

Universal Design

Universal Design is the design of products and environments to be usable by all people without adaptation or specialized design.

Accessibility has become part of our lives. We are all familiar with design features such as curb ramps for wheelchairs, reserved handicapped parking spaces, closed captioning on television, and grab bars in showers.

But the emerging practice of universal design is much broader than accessible design. Universal design aims to simplify all of our lives by making the entire built environment usable by more people at little or no extra cost. Universal design incorporates products, building features, and site elements which, to the greatest extent possible, can be used by everyone whatever their condition in life – short or tall, physically-challenged or not, left- or right-handed, young or old, English-speaking or not, to give only a few examples.

Universal Design Principles

In 1997, a working group of architects, product designers, engineers, and environmental design researchers collaborated to formulate seven Principles of Universal Design. These principles have a wide range of applications including housing, road construction, neighborhood revitalization, streetscaping and landscaping, public transit, recreation, education, and communications.

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 whenever possible; equivalent when not.

- Avoid segregating or stigmatizing any users.
- Provisions for privacy, security, and safety should be equally available to all users.

Universal Design reformulates the concept of accessibility from special products for a few to a usable environment

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 understand, regardless of the user's experience, knowledge, 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 feedback during and after task completion.

Universal Design

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.

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

Copyright © 1997 NC State University, The Center for Universal Design.

Universal Design

European Union

Universal design is an emerging concept in the United States, but standard practice in much of Europe, where it is known as “design for all”. Members of the European Union, by law, cannot limit themselves to considering only the isolated, technical issues of accessibility, but must deal comprehensively with the social well-being of all people.

Public services, as well as homes, offices, and schools, must follow accepted practices of universal design. Transit stops, for example, must be spaced according to “doorstop frequency”, that is, a maximum walking distance apart, and transit service must be provided within maximum waiting times at each stop.

In Europe, universal design is considered a viable way of transitioning their centuries-old environments to meet contemporary and future social and economic needs. The European Union’s universal design approach, as described in an EU action plan adopted in 2010, “ensures... social inclusion, builds consumer trust, and strengthens social cohesion.”

Benefits of Universal Design

Universal design is premised on the fact that we all have changing needs throughout our lives. Universal design, in other words, both provides a means to satisfy social needs and offers market opportunities. Benefits for the public, policymakers, and businesspersons include, in general:

- Helping communities and individuals prepare for the future while improving the quality of life today.
- Remaining competitive with growing markets for universal design, especially Europe and Japan.

- Creating a new and – since it encompasses virtually everyone – significant consumer market in the United States.

And more specifically:

- Increasing safety with elements such as high-visibility crosswalks; clear signage with meaningful icons and text; clear lines of sight; and no-step walkways.
- Creating more efficient workplaces through the use of universally-designed products and work environments to reduce the time and personal energy required to perform tasks, as well as the costs of disability insurance, replacement expenses, and workers' compensation for injured workers.
- Providing a home that people of all ages and abilities can use – tall, small, young, old, in a stroller or wheelchair.
- Providing ergonomic design to reduce stress on the body with features like lever handles on faucets and doors; light switches with large flat panels; lower kitchen countertops; and ramp access to buildings, streets, and transit.

Resources

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

Building a True Community: Accessible Public Rights-of-Way. The Public Rights-of-Way Access Advisory Committee of the United States Access Board. www.access-board.gov/prowac/commrept/PROWreport.pdf

- Genesee Transportation Council - September 2010