ?

Why Not ?

COST



"The economic cost of implementation was perceived as being outside their means"

Study by Rehabilitation Research Center on Aging, State University of New York at Buffalo.
Edward Steinfeld, Arch. D.
Scott M. Shea, M. Arch.

Why Not ?

COST

"The economic cost of implementation was perceived as being outside their means"

Make financing assistance available *and* make getting it unstressful

Study by Rehabilitation Research Center on Aging, State University of New York at Buffalo.
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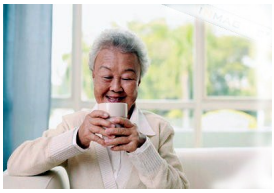
Why Not ?

STRESS



"The physical and psychic energy required was perceived to be beyond their capacity"

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Why Not ?

STRESS

"The physical and psychic energy required was perceived to be beyond their capacity"

Provide "one stop shopping" for .. services.. maintaining high quality and reliability

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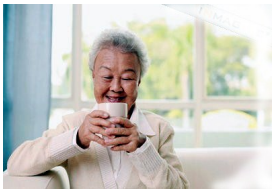
Why Not ?

SELF ASSESSMENT



"a belief that a change in the environment can make a difference in one's quality of life "

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Why Not ?

SELF ASSESSMENT

"a belief that a change in the environment can make a difference in one's quality of life "

Develop an awareness of the advantages of home modifications

Study by Rehabilitation Research Center on Aging, State University of New York at Buffalo.
Edward Steinfeld, Arch. D.
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We All Can Help

- Care Givers
- Elder-Law Attorneys
- Architects
- Interior Designers
- Contractors
- Accounts
- Banks & Credit Unions

Universal Design Concepts

Bottom left: Pull-put cabinets allow for easier access to items.

Bottom right: Appliances placed below cabinets require less bending.

- Barrier Free
- Accessible
- Adaptable
- Visitable

Making houses homes for a lifetime

ANDREW ROBINSON

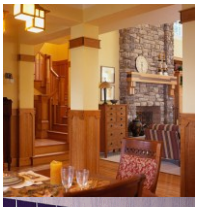
AIA LEED-AP CAPS

312 BOSTON POST ROAD

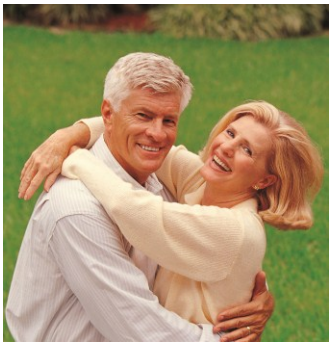
ORANGE, CT

(203) 795-0665

www.DesignForIndependentLiving.com



Make your houses homes for a lifetime.



Universal Design Summary

- For **all** people
- Improves life for **everyone**
- Adds safety
- Is **not** more expensive
- Adds beauty and value

Take Action: **Advocate** for new building codes.

Resources

HomeFreeHome.org
http://homefreehome.org

IDEA CENTER – University of Buffalo
http://www.ap.buffalo.edu/idea

Concrete Change
http://concretechange.org

Center for Universal Design at North Carolina State University
http://www.design.ncsu.edu/cud/index.htm

AIA Universal Design
member created community
http://network.aia.org

The ADA Companion Guide: Understanding the Americans with Disabilities Act Design Guidelines
http://www.abadiaccess.com

Guidebook to the Accessible Home, from ASSIST of Utah.
http://www.assistutah.org

Institute for Human Centered Design, Boston
http://www.universaldesigncasestudies.org

Myth Busters: Excellence in Universal Design
June 13, 1:00 – 2:00 PM ET

Laura Montllor, AIA
Architect, HomeFreeHome.org

Andrew Robinson, AIA, LEED AP, CAPS
Owner, Andrew Robinson Architect

Marcela Abadi Rhoads, AIA RAS
Owner, Abadi Accessibility
Moderator

Submit a question to the moderator via the Chat box. They will be answered as time allows.

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makes a difference™

THE AMERICAN INSTITUTE OF ARCHITECTS

Thank you for joining us!

This concludes the AIA/CES Course #UD12005.

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Report credit for all attendees at your site by completing the webinar survey/report form within the next 24 hours. You will be prompted to download a certificate of completion at the end of the survey.

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