Hanley Wood

K029

Accessibility thru' Universal Design
F03
Ramesh Gulatee, Architect
9/27/2013

Copyright Materials

This presentation is protected by US and International Copyright laws. Reproduction, distribution, display and use of the presentation without written permission of the speaker is prohibited.

LIFECARE DESIGN STUDIO
Architecture for families/individuals with Special Needs
An Affiliate of Protected Tomorrows®

Credit(s) earned on completion of this course will be reported to AIA CES for AIA members. Certificates of Completion for both AIA members and non-AIA members will be available on-line approximately 4-6 weeks after the program.

CES for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product.

_____

Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

This course is registered with AIA

Learning Objectives

At the end of the this course, participants will be able to:

1. Understand universal accessibility concepts
2. Identify and modify non-workable designs

3. Compare UD v/s non UD designs

4, Source and Identify UD based designs & products

Course Description

All Americans will inevitably suffer from accessibility issues in their lifespan.
These issues would arise due to...

a) **Diagnosis**
b) **Aging process**
c) **Accidental mishaps and combat related Injuries**
d) **Life Style/Situations**

ADA: The Americans with Disabilities Act (ADA) addresses issues faced by Americans with physical and mental impairments and is applicable to about (16%) or 54m Americans. ADA design guidelines establish minimal accessibility standards.

UD: Universal Design (UD), on the other hand, applies to the broadest possible spectrum of American population irrespective of age or abilities.
UD is a multifaceted accessibility enabling paradigm; i.e., Keyless Entry, Swiss Army Knife, Smart Phone etc.
The market success of UD based products i.e., I-Phone is undeniable and shows that such designs sell by themselves.

This presentation, through illustrations and case studies, will endeavor to inform and educate the attendees that Universal Design based architecture opens up tremendous market opportunities.

Universal Design (UD)

Why bother when…

Myth #1:   The ADA and other disability rights laws have created equality

Myth #2:   Universal Design only helps people w/disabilities & older people

Myth #3:   Universal Design is simply good Ergonomic Design

Myth #4:   Improvements in healthcare & medical sciences are reducing the incidence of functional limitations

Myth #5:   Universal Design can't sustain itself in the marketplace because people who need it most cannot afford it

Worldly Facts

If you could fit the entire population of the world into
a global village consisting of 100 people,
maintaining the proportions of all the humans living on the Earth,
that village would consist of the following…

57 Asians	East/Far East and NZ & Australia
21 Europeans	Eastern/Western Europe
14 Americans	North/Central & South Americas
8 Africans	Africa/Middle East

**US Population: 316 m represents 4.5% of the earth's population
or
fewer than 5 people in the global village**

USA Facts
2010 Census

If we could fit the entire US population (316m) in to a room of 100 people maintaining the proportion of Americans suffering from various accessibility issues,, the room would have the following demographics.

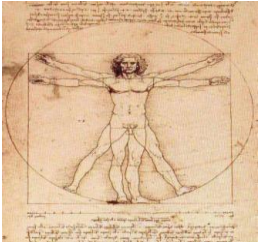|	
Retired/Baby Boomers	24 (74m)
Individuals w/Special Needs	16 (54m)
War Veterans	8 (24m)
Life Style.. (Obesity, Pregnancy, OSHA Mishaps)	rest of us

ADA (circa…1980)
Disability is in our Mindset…

"I'm not disabled or differently-abled or specially-abled or exceptionally-abled. I'm an accountant in a wheelchair."

Design based Accessibility…

Traditional Design: Design based on needs similar to that of an able-bodied individual.

ADA compliant Design: Design based on minimum accessibility standards guidelines applicable to a special needs individual.

Universal Design: Design for broadest spectrum of people without a specific user in mind.
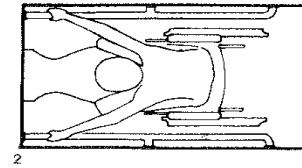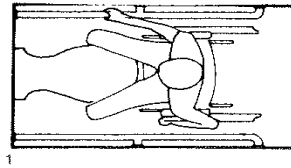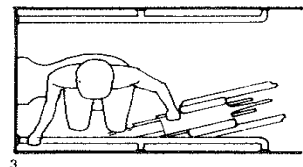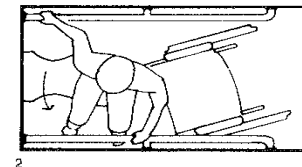
Access to Mobility…
Pre-ADA
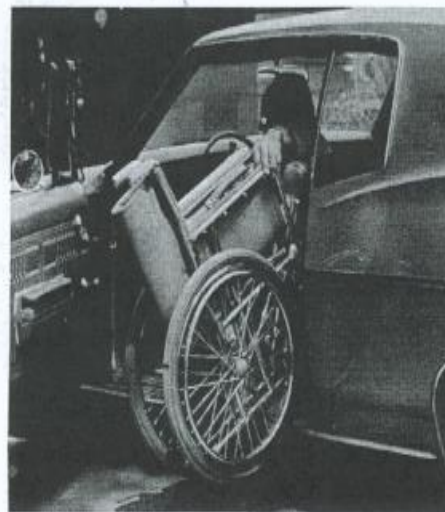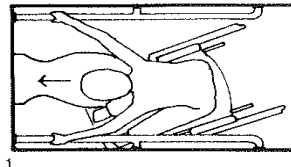
Pre-ADA Bathroom

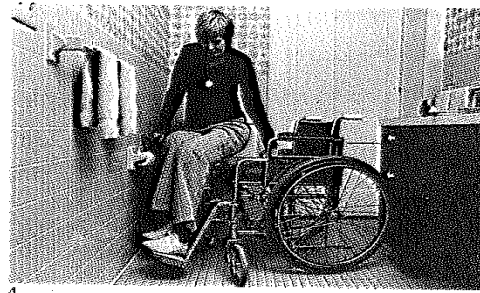Front transfer
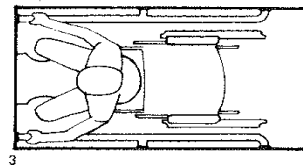
Front transfer with
twist turn

Side transfer with
diagonal turn

Pre-ADA Bathroom

Transfer from wheelchair
to built-in bathtub seat

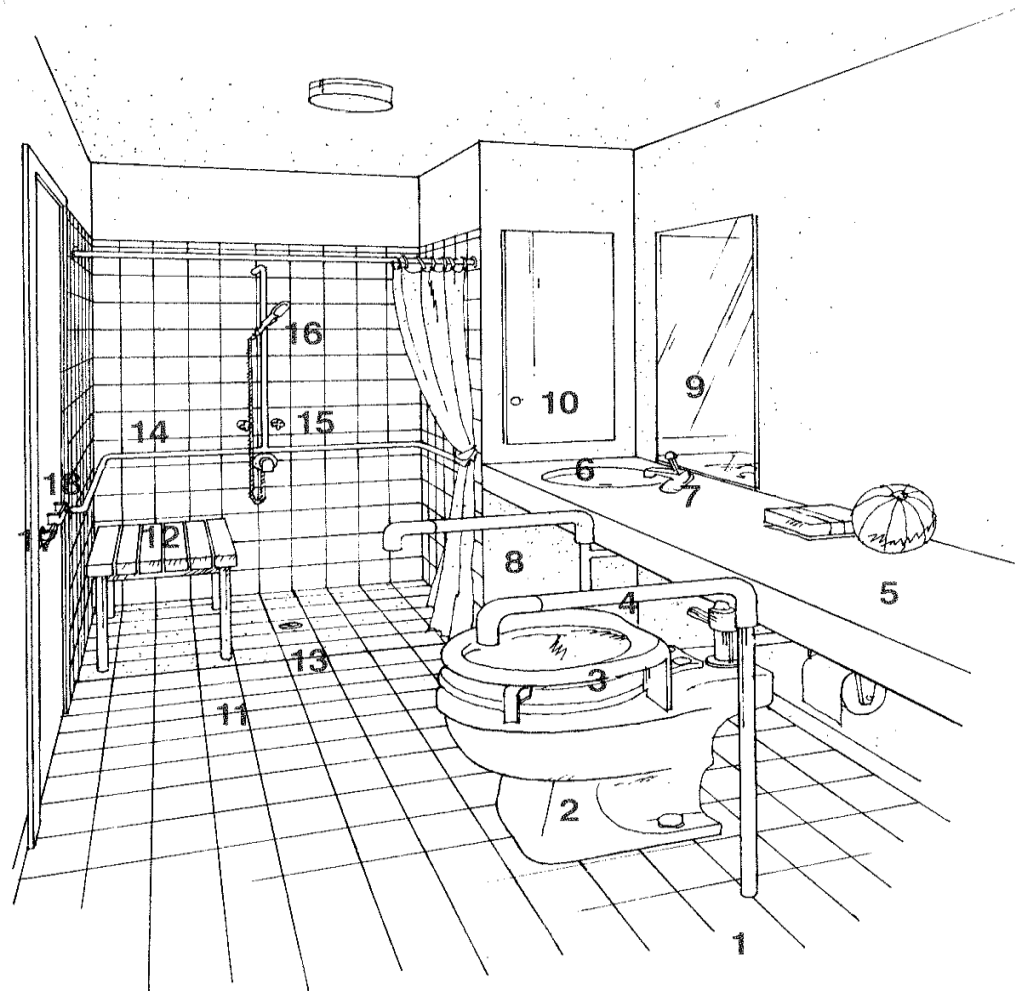# ADA & UD based Transportation Accessibility
Trains, Planes, Automobiles and Wheelchairs
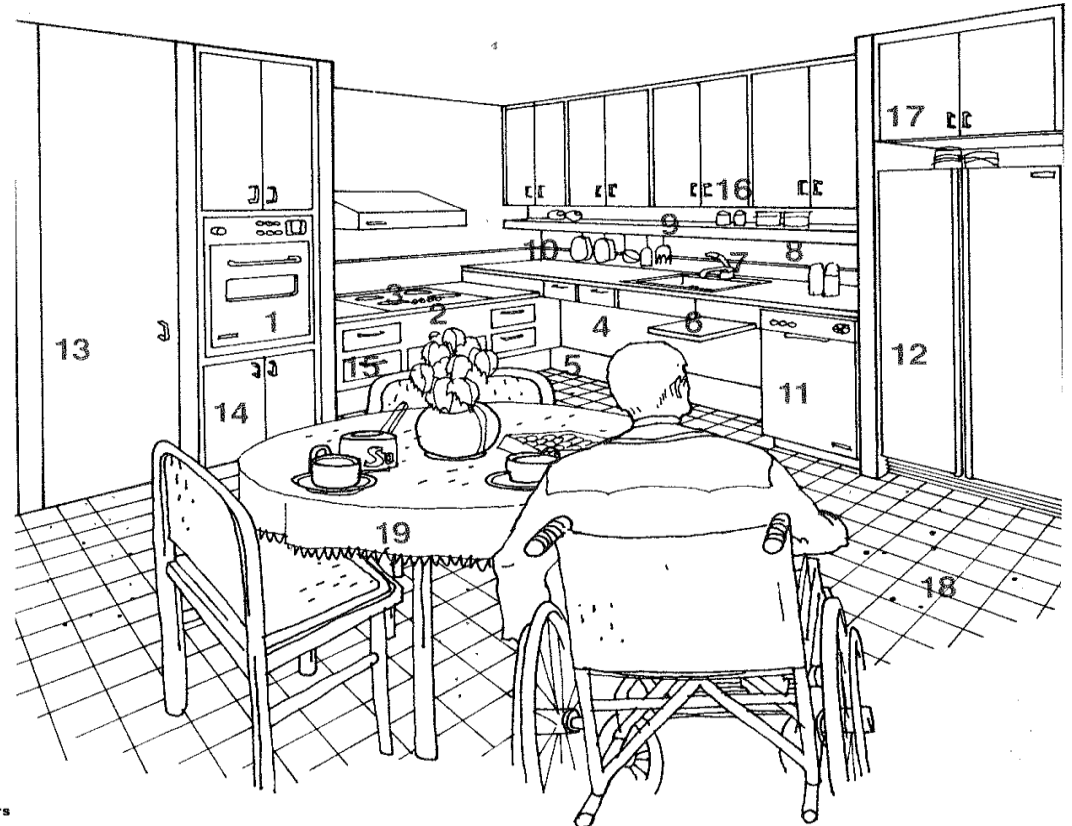
Universal Design
Wheel Chairs

ADA based Bathroom

1. Space for a wheelcha[i]
either side of toilet

2. Toilet with recessed b[
]

3. Adjustable height toile[
]seat or seat extender

4. Swing-away grab bars

5. 27"/69 cm-deep coun[
]

6. Washbasin within reac[
]the seated position on th[
]toilet

7. Mixing faucet, lever
handle, within reach of
the seated position on th[
]toilet

8. Knee space under cou[
]drain pipe covered or
insulated

9. Mirror, lower edge no[
]higher than 36"/91 cm

10. Medicine cabinet wit[
]reach

11. Space for transfer to[
]shower seat

12. Freestanding showe[
]can be placed either en[
]shower, or removed

13. No curb for shower [
]the chairbound can whe[
]directly into the shower;[
]shower stall floor slope[
]to center drain

14. Grab bar, three side[
]of shower stall

15. Controls centered o[
]back wall of shower stal[
]

16. Hand shower

17. Outswinging bathro[
]door, lever handle

18. Door pull, hinge sid[
]of door

ADA based Kitchen/Dining

1. Wall oven, for easy access, open at counter height

2. Cooktop controls at the front, to avoid burning

3. Cooktop and counter, 30"/76 cm to 33"/84 cm height

4. Knee space under sink counter to allow sitting in wheelchair at counter

5. High recessed base under cabinets to accommodate wheelchair pedals

6. Pullout work shelf, 30"/76 cm to 33"/84 cm at standard height counters

7. Mixing faucet at sink, lever handle

8. Cove lighting under wall cabinets, bulb replacement within reach range

9. Shallow shelf over sink counter within reach range

10. Wall space within reach over sink counter, used for hanging utensils

11. Front-loading dishwasher

12. Side-by-side refrigerator doors to allow access to refrigerator and freezer

13. Full height storage closet for easy access

14. Cabinet space under wall oven within reach range

15. Drawers under cooktop and counter for easier access

16. Easy grip cabinet door pulls

17. High cabinets (out of reach for the chairbound) for other users

18. Smooth, nonskid flooring, open spaces for wheelchair passage

19. Round table to avoid corners, legs, or pedestal base with no apron to allow for wheelchair

ADA Bathroom

Principles of Universal Design

Equitable use   useful for people with diverse abilities   **Automatic Door Opener**

Flexibility in use   accommodate range of individual preferences   **Swiss Army Knife**

Simple & interactive use   easy to understand regardless of the users experience, knowledge,
                                     language skills or ability level   **I-phone, Nest Tstat**

Perceptible information   communicate necessary information effectively regardless of the user/s
                                     abilities.   **IKEA products**

Tolerance for error   minimize hazards & adverse consequences of accidental or unintended
                                     actions.   **Fuses & Circuit Breakers**

Low physical effort   *e*fficient & comfortable in use with a minimum of fatigue
                                                                                       **battery powered screw driver
                                                                                       w/interchangeable bits**

Size/space for approach & use   appropriate size and adequate space should be provided for approach,
                                     reach, manipulation and use regardless of users.

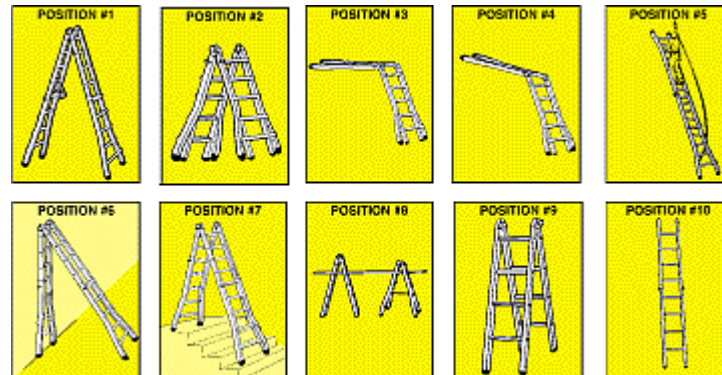# Access

Key Hole, Combination Lock, Card Entry, Keyless Entry

Universal Design
design evolution

Universal Design

multiple usage products

Universal Design
Communication Accessibility…

Universal Design

evolution: manual/programmable/web based

UD based Bathroom

UD based Kitchen

adjustable height countertop and overhead cabinets

Universal Design
Appliances

Gaggenau LiftMatic Oven
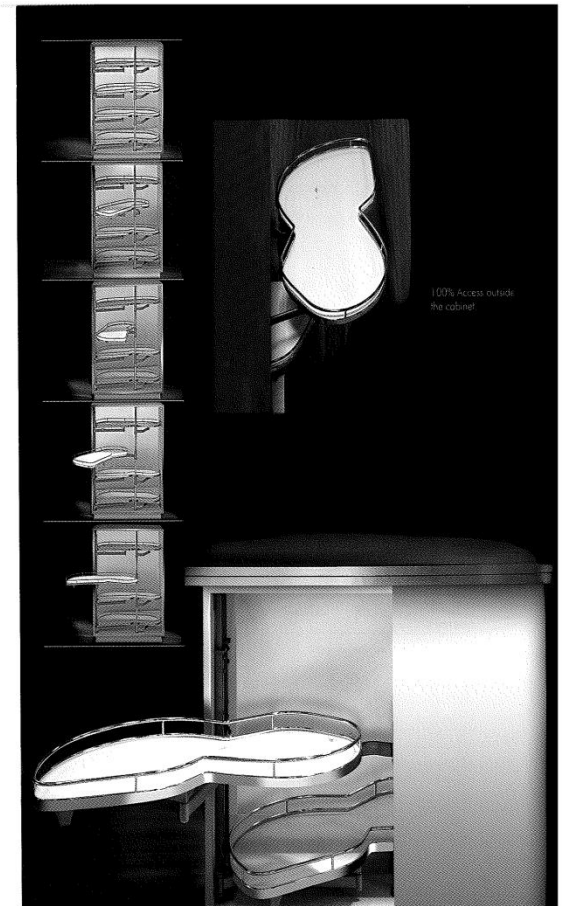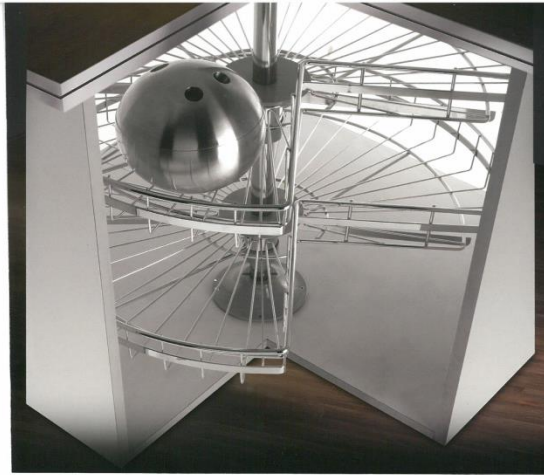Source: gaggenau.com

Universal Design

Kitchen Organizer System

Kitchen
UD v/s non UD Storage Options

Universal Design

Kitchen Organizer Systems

Universal Design
Robotics/Adaptive Technologies

Universal Design:
Assistive Technology & Communication

St.Peter's Square, Rome/Italy

Universal Design

Barrier Free Design, Enabling Design, Multi-Generational Design, Design for All and more

….

a mindset

to create a live/learn/work/play environment that can be used by the broadest spectrum of human beings irrespective of age or abilities

Universal Design
Advocacy Organizations

Organizations

US Access Board	access-board.gov
FCC Media/Internet/Communications	fcc.gov
Cast Center for applied special technology	cast.org
ATIA Assistive Technology Industry Association	atia.org

Industry

Oxo (household products)	oxo.com
GE (appliances)	ge.com
Hafele (accessibility related products)	hafele.com
MYOH (accessibility related storage organizer products)	myohamerica.com
Pressalitcare (Bath/Wash Room/Kitchen Accessories)	pressalitcare.com
Toto (Bath/Wash Room Fixtures and Accessories)	toto.cm
Leufel (Bath/Wash Room Fixtures and Accessories)	leufel.com
Kohler (Bath/Wash Room Fixtures and Accessories)	kohler.com

This concludes The American Institute of Architects
Continuing Education Systems Course

Hanley Wood

Ramesh Gulatee, Architect, IIL/WI, NCARB

rgulatee@lifecaredesignstudio.com

Tel. 847 946 6663

www.lifecaredesignstudio.com