WHO Global Network for Age-friendly Cities and Communities

Salem
Still making history.

Universal Design, A Key to Age-Friendly Salem

Valerie Fletcher, Executive Director
Institute for Human Centered Design

Institute for Human Centered Design

Institute for Human Centered Design

An international education and design nonprofit organization, headquartered in Boston and founded in 1978, dedicated to enhancing the experiences of people of all abilities, ages and cultures through excellence in design.

What IHCD does to meet that mission. . .

in the US and globally

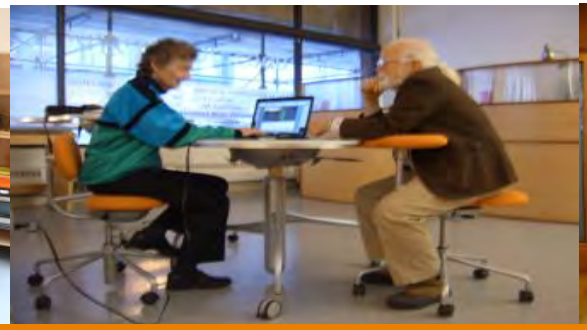
- **Education & Training** on Accessibility and Universal Design
- **Technical Assistance**
- **Consulting on Accessibility and Inclusive Design (physical + digital)**
- **Design Services (physical + digital)**
- **Research** - Contextual Inquiry with "User/Experts"

Design powerfully and profoundly influences everyone and our sense of **confidence**, **comfort**, and **control**.

2 core beliefs…

Variation in ability is ordinary, not special, and affects most of us for at least part of our lives.





“Why design if it doesn’t change the human condition?”

Niels Diffrient, Humanscale
(1928 – 2013)

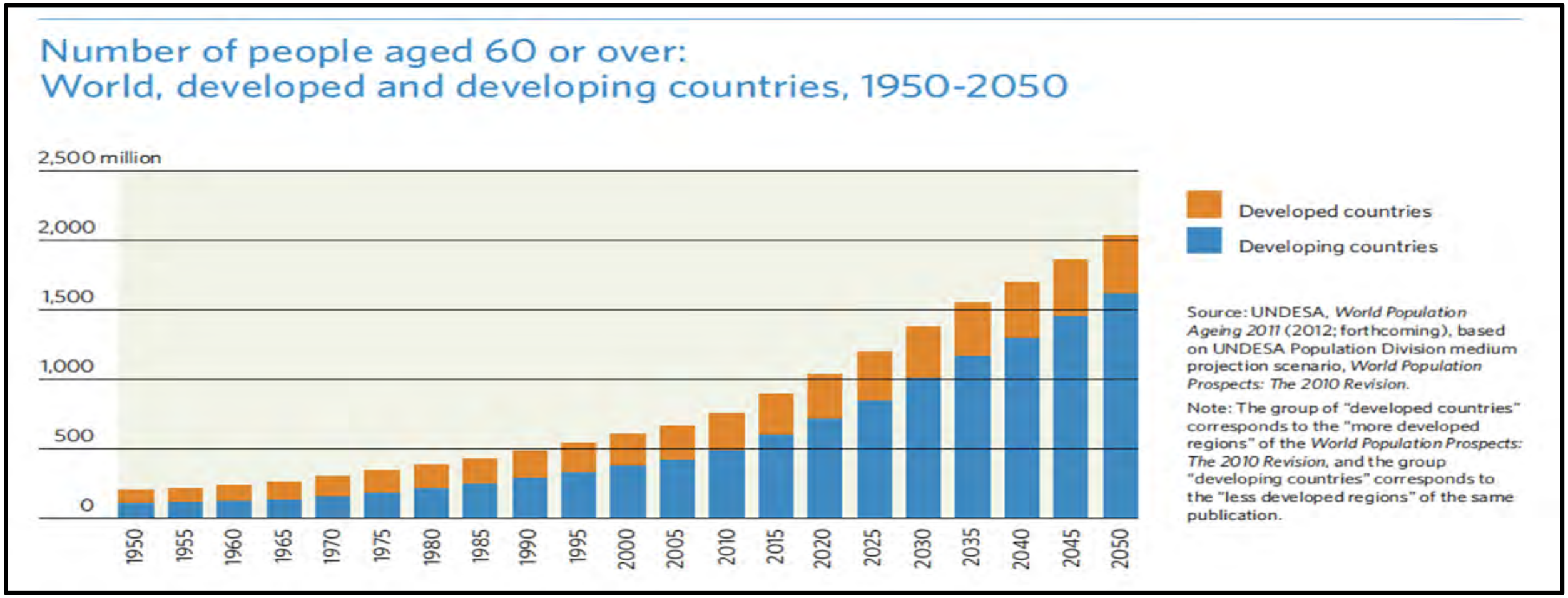
21st Century Demographics, Our gift from the 20th Century

20th Century Impetus
Social Sustainability

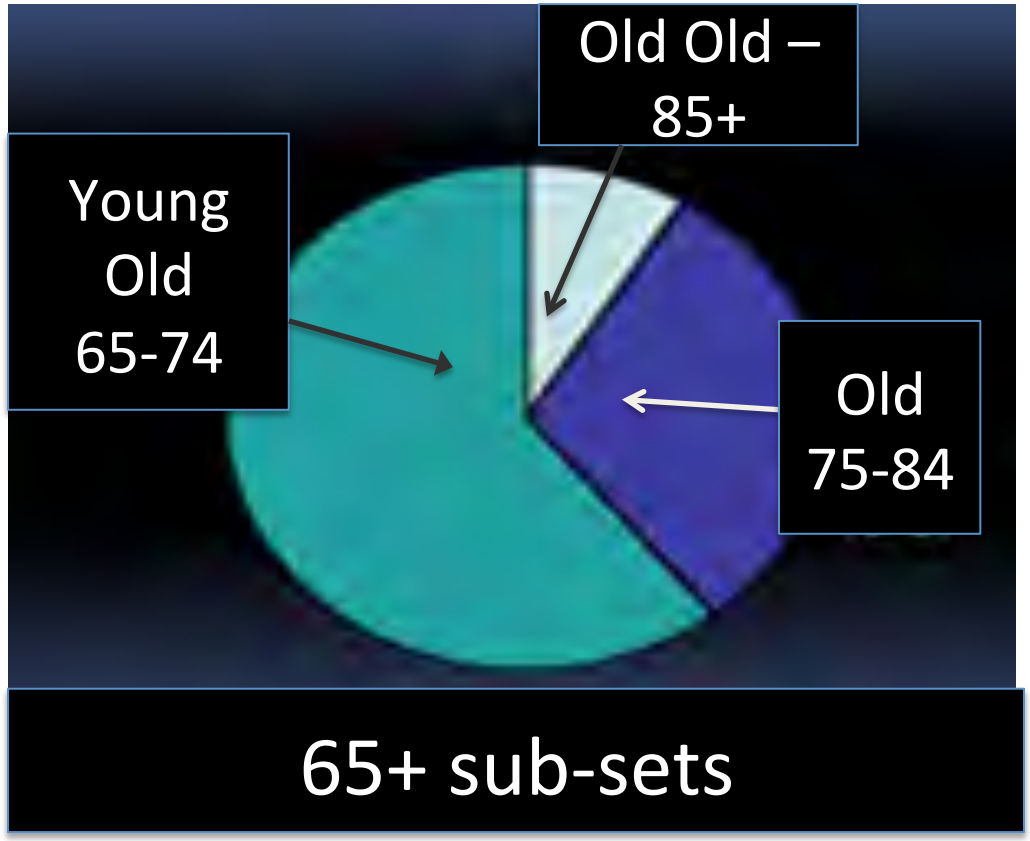
Profound *POSITIVE* impact of human behavior. . .

We live longer and survive more than ever before in human history – across the globe

Global Aging



Distinct sub-sets with different life experiences and different needs and desires among people 65+



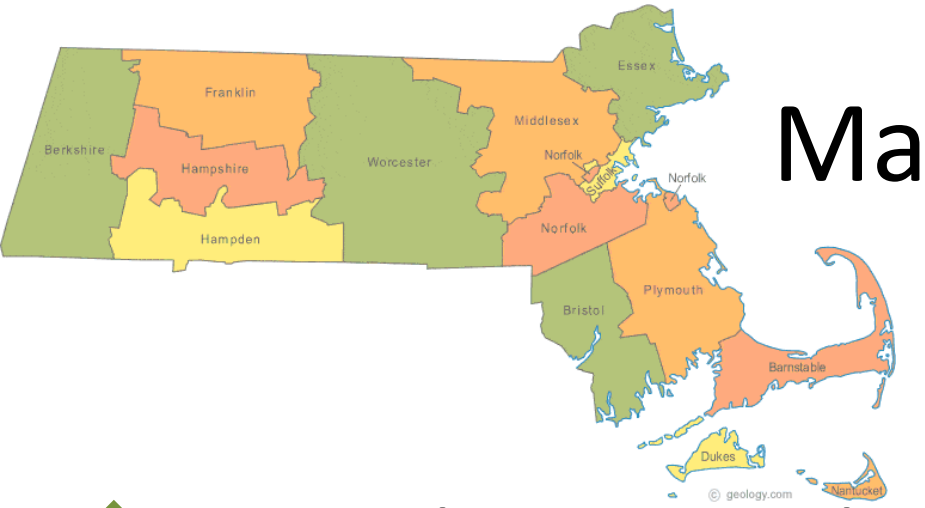
*Old People are Not All the Same**

- **Childhood/Adulthood/Oldhood**
- **Human diversity reaches its apex in old age**
- **Life is a three-act play**

The New York Times

*13 August 2017

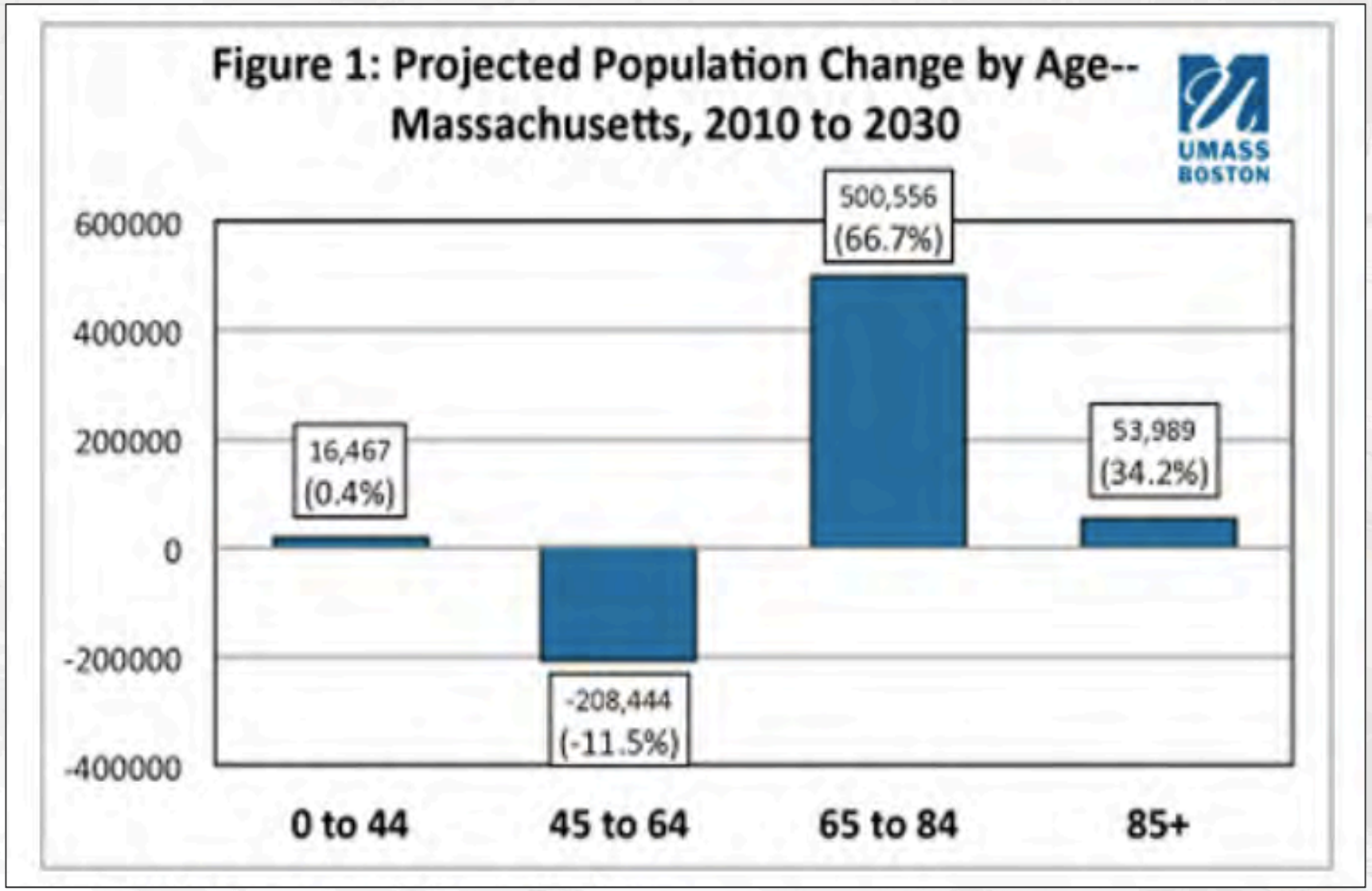
Louise Aronson,
Professor of Gerontology,
University of California Medical School



Massachusetts Aging Population

- Massachusetts Ranks #14 for States for Median Age at 39.4 years
- Baby boomers make up 24% of the Massachusetts population
- The percentage of the population age 65+ has increased from 13.8% to 15.8% from 2010 to 2016

Massachusetts Demographic Realities to 2030



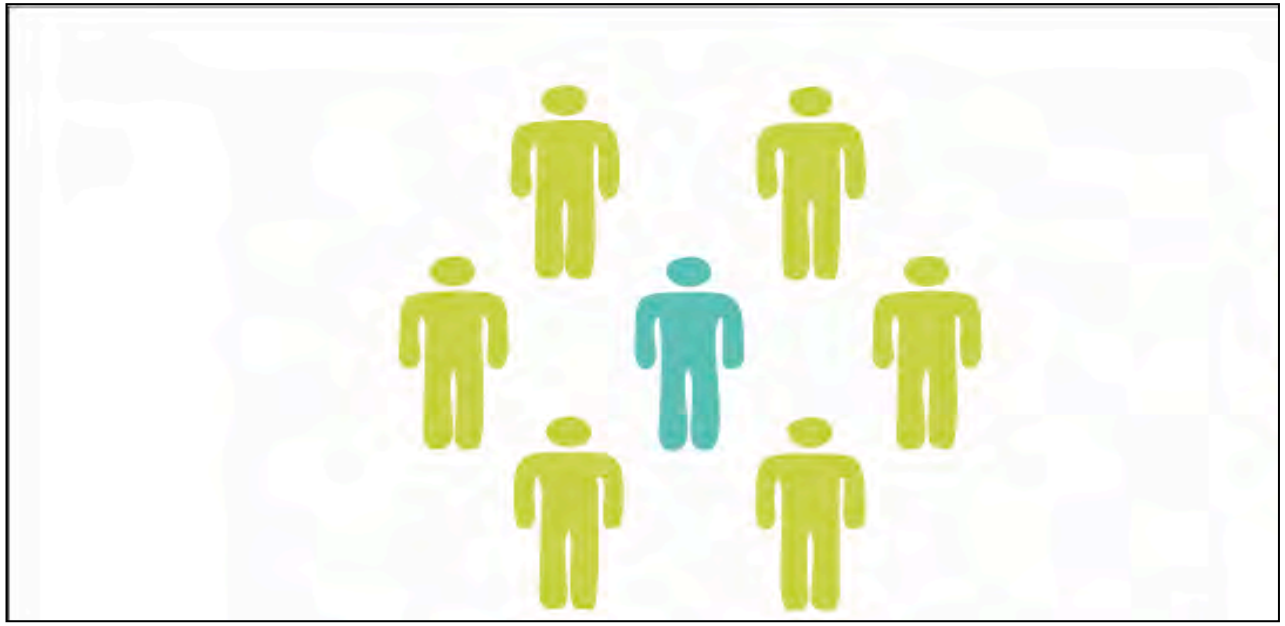
Disability

WORLD REPORT ON DISABILITY

World Health Organization

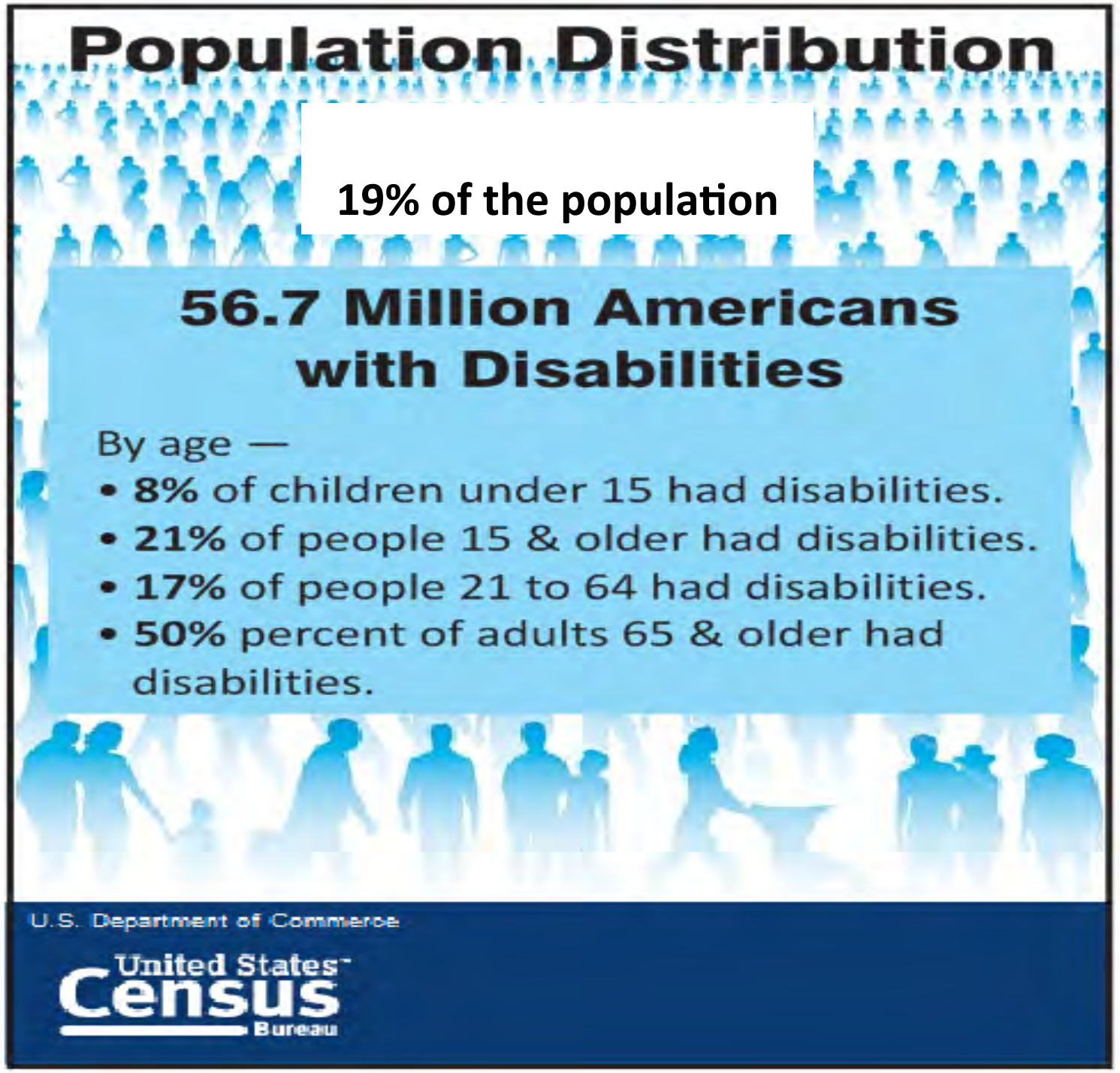
THE WORLD BANK

2014



1 in 7 people on the planet have a disability

80% live in the developing world

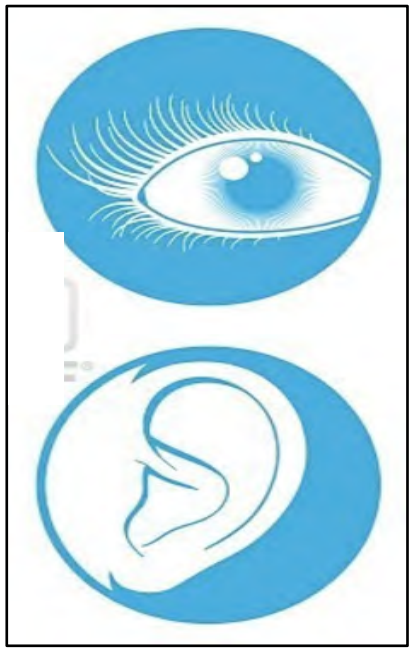

Population Distribution
19% of the population
56.7 Million Americans with Disabilities
By age —
• 8% of children under 15 had disabilities.
• 21% of people 15 & older had disabilities.
• 17% of people 21 to 64 had disabilities.
• 50% percent of adults 65 & older had disabilities.
U.S. Department of Commerce
United States Census Bureau

Most common reasons for functional limitation among adults in the US

- Arthritis
- Back problems
- Heart disease
- Respiratory disease
- Sight + hearing limitations related to aging

★ Number of people with difficulty walking is 10X those who use wheelchairs

Sensory limitations of people in the US



Sight

17.M over 40 with chronic visual impairments

(National Institutes of Health, 2014)

85% of people who are "legally blind" have low vision, just 15% fully blind

Hearing

26.7M – 50+ with hearing loss (AMA, 2012)

15% of American adults (37.5 million) aged 18 and over report some trouble hearing (NIH 2016)

.23% Deaf (cannot hear or understand speech)

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Light!

Because of <u>normal</u> physiological changes, people in their 60s need three times more ambient light for comfortable reading than those in their 20s.

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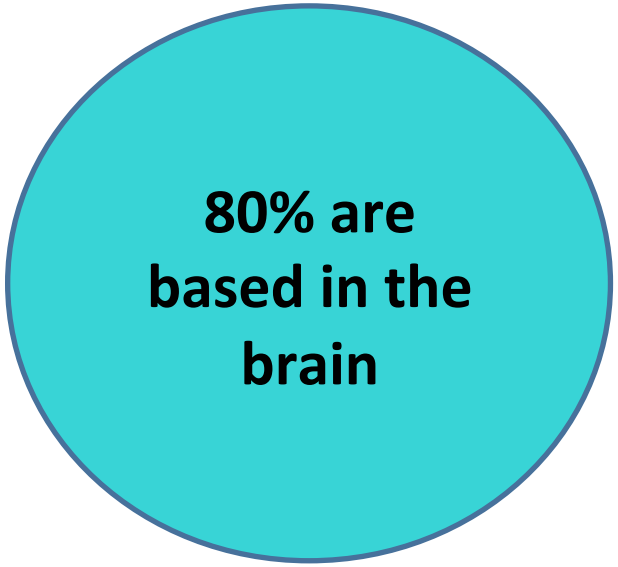
Most prevalent types of disabilities for children in U.S.
13.1% of all youth age 3-21

1.	Specific learning disabilities	4.9%
2.	Speech/language impairments	2.9%
3.	Other health impairments*	1.9%
4.	Intellectual limitations	.9%
5.	Emotional disturbances	.8%
6.	Autism	.8%
7.	Developmental delay	.7%



✸ Other “health impairments “ include having limited strength, vitality, or alertness due to chronic or acute health problems. (US DoE)

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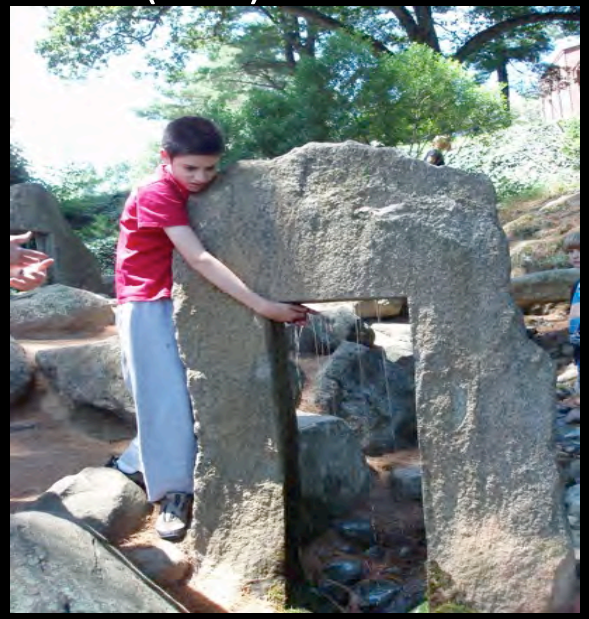
A rising tide of brain- based conditions

Alzheimer's Disease
5.4 M now
13.8 M by 2020

Depression is the most common mental health condition among older adults – 80% treatable

Autism Spectrum Disorder
1 in 68 children has been identified with ASD (CDC)



Anxiety Disorders
40M US adults per year 18 and older

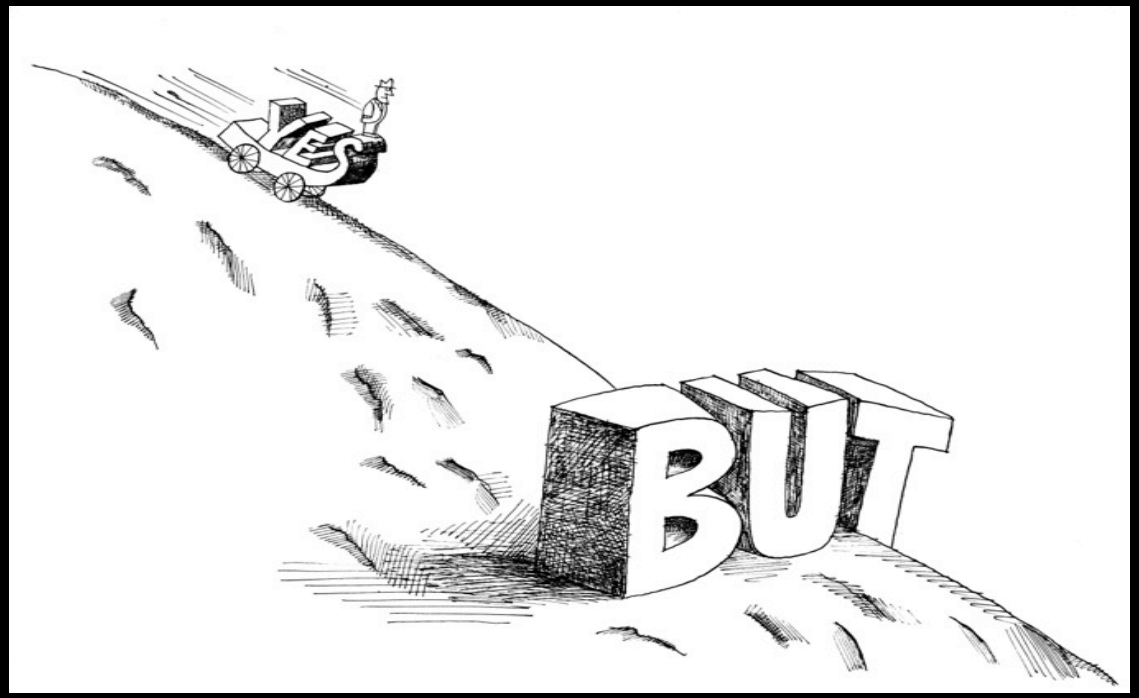
3 broad categories of functional limitation:

Physical	Sensory	Brain-based
Mobility	Sight	Neurological
Dexterity	Hearing	Learning
Strength	Speech	Developmental
Stamina	Touch	Mental health
Balance		Cognitive
		Brain injury
		Substance Abuse

The floor of universal design: key issues from accessibility

Accessibility laws and codes recognize that **design is a civil and human right** for people with disabilities – now nearly global.

Accessibility is framed in terms of Rights + Responsibilities



But, today two unintended consequences prevail:

- An assumption that there is a sharp line between ‘us’ and ‘them’
- “Just tell me what I have to do” is inadequate

AND the standards focus overwhelmingly on one group:

- People who use wheelchairs

Two architects who had polio illuminated a new way to think about designing for people today

Ron Mace, FAIA - **US**

Stressed that we need to be clear about the difference between accessibility and universal design. Accessibility focuses on people with disabilities. Universal design anticipates human diversity and offers solutions at the general level.
1941 - 1998

Selwyn Goldsmith - **UK**

Critiqued accessibility as "top-down" provisions for people with disabilities. He argued for a shift to a "bottom-up" way of thinking that *reframes normal* as anticipating diversity of ability.
1932-2011

Universal/Inclusive Design

universal design…
inclusive design…
design-for-all?

*…a **framework** for the design of places, things, information, communication and policy that focuses on the user, on the widest range of people operating in the widest range of situations without special or separate design…*

Human centered design
(of everything)
with everyone in mind

Principles of Universal Design

Using the Principles of Universal Design one can better understand how good, thoughtful, design can affect all of us.

[Developed by a group of US designers and design educators from five organizations in 1997. Principles are copyrighted to the Center for Universal Design, School of Design, State University of North Carolina at Raleigh.]

1. Equitable Use
2. Flexibility in Use
3. Simple, Intuitive Use
4. Perceptible Information
5. Tolerance for Error
6. Low Physical Effort
7. Size and Space for Approach and Use

World Health Organization

ICF

Redefined Disability in 2001 . . .

- Functional limitation as a *universal* human experience
- *Equalized* mental and physical reasons for limitations
- Defined disability as a *contextual* variable:

Functional limitation becomes disabling based upon the intersection of person + environments

Environment holistically defined:

- ✓ *Physical*
- ✓ *Communication*
- ✓ *Information*
- ✓ *Policy*
- ✓ *Social/Attitudinal*

In refining disability as a contextual . . .

WHO recommended Universal Design as the most promising framework for identifying the “facilitators” responsive to the rising proportion of functional limitation and support independenc, quality of life and full community integration.

United Nations
Programme on Ageing

towards a society for all ages

Madrid International Plan of Action on Ageing (2002)

Ensuring enabling and supporting environments

Illustrations of Universal Design at Home

1. Equitable Use

Principle

The design is usable by people with diverse abilities.

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Equitable Use

Ireland

800 sq. ft.
2 bedroom

Note: Plan is indicative of key Universal Design features.

Design features that are in line with a universal design approach:

Features:

A. Multipurpose porch with electrical outlets

B. Entry with clear door width of 40”

C. Wide internal hallway with closet storage

D. U-shaped kitchen with more than 6 feet between opposing work surfaces

E. Adaptable layout with flex doors to change to two-bedroom layout from one or reverse

F. Bathroom next to main bedroom

G. “hard spots” included in ceiling construction for potential lift

H. Accessible half-bath in center of space

Equitable Use

Equitable Use - the home office

Flexible height corner desk - Evodesk

Humanscale
Horizon light & Liberty Chair

2

Principle

Flexibility in Use

The design accommodates
a wide range of individual preferences
and abilities.

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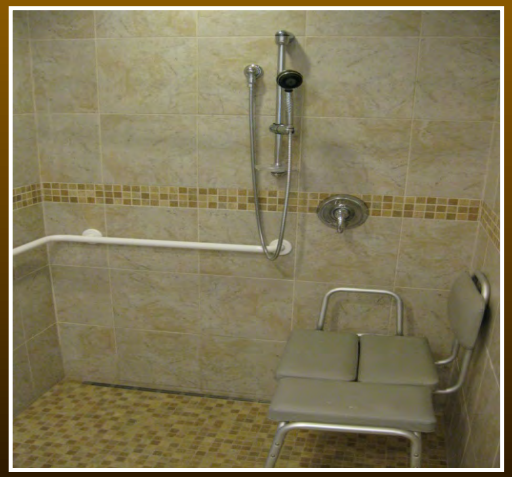
[Adaptive Environments]

Flexibility in Use – renovation



Flexibility in Use

Courtesy: Jane Langmuir

Rolling work bin

- Expands counter space
- A little truck for moving heavy things from one place to another

3

Simple and Intuitive Use

Principle

The Use of design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.

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[Adaptive Environments]

Simple and Intuitive Use – the holy grail of remotes!

FLIPPER
Take control of your TV!

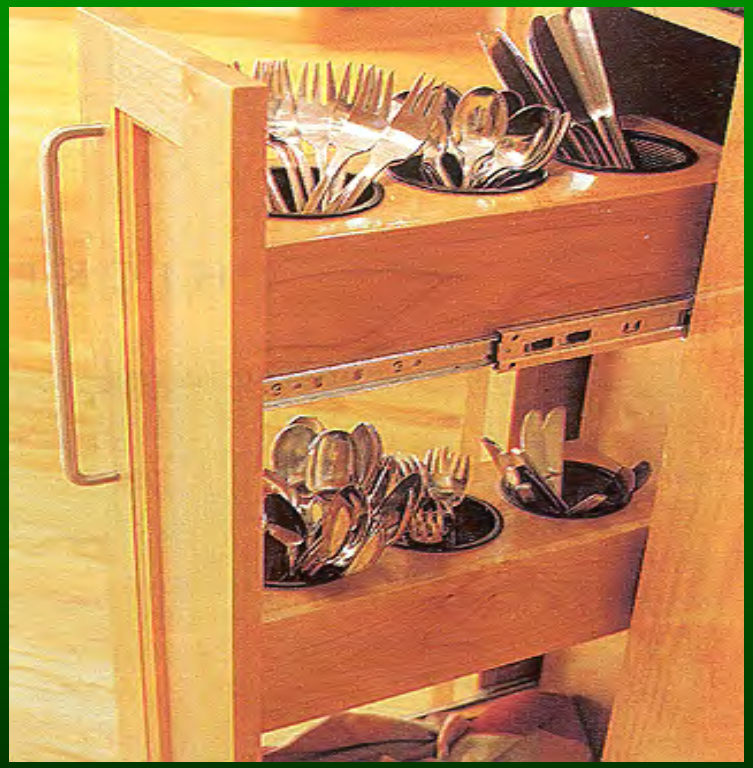
HOW DOES IT WORK?

Avoid Mistakes
Locking set-up prevents accidental reprogramming

Only Three functions
One-Touch **on/off** works both the TV & set top box, **volume** controls the TV and **channel** operates set top box

Program **favorite** channels for personalized viewing

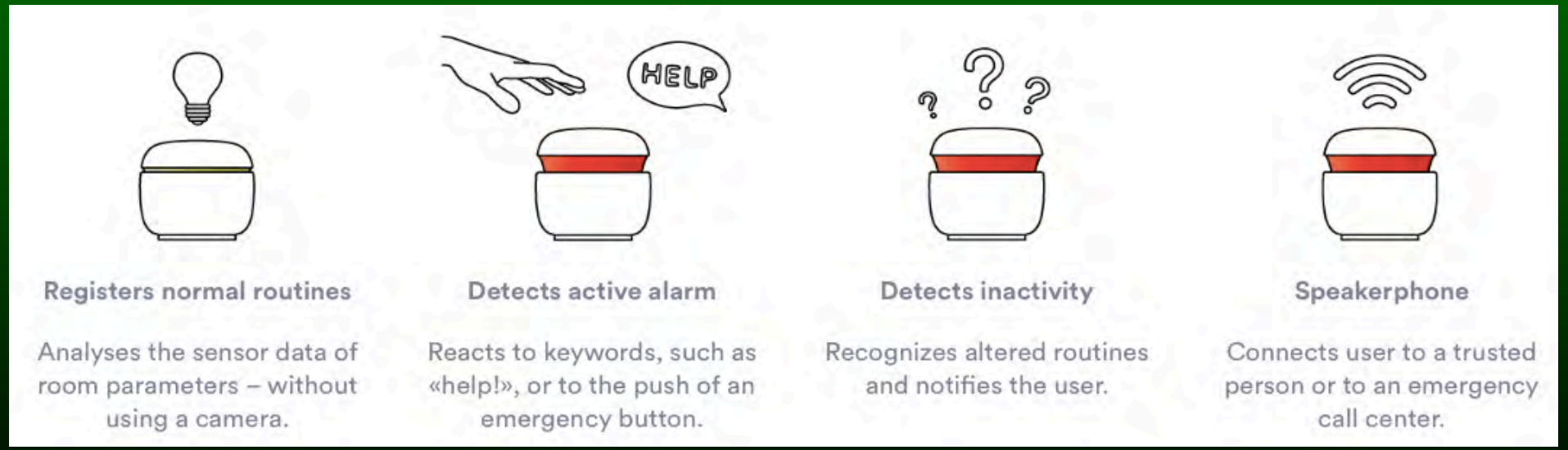
Simple and Intuitive Use



Better Homes and Gardens
Sept 2001

Photograph
Joan Vandershuit

Simple and Intuitive Use



4

Principle

Perceptible Information

The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

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Perceptible Information – increasing natural light

Somerville renovation

(IHCD project)

- Extra light with new windows
- Work surface with good lighting and contrast
- Wall-mounted ovens

Perceptible Information

Undercabinet motion-sensitive lighting under the bathroom counter

Perceptible Information – visually permeable for a deaf couple

Courtesy, Robbie Nichols, AIA

Perceptible Information - thermostats

Nest Thermostat

- High contrast
- Easy to turn

VIP Talking Thermostat

announces day, time, room temperature and temperature setting.

5

Principle

Tolerance for Error

The design minimizes hazards and the adverse consequences of accidental or unintended actions.

Tolerance for Error

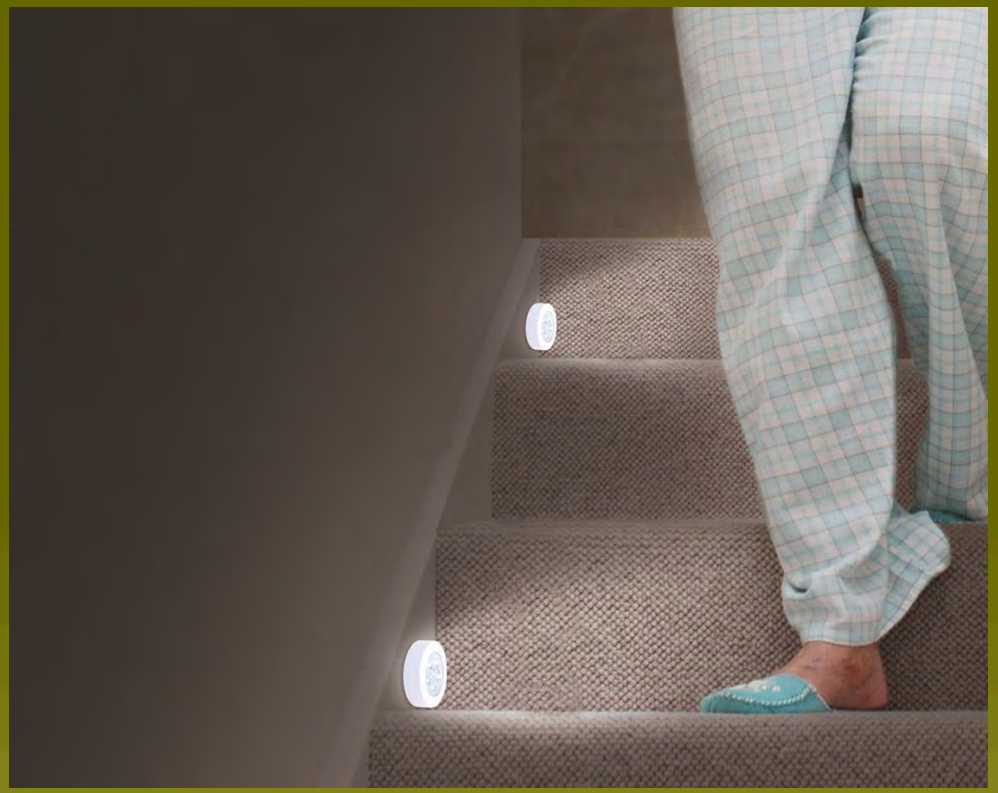
Induction cooktop

olerance for Error

olerance for Error

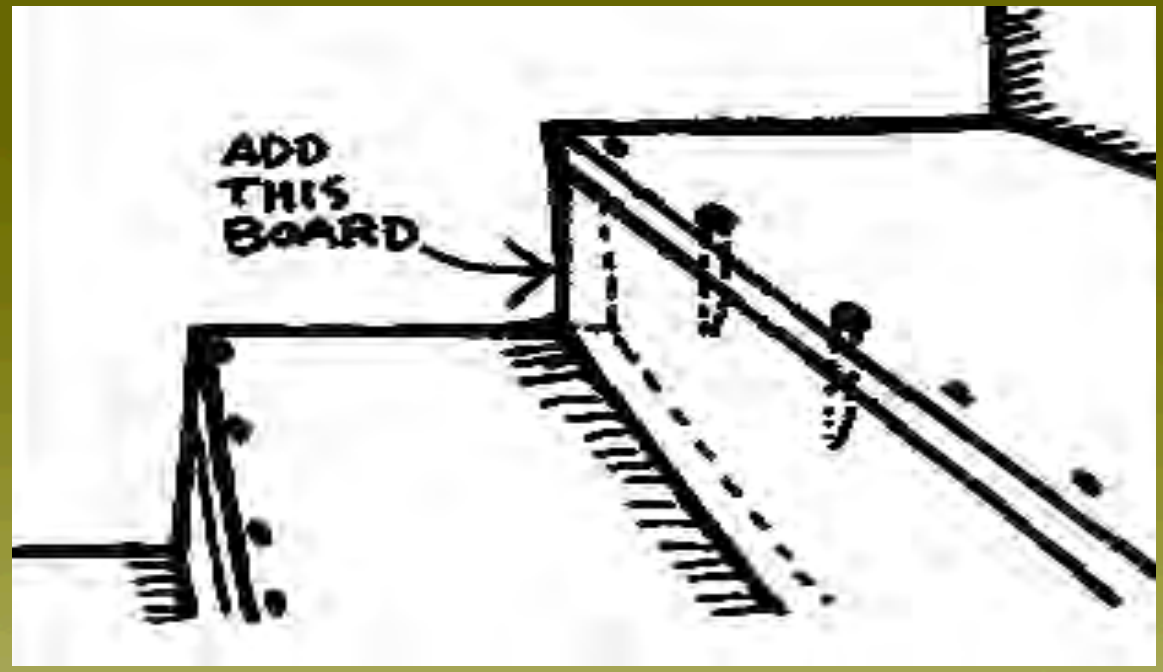
House numbers
2012 International Property Maintenance Code

Tolerance for Error – Stair safety



Integrate lighting into the stairs

Add a board to eliminate the nosing



olerance for Error

Stairs

- Handrails on both sides
- Color variation from tread to edge

olerance for Error

Toto Washlet

RETROFIT in any toilet – just needs an electrical connection

6

Low Physical Effort

Principle

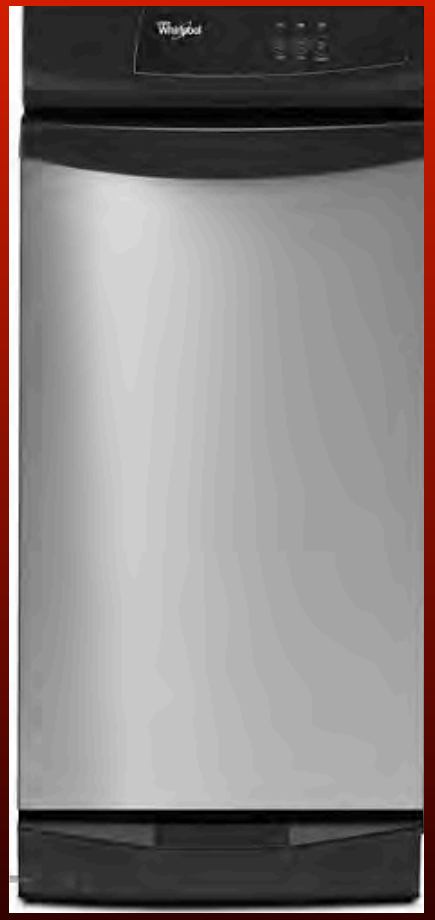
The design can be used efficiently and comfortably and with a minimum of fatigue.

Low Physical Effort

SEKISUI HOUSE

Level threshold with good drainage
Japan

Low Physical Effort



Trash Compactor

Carrying & storing of household trash can be reduced by 75% to a single compactor bag per week for small households

Low Physical Effort

Courtesy: James Pirkl

Easy reach everything – mix of natural and artificial light

Low Physical Effort

Courtesy: Delta Faucet

Delta Faucet
2.0 technology

Low Physical Effort

Washer/Dryer

- Front loaders with front controls
- Well lighted area
- Working surface above

7

Principle

Size and Space for Approach and Use

Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.

Size and Space for Approach and Use

Entry
(new construction)

Level entrance with a drain

Light above the door

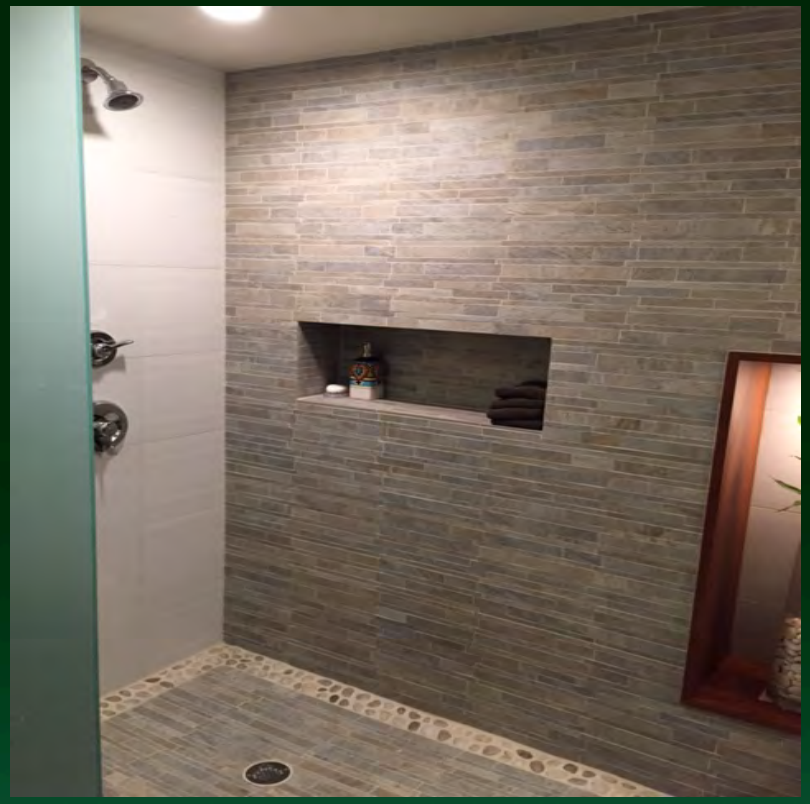
Canopy

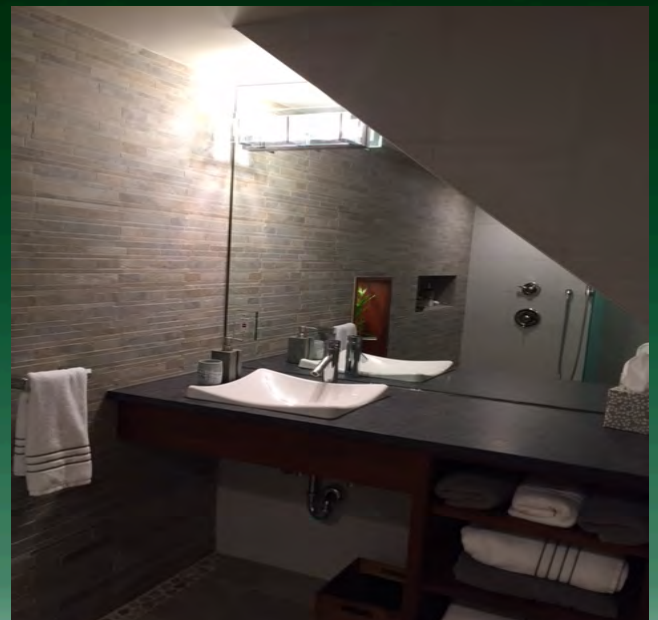
Side light for light in the hall and to see out

Door is good contrast to surrounding wall

Clear number

Size and Space for Approach and Use





Basement Renovation (Major) Arlington VA

- Overhead & “telephone” shower
- Lots of lighting

Size and Space for Approach and Use

Limited Use Limited Application Home Elevator

- 25 feet maximum travel
- 18 square foot maximum car size
- Fully automatic controls
- Reasonably affordable as a retrofit or new construction

Size and Space for Approach and Use

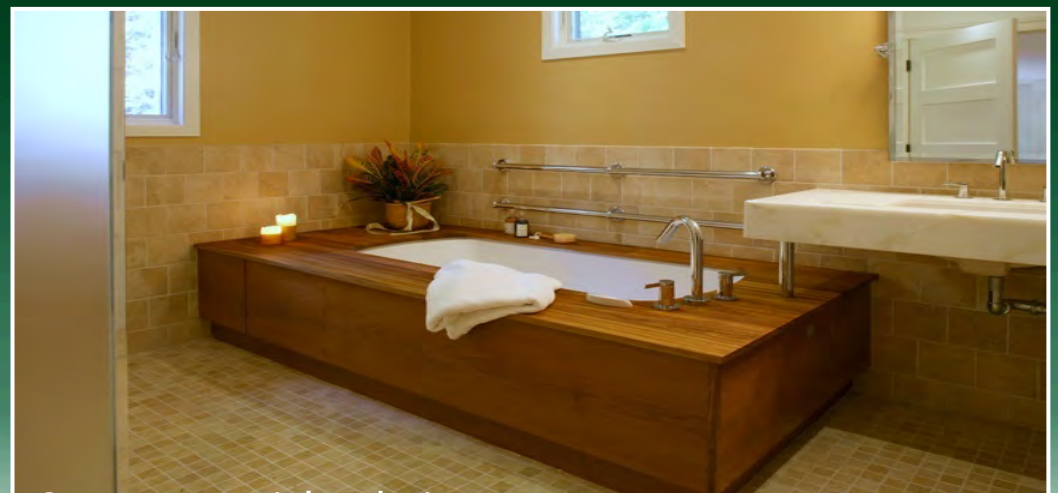
Adjustable beds

<u>Makes a significant difference for</u>:

- Edema
- Back Pain
- Sleep Disturbances
- Pain Disorders

Size and Space for Approach and Use


Courtesy: James Pirkl, FIDSA



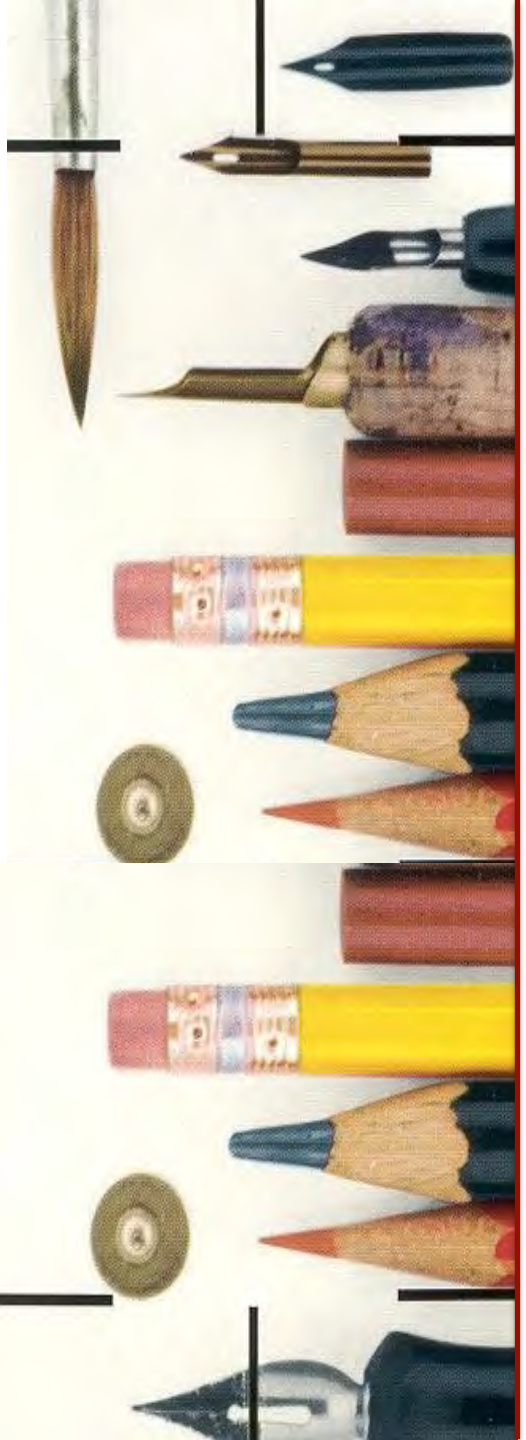
Soaking bathtub

- Generous edge for sitting
- Easy to reach controls whether you're inside or outside
- Window blinds are remote controlled
- Teak flooring on top, teak surround below

How do we get there?

How do we get there?

Catalyze a community of **learners** and **innovators** who believe that life in all its variety is our collective good fortune and a vehicle for richer experiences.



Strategy: Still need to know what people need & want – Research *with real people in real places!*

- We need to understand what works and what fails for the **wide range of functional issues** among people
- **Contextual Inquiry Research with "User/Experts"** who have developed expertise by means of their lived experience in dealing with the challenges of the environment due to a functional limitation.
- **It builds data that informs design and helps to set priorities.**





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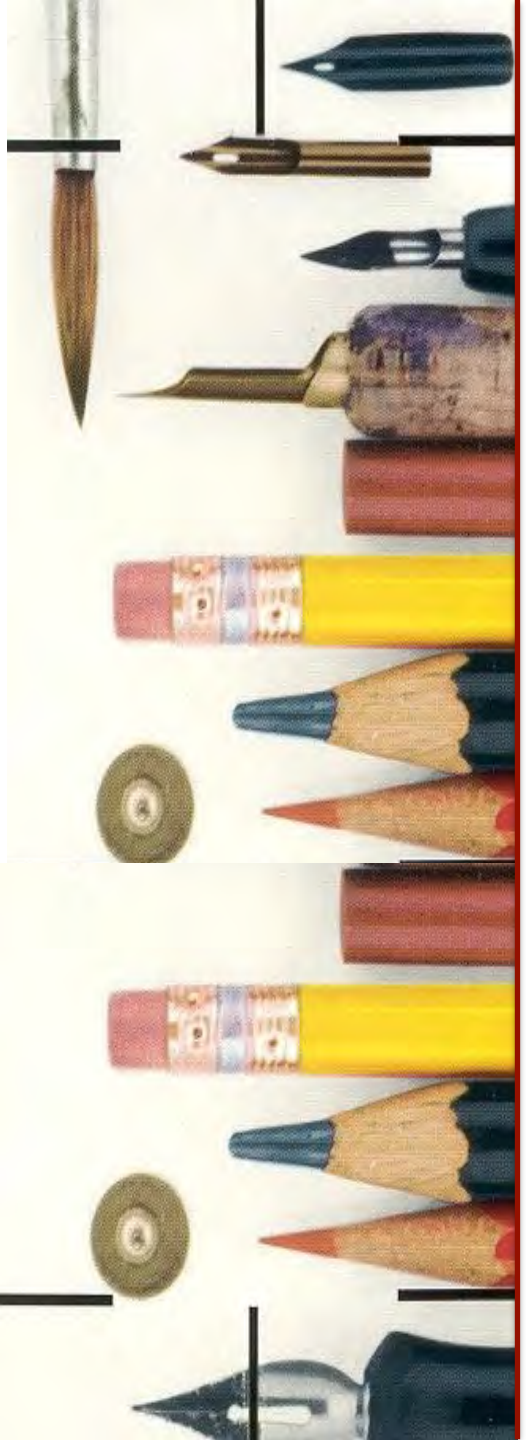


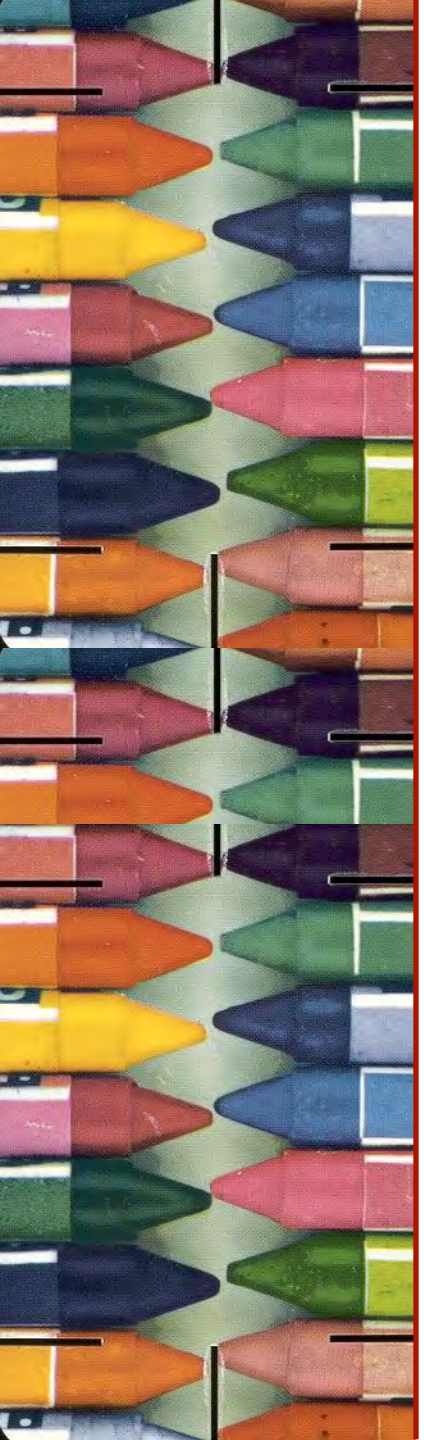
Strategy: Use municipal policy to make universal design a tool for age-friendly cities

- Zoning adjustments – support homeowners to create Additional Dwelling Units (ADU) in their homes for use by a family member

- Loan Assistance for home repairs & avoidance of foreclosure

- Universal Design as a policy for new multi-family residential projects permitted by the City

  In place now in California, Ireland, England, Norway, Singapore, Japan….



Last points. . .

- Difference in ability is ordinary and *universal*
- Limitations are contextual – universal design is a framework for minimizing them
- Think holistically across the WHO 5 environmental contexts:
  physical, information, communication, attitude, policy.

Muchas Gracias!

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