Universal Design Standards

For applications submitted and approved after April 16, 2007
Introduction to Universal Design

Universal design is a building concept that incorporates products, general design layouts and characteristics into residences in order to:

- Make the residence usable by the greatest number of people;
- Respond to the changing needs of the resident; and
- Improve marketability of the residence.

The goal of universal design is to build housing that meets the needs of the greatest possible portion of a community’s population. It differs from accessible design, which is primarily intended to meet the needs of persons with disabilities. It is, however, inclusive of adaptable design as it strives to incorporate structural features that will allow a residence to be adapted to an individual’s needs.

The West Virginia Housing Development Fund (Housing Development Fund) has determined that universal design standards are appropriate and should be utilized in the construction of affordable, newly constructed single-family homes.

These requirements are in addition to State-adopted IRC 2003 codes and any other State, county, or local regulations.

Universal Design Standards

1. **Hallways:** All hallways shall have a net clear (finish wall to finish wall) opening width of 36”. Definition of hallway is any passageway that is 18” or greater in depth.

2. **Interior Doorways:** All passage doors from room to room, including all bedroom doors and closet doors, shall have a minimum net clear opening of 32”.

3. **Bathrooms:** All housing shall have a minimum of one full universally designed bathroom located on the grade level.
   
   a. A 30” x 48” clear floor space outside the swing of the door as it closes is required. Lavatories shall have a 30” x 48” clear floor space. Toilets shall have a 48” x 56” clear floor space. Tubs shall have a 30” x 48” clear floor space. The required clear floor spaces for each fixture may overlap the clear floor spaces for other fixtures in the room. The clear area for lavatories and tubs shall be free from all wall projections, tub, shower, toilet or the lavatory base.

   b. Toilets shall be centered a minimum of 18” from any corner wall, base cabinet or tub. The basin for cabinet style lavatories shall be centered in the required clear floor space for this fixture or be located 24” from any adjacent wall or tub that prevents full parallel approach.

   c. Wall reinforcement behind the toilet, tub and/or shower shall be equipped with properly anchored and supported grab bars or install 2” x 10” wood blocking, plywood or other approved material for future grab bars in the toilet, tub and/or shower area. The wall reinforcement shall be located 33” to
36” AFF (above finished floor). Americans with Disability Act (ADA) compliant reinforced tubs may be used.

4. **Entry Door:** The primary entry door must meet the following requirements.
   
a. An exterior level platform with a minimum of 5’ x 5’ clear floor space. This platform must be within 1/2” of the interior finished floor at the point of entrance and a maximum threshold rise of 1-1/4” when approaching from the outside (structural and decorative supports may overlap perimeter of the clear floor space).

b. The entry door threshold must not project more than 3/4” and be beveled with a slope of 1:2. At the point of entry of this door, the interior must have a 5’ x 5’ clear floor space.

c. Exterior entry doorway shall have a minimum net clear opening of 32”.

5. **Faucets:** Single-lever faucets or ADA-approved faucets shall be installed at all sinks, showers and tubs.

6. **Electrical:** Light switches, fan switches and thermostats shall have a maximum height of 48” centered on the switch or thermostat face cover. Mounting heights for electrical outlets shall have minimum height of 15” AFF from the bottom outlet or a maximum height of 48” AFF from the top outlet.

   **Note:** If an outlet or switch is obstructed by a base cabinet or countertop, then the maximum height for a switch or outlet shall be 46” AFF.

7. **Bedroom:** All units shall have a minimum of one bedroom on the grade level.

8. **Exterior Access:** Access from the vehicular parking to the entry door shall be considered in the site design unless it is impractical to do so because of terrain or unusual characteristics of the site. The walkway from the parking area to the entry door must be 36” wide and made of concrete, asphalt, wood or other hard surface material approved by the Housing Development Fund. Any part of the accessible route with a slope greater than 1:20 shall be considered a ramp and shall comply with ANSI. Ramps cannot exceed 8.33% slope (1:12) and handrails are required on all ramps steeper than 5% and up to 8.33% slope.

9. **Kitchen Design:** The design of the kitchen must provide for 30” x 48” clear floor space at each appliance. A clearance of at least 40 inches between all opposing base cabinets, countertops, appliances, and walls is required for pass-through kitchens, L shaped kitchens, or kitchens with islands. A 60-inch diameter turning circle is required in a U-shaped kitchen that has a sink, range, or cooktop at its base.
Doorway Clear Opening

32" opening leaves room for hands and elbows

Minimum Width of Accessible Route

Wider hall widths are preferred, especially at long halls, to increase ease of use and reduce damage to door frames and walls caused by bumping and scraping of wheelchair footrests and handrims.

Hall widths must be at least 36" wide to allow a person to make a 90 degree turn into or out of a 32" door opening.

All Covered Switches, Outlets, and Controls Operated on a Frequent Basis Must be in Accessible Locations
Guideline Specifications For Bathrooms

- additional inaccessible receptacle permitted
- receptacle required in an accessible location
- reinforced wall areas for future installation of grab bars around toilet and bathtub
- lever handles not required, but recommended
- 33\" nominal width
- fixed base cabinet acceptable since parallel approach centered on basin is possible
- 30\" X 48\" clear floor space for parallel approach
- 30\" X 48\" min. clear floor space outside swing of door required; in this plan the clear floor space doubles as the space for access to bathtub. Toilet beside and close to bathtub allowed in \"A\" bathroom only. Provides less access to bathtub and controls.
because lavatory has no knee space below, to meet the Guidelines, bathtub controls must be located on this wall. Clear floor space for maneuvering outside swing of door.

Option 1: Plumbing on Opposite Walls
Lavatory With Base Cabinet Below
(No Knee Space)

Option 2: Plumbing on Common Wall
Lavatory With Shallow Knee Space

end of knee space flush with bathtub control wall permits access to controls; because knee space is not the full depth, user must still be able to execute a parallel approach to lavatory.

If lavatory has knee space below, bathtub controls can be located on a common plumbing wall.

Storage shelves

36" wide vanity with offset basin to permit parallel approach centered on basin.

Dimensions:
- 8'-6"
- 6'-0"
- 5'-0"
Maneuvering Space in Bathrooms

48" X 56" clear floor space at toilet

30" X 46" clear floor space parallel to and centered on basin

30" X 49" clear floor space for maneuvering outside swing of door doubles as clear floor space at bathtub

Doors may swing into the clear floor space at fixtures, provided there is space to position a wheelchair outside the swing of the door so it can be closed

3'-0" wide (min.) accessible route to bathroom

Lavatory, any other fixture, or wing wall must not project into room any more than 24"

Acceptable

Some Features May Overlap Clear Floor Space at Toilet

Not Acceptable

A shower installed adjacent to the toilet is not acceptable under the Guidelines
The primary approach that can be executed in a 48" X 56" clear floor space is perpendicular.

48" X 56" Clear Floor Space
(with Overlapping Lavatory)

30" X 48" clear floor space flush with vanity front

Removable Base Cabinet
Not Required Because Clear Floor Space
Centered on Basin

30" X 48" clear floor space permits a parallel approach centered on the basin

Use of Offset Basin
to Reduce Lavatory Length
vanity with clear floor space centered on basin to permit parallel approach

24\" minimum reinforcing required, 42\" preferred

clear floor space at lavatory doubles as clear floor space at bathtub

reinforcing may be required in floor, depending on type of grab bars planned for

vanity with clear floor space centered on basin to permit parallel approach

reinforcing must be located in this area to provide support for a drop-down grab bar or a floor-mounted bar similar to those shown on page 6.6; the bar must swing out of the way so access to the tub and controls is available

24\" minimum reinforcing required,

if tile area is a seat at back of bathtub, reinforcing at least 6\" to 8\" wide must be located here

no reinforcing required in this wall
where toilets do not have full side walls, reinforcing behind toilet must be enlarged to support a folding grab bar

reinforcing for horizontal bar at back of toilet must be provided

minimum reinforced areas at conventional bathtub

even when a fold up bar is planned, reinforcing should still be provided in short wall to the side of the toilet

although not required by the Guidelines, for an additional grab bar installed on the short wall beside the toilet to be usable by the largest number of people, this dimension also should be 18"

Small Bathroom with Walls Reinforced for Grab Bars
Minimum Reinforcing Behind Toilets
Located Beside a Wall

minimum reinforced area

even larger reinforcing preferred for greater ease when installing grab bars

additional 2" min. each side and bottom recommended to mount 24" long standard grab bar

Minimum Reinforcing to the Side of Toilets

if this dimension is less than 12", then the 24" min. must be correspondingly longer

minimum reinforced area

2" to 4" additional reinforcing at sides and bottom recommended

to accommodate a 24" bar, the reinforced area should be 28" to 32" long to provide full support for the mounting plates; see explanation below
Reinforced Areas Required by the Guidelines
at Conventional Bathtubs

Reinforcing for Grab Bars
Behind Fiberglass or Acrylic Tub
and Shower Surrounds

grab bars anchored through plastic tub wall and securely fastened into or through the blocking

solid wood blocking “let in” and/or over-laid and securely anchored to studs; blocking must fit snugly and fill the designated space

integral plastic wall panel
good general illumination

color contrast between door and frame

door closer with safe sweep period, ANSI 4.13.10

low force to open door, ANSI 4.13.11

clear width of open doorway min. 32", ANSI 4.13.5

clear, readable, high contrast signage

lever or other easy to use door hardware, ANSI 4.13.9

low or no threshold, see Chapter 4

maneuvering space on exterior side of door next to latch varies depending upon direction of approach to door, ANSI 4.13.6

outside landing 0" to 1/2" below interior floor level depending upon construction of porch or landing surface, see Chapter 4

adequate slope to prevent ice build-up

package shelf

high intensity lighting focused at locks for people with low vision

view window (or wide angle peep hole)

lighted doorbell buttons

weather protection

Accessible Primary Entry Door at Covered Dwelling Unit
See ANSI 4.13 Doors

Notes in italic type are recommendations only and are not required by ANSI or the Guidelines. All recommended features are helpful to people with and without disabilities.
Threshold Details at Primary Entry

Maximum Allowable Height Difference
Between Interior Floor Level and Exterior Floor Level

level difference at primary entry door
0" pervious construction
(e.g., wood decking with spaces)
1/2" impervious construction (e.g., concrete, brick, or flagstone)

level difference at secondary door
1/2" pervious construction
4" impervious construction

1 Acceptable
(Not Preferred: 1-1/4" Height is Difficult for Many People Who Use Wheelchairs)

2 Acceptable

3 Good

1-1/4" rise when approaching from outside

2-1/2" min. at 1:2
1-1/2" min.

allowable 3/4" threshold
allowable 1/2" for water control

1/4"
1/2"

3/4" max.

interlocking threshold
Swinging Primary Entry Door at Concrete Landing

showing allowable changes in level at primary entry doors with direct exterior access onto concrete or other impervious landing surface where 1/2-inch maximum changes in level are permitted.

Swinging Secondary Door at Concrete Landing

showing allowable changes in level at exterior swinging doors onto concrete or other impervious landing surface where 4-inch changes in level are permitted.
forward reach
to light and fan
switches as well
as thermostat

inaccessible outlet
less than 15" above
floor permissible

30" X 48" clear floor
space perpendicular to
the wall for a forward
reach to controls

additional outlet in
accessible location
Guideline Specifications For Kitchens

counters may be at the standard height of 36" (counter height of 34" as shown in Fig. 2(c) of the Guidelines does not apply)
lower hardware, although preferred and more usable by everyone, is not required
ranges and cooktops may have front-, rear-, or side-mounted controls; for safety reasons and ease of use, front- or side-mounted controls are preferred
kitchens in covered units must be on an accessible route and have door openings at least 32" clear to allow passage; see Chapter 4 "Usable Doors" and Chapter 5 "Accessible Route"
outlet located beyond reach of seated person permitted if other outlets in accessible locations are provided; see Chapter 6 "Switches, Outlets, and Controls"
adequate space within the kitchen to provide 30" X 48" clear floor space at each fixture and appliance
in U-shaped kitchens, if less than 60" between the two legs of the U, then sink base must be removable, see page 7.12

Notes in italic type are recommendations only and are not required by ANSI or Guidelines.
60" Diameter Turning Circle
when Sink (Only), Cooktop, or Range is at Bottom of U-Shaped Kitchen

refrigerator must be selected and positioned so it does not encroach upon the 60" diameter turning circle or the clear floor space at the sink

60" diameter turning circle
this dimension may need to be increased slightly for a double basin sink if wider than 30"

Sink and Dishwasher at Bottom of U-Shaped Kitchen
Increases Room Width
Overlapping Clear Floor Spaces and Accessible Route Provide Maneuvering Space

Minimum Clearance between Refrigerator and Opposing Base Cabinet
Minimum Clearance between Range and Opposing Base Cabinet

dimension must be measured from front face of range or refrigerator to countertop edge (excluding cabinet and appliance handles)

wheelchair user must leave kitchen to turn around

30" X 48" clear floor space

40" Minimum Clearance Between all Counters, Base Cabinets, Appliances, and Walls
Mounting Height for Outlets

Electrical Outlets on Walls Over Cabinets Must Be a Minimum of 36" from a Corner

Countertop is shown at the typical kitchen height of 36". The drawing in the Guidelines (taken from ANSI Figure 6(c)), on which this drawing is based, gives this dimension as 34". The 34" dimension shown in the Guidelines is in no way intended to dictate counter heights in covered dwelling units.

Maximum Side Reach (From a Parallel Approach) Over an Obstruction