Universal Design Concepts and Visitability

Universal design is a concept that incorporates products, general design layout and characteristics into homes to:

- Make the home usable by the greatest number of people
- Respond to the changing needs of the resident
- Improve marketability of the home

General Universal Design Concepts:

- Lever door handles and faucet handles that operate easily with a push
- Adjustable closet rods
- A night-light in bedroom
- No scatter rugs
- Handrails on both sides of staircases and outside steps
- Brighter staircase lighting
- Large rocker light switches that turn on/off with a push
- Electric outlets 27 inches above floor
- Peephole or view panel in front door
- Walk-in shower with grab bars and portable or adjustable shower seat
- Hand-held adjustable shower head
- Nonskid surface for bathtub and shower floor
- Grab bars by the toilet and tub
- Tilting or full-length mirror in bathroom
- Bathroom telephone that is reachable if you should fall
- Adjustable countertops or lower counter for work space in kitchen
- Rounded kitchen counter tops
- Sliding shelves in cupboards, lazy Susan in corner cabinet
- First-floor bedroom and bath to allow living entirely on one level if necessary

The Principles of Universal Design

1. Equitable use
2. Flexibility in use
3. Simple and intuitive
4. Perceptible information
5. Tolerance for error
6. Low physical effort
7. Size and space for approach and use
Accessible Entrance

1. A covered entryway
2. Low (less than ½ inch) or no threshold
3. Wide doors — at least 32 inches (36 inches is better)
4. Swing-away hinges to allow wider access
5. Lever sets or D-handle loops rather than knobs for those with limited hand strength
6. Easy-to-reach and easy-to-operate interior lock (no small buttons to manipulate)
7. Garage and entrance at the same level; make sure the site drainage is considered
8. Peep hole at lower level (you even can have two)
9. Adequate lighting
10. Nonslip surfaces on steps or ramp
11. Curb cuts or ramps at driveway
12. Avoid sidewalk drop-offs
13. No drainage grates
14. Package shelf at front entrance for holding items while opening the door
15. Highly visible street number and doorbell
16. Extra lighting
17. Ramps should have:
   - A 1-to-20 rise and run for exterior
   - Landing of at least 48 by 48 inches (60 by 60 inches is best to allow turnaround space)
   - 36- to 48-inch width
   - Anti-slip surface
   - Handrails on sides
   - Infill with soil to eliminate drop-off and enhance appearance
**Accessible Door**

1. Doorway is at least 32 inches wide
2. Door has lever handles
3. Threshold is flush with the floor, or only $\frac{1}{2}$ inch high
4. Clear floor space beside the door on the pull side
Accessible Kitchen

1. Concentrate the work triangle to save steps and energy.

2. Insulate the bottom of the sink, as well as any water pipes, to guard a cook on a stool or in wheelchair against burns.

3. Lower cooktops for wheelchair use. Front-mount, easy-to-grip knobs eliminate the need for reaching over hot surfaces.
   - Front or side controls eliminate the need to reach across hot burners.
   - Push-button controls are easier to use for people who have trouble grasping knobs.
   - Use staggered burners.
   - Install special residual heat indicator lights.
   - Contrasting colors will help people with visual impairments distinguish between hot and cool areas.

4. A down-draft venting system eliminates the need for a vent hood.

5. Choose an oven with a side-swing door; hot food is safer to remove without a door that could get in the way.

6. Install multiheight work surfaces so cooks of different statures and abilities can work comfortably. Include spans of continuous counter space for sliding heavy pans.

7. Lower wall cabinets or install pull-down storage to bring key supplies into the universal reach range (15 to 48 inches).

8. Raise the dishwasher 6 to 16 inches from the floor for easier access. Install multiheight work surfaces so cooks of different sizes and abilities can work comfortably.
Accessible Bedroom

1. Locate the bedroom on the first floor of the home adjacent to a bathroom.
2. Provide night-lights so the user can move around the room safely at night.
3. Arrange furniture so that the path is clear.
4. Remove magazines and other objects from the floor to avoid tripping hazards.
5. Arrange furnishings so that outlets are available for lamps and other appliances.
6. Provide a bedside surface that is large enough to hold a lamp, alarm and phone.
7. Provide a U-shaped handle alongside the bed to help pull the user into a sitting position.
8. Avoid blankets or bedspreads that touch the floor.
9. Install a hanging pole in the closet to lower clothing for easier access.
10. Remove throw rugs.
Accessible Bathroom

Toilets

1. Locate toilets 18 inches from side walls for freedom of access from a chair or walker and/or to allow room for grab bars.

2. Use an offset flange to move the toilet forward up to 3 inches without having to relocate the waste pipe.

3. Choose a toilet with an easy-to-use flush handle and an extended seat. Add reinforcement for bars (now or later) in the wall.

4. Add wood blocking or solid plywood backing behind the surface wall. The wood provides the support necessary to support the weight of an adult.
Lavatories
1. Provide knee space for seated users. To allow access, an open, roll-under vanity needs to be 34 inches high from the countertop to the floor and 29 inches from the bottom of the sink to the floor.
2. A vanity or wall-hung sink needs to have at least a 17-inch depth to allow space for knees.
3. Place the sink as close as possible to the front of a vanity cabinet to allow the user easier reach to the sink basin and faucet.
4. A removable cabinet allows conversion from a regular vanity to an accessible lavatory. Simply mount the sink to the reinforced wall. Add a vanity case below that can be removed easily when needed.
5. Install lever-handle faucets.
6. Exposed hot water pipes should be insulated and/or covered.

Bathtub
1. Shower door tracks restrict movement in and out of the tub. Replace them with a trackless door system.
2. Provide 30 inches of open floor space in front of the tub when approaching from the end (head) and 48 inches if the tub is approached straight on (side).
3. Use lever-handle (preferably single-lever) faucets rather than hard-to-handle knobs.
4. Locate the water control near the entry to the tub to allow the bather to turn on the water while outside of the tub.

Shower
1. Shower dimension should be 36 by 36 inches with a seat and 30 by 60 inches without a seat.
2. Locate the water control near the entry to allow the bather to turn on the water while outside the shower.
3. Curbless or roll-in showers are available for those who are unable to move from a wheelchair.
Grab Bar
1. Install grab bars instead of towel bars. Diameters should be 1¼ to 1½ inches.
2. Leave a space between the grab bar and wall of 1½ inches. An opening that is too wide could allow a hand to get stuck and, in effect, trap the user.
3. Look for replacement surrounds with built-in reinforced panels capable of accepting grab bars.

Additional Considerations
- Install full-length mirrors or regular mirrors mounted lower.
- All water supplies should have anti-scald temperature controls.
- Thresholds should be no higher than ½ inch. No threshold is best.
- Extra lighting and color contrast increase visibility.
- Doorways should be a minimum of 32 inches wide, although 36 inches is best.
- Easy-to-grasp cabinet hardware and lever door handles fit all hands.
- Use nonskid flooring.