# Universal Design for Housing

## Center for Universal Design

The Center for Universal Design (CUD) at NC State University is a national information, technical assistance and research center that evaluates, develops, and promotes accessible and universal design in housing, commercial, and public facilities, outdoor environments and products.

CUD's mission is to improve environments and products through design innovation, research, education and design assistance.

*This fact sheet and others can be found at www.mdod.maryland.gov and www.mdworkforcepromise.org.*

*Questions? Contact the Maryland Department of Disabilities.*

## What is Universal Design?

Universal Design is the design of products and environments to be usable by all people, to the greatest extent possible, without adaptation or specialized design. The intent of the universal concept is simplify life for everyone by making more housing usable by more people at little or no extra cost. Universal design is an approach to design that incorporates products as well as building features and elements which, to the greatest extent possible, can be used by everyone.

Some of the common features of universal design are: .

- Stepless entrances - no steps needed to get into the home.
- Single story - living room, kitchen, bathrooms, and bedrooms are all located on one level
- Wide doorways and hallways - to allow movement throughout the house doorways are at least 32 - 36 inches; hallways are between 36 - 42 inches.
- Accessible bathroom - bathrooms with adequate maneuvering space, 60 inch diameter turning space in room
- Kitchens - feature accessible counter-tops, cabinets, sink and appliances.

## Principles of Universal Design

The following are the seven principles of Universal Design.

**Principle One**: **Equitable Use** - The design is useful and marketable to people with diverse abilities. *Guidelines for Principle One:*

- Provide the same means of use for all users: identical when-ever possible; equiva-lent when not.
- Avoid segregating or stigmatizing any users
- Provisions for privacy, security, and safety should be equally available to all users.

**Principle Two: Flexibility in Use** - The design accommodates a wide range of individual preferences and abilities. *Guidelines for Principle Two:*

- Provide choice in methods of use
- Accommodate right or left-handed access and use
- Facilitate the user's accuracy and precision
- Provide adaptability to the user's pace.

**Principle Three: Simple and Intuitive Use** - Use of the design is easy to under-stand, regardless of the user's experience, knowl-edge, language skills, or current concentration level. *Guidelines for Principle Three:*

- Eliminate unnecessary complexity
- Be consistent with user expectation and intuition
- Accommodate a wide range of literacy and language skills
- Arrange information consistent with its importance
- Provide effective prompting and feed-back during and after task completion

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# Principles of Universal Design (continued)

**Principle Four: Perceptible Information** - The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

*Guidelines for Principle Four:*

- Use different modes (pictorial, verbal, tactile) for redundant presentation of essential information
- Provide adequate contrast between essential information and its surroundings
- Maximize "legibility" of essential information
- Differentiate elements in ways that can be described (i.e., make it easy to give instructions or directions)
- Provide compatibility with a variety of techniques or devices used by people with sensory limitations

**Principle Five: Tolerance for Error** - The design minimizes hazards and the adverse consequences of accidental or unintended actions.

*Guidelines for Principle Five:*

- Arrange elements to minimize hazards and errors: most used elements, most accessible; hazardous elements eliminated, isolated, or shielded
- Provide warnings of hazards and errors
- Provide fail safe features
- Discourage unconscious action in tasks that require vigilance

**Principle Six: Low Physical Effort** - The design can be used efficiently and comfortably and with a minimum of fatigue.

*Guidelines for Principle Six:*

- Allow user to maintain a neutral body position
- Use reasonable operating forces
- Minimize repetitive actions
- Minimize sustained physical effort

**Principle Seven: 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.

*Guidelines for Principle Seven:*

- Provide a clear line of sight to important elements for any seated or standing user
- Make reach to all components comfortable for any seated or standing user
- Accommodate variations in hand and grip size
- Provide adequate space for the use of assistive devices or personal assistance

*The Center for Universal Design (1997). The Principles of Universal Design, Version 2.0. Raleigh, NC: North Carolina State University ~ © 1997 NC State University, The Center for Universal Design*

# Benefits of Universal Housing

Designing homes which simply life for everyone by making the house usable by more people at little or no extra cost provides many benefits for everyone. Some of these benefits include:

- Increased safety - having features such as no-step walkways, entries and showers, adding grab bars and slip resistant floors can prevent falls.
- Provides ergonomic design - having an environment that accommodates commonly used wheeled devices such as luggage, baby strollers, walkers and wheelchairs reduces the stress on one's body. Lever handles on faucets and doors not only makes it easier to turn handles when carrying items, it reduces stress to hands and wrists.
- Provides a more work efficient design - universal design uses efficient products and work environments to reduce the time and personal energy required to perform daily tasks.
- Provides a more inclusive design - having a home that incorporates universal design means that people of all ages and abilities are able to use the home. The design accommodates people who are tall, small or use a wheelchair.
- Allows for individuals to grow old in their homes - universal design accommodates changes over the lifetime of the individual who lives in the home due to aging, injuries, heart conditions and arthritis.

# Resources

*AARP.org*
Voice: (888) OUR-AARP
TTY: (877) 434-7598
Website: www.aarp.org/families/home_design/

*The Center for Universal Design*
NC State University
Voice: (919) 515-3082
Website: www.design.ncsu.edu/cud/index.htm

*Maryland Department of Disabilities*
Voice / TTY: (410) 767-3660
Voice / TTY: (800) 637-4113
Email: mdod@mdod.state.md.us
Website: www.mdod.maryland.gov

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