



# Accessibility, Usability and Universal Design in Multigenerational Communities

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# Design Impacts Use/Ability

- Typical Design
  - everyday design that supports high levels of all types of abilities (i.e., 95<sup>th</sup> percentile reaching, seeing, hearing, ambulating, etc.)
- Accessible Design
  - specialized designs that support specific types and levels of abilities (e.g., low vision vs no vision, limited reach vs no reach, poor gait vs nonambulatory)
- Universal Design
  - everyday design that supports all types and levels of abilities (i.e., from no to full ability across all types)



# Accessible Design

- Often based on Americans with Disabilities Act Accessibility Guidelines (ADAAG)





# Universal Design

The design of all products and environments to be usable by all people to the greatest extent possible without the need for adaptation or specialized design (*Mace, 1990*)



# Differences in Design Between Accessible and Universal Design

## Accessible Design

**Specialized designs** to reduce environmental demands on people with functional limitations.

**Reactive, code-compliant approach** late in the design process

**Accessibility is a band-aid**

*Where do I put the ramp?*



## Universal Design

**Typical designs** to reduce environmental demands on everyone.

**Proactive, problem solving approach** at all stages of the design process

**Accessibility is part of the design**

*How do I get to the bed?*



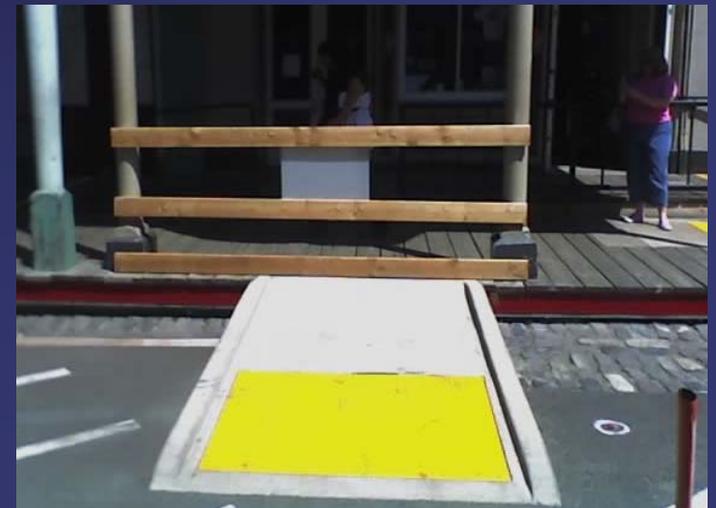
# Importance of UD in MG Communities: Limitations of AD/ADAAG

- Housing (exception: Fair Housing Act Accessibility Amendments for 3+ multifamily housing)



# Importance of UD in MG Communities: Limitations of AD/ADAAG

- Housing (exception: Fair Housing Act Accessibility Amendments for 3+ multifamily housing)
- Community Infrastructure
  - Multiple users/crowds
  - Curb height
  - Maintenance of walkways
  - Travel distances
  - Interaction of slope and distance
  - Street width
  - Traffic density/speed
  - Intersection design
  - Timing of lights
  - Lighting



# Importance of UD in MG Communities: Integration

- Functional and Aesthetic Integration
  - Compatible with context
- Participation and Social Integration
  - Enables engagement in activities with whom, when and where it is wanted or needed



UD



# Principles of Universal Design

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



# 1. equitable use

- Used in same/equivalent manner
- Avoids segregating any users



## 2. flexibility in use

- Provides choice in methods of use
- Permits right- or left- handed use
- Requires min accuracy & precision
- Adaptable to user's pace



## 3. simple & intuitive use

- Eliminate complexity
- Consistent with expectations
- Accommodate range of literacy/language
- Arrange information consistent with importance
- Prompting and feedback during task and after completion



# 4. perceptible information

- Is multi-modal for redundant information
- Maximizes legibility of essential information
- Differentiates elements



# 5. tolerance for error

- Arranges elements to minimize hazards and errors
- Provides warnings of hazards/errors
- Provides fail safe features
- Discourages unconscious actions



## 6. low physical effort

- Is used in neutral body position
- Has reasonable operating forces
- Minimizes repetitive actions
- Minimizes sustained effort

## 7. size & space for approach & use

- Provides clear line of sight to important elements
- Has reachable components
- Accommodates variations in grip
- Has adequate space for AT or caregiver

# How do we get from AD to UD?

- Incorporating Principles of UD in AD for flexibility, low physical effort, size and space, tolerance for error
- Incorporating AD into Typical Design to enable perceptible information, simple and intuitive use, and tolerance for error
- Repurposing Leftover Everyday Designs

# Parting thoughts for the Design for Multigenerational Communities

*all universal design is  
accessible, but  
not all accessible design is  
universal*

FOR MORE INFORMATION

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