UNIVERSAL DESIGN Features in Housing

The following list of characteristics are elements, features, ideas or concepts that contribute to or can be components of universal housing. This list is intended as a guide. The features described are those we might look for in universal housing but not all are expected to be included in any given home.

Some are finite recommendations, some are lists of options, and some are scope statements identifying how many particular features must or should be included. Obviously, the more universal design characteristics or features included, the more usable the house.

A key component of universal design is the market appeal it adds to the home because the universal features are integrated into the overall design. Done well, universal design becomes a virtually invisible element.

This list contains structural and non-structural features. Structural features, indicated by ☑, should be considered for new homes and major renovations. Non-structural features, indicated by ☐, are less expensive and easier to incorporate into a finished home.

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>BENEFITS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Entrances</strong></td>
<td></td>
</tr>
<tr>
<td>Stepless Entrances</td>
<td></td>
</tr>
<tr>
<td>☑ It is best to make all home entrances stepless.</td>
<td>Easier to move furniture and appliances in and out.</td>
</tr>
<tr>
<td>☑ More than one stepless entrance is preferred.</td>
<td>Great for baby strollers and bicycles.</td>
</tr>
<tr>
<td>☑ At least one stepless entrance is essential; if only one, not through a garage or from a patio or raised deck.</td>
<td>Easier to bring in groceries and packages.</td>
</tr>
<tr>
<td></td>
<td>Safer in wet or icy conditions.</td>
</tr>
<tr>
<td></td>
<td>Easier to clear snow, ice and leaves.</td>
</tr>
<tr>
<td>Site Design Methods for Integrated Stepless Entrances</td>
<td>Easier than steps to repair and maintain.</td>
</tr>
<tr>
<td>☑ Level bridges to uphill point.</td>
<td>Slope of route is shallow making travel from parking to door easier.</td>
</tr>
<tr>
<td>☑ Driveway and garage elevated to floor level so vehicles do the climbing.</td>
<td></td>
</tr>
<tr>
<td>☑ Earth berm and bridge with sloping walk.</td>
<td></td>
</tr>
<tr>
<td>☑ Site grading and earth work (with foundation waterproofing) and sloping walks at 1:20 maximum slope.</td>
<td></td>
</tr>
<tr>
<td>☑ Avoid ramps. If ramps are used, integrate into the design.</td>
<td></td>
</tr>
</tbody>
</table>
### CHARACTERISTICS

#### Other Entrance Features
- One-half inch maximum rise at entrance thresholds.
- Minimum 5’ x 5’ level clear space inside and outside entry door. (Can be smaller if automatic power door provided.)
- Power door operators whenever possible.
- Weather protection such as a porch, stoop with roof, awning, long roof overhang, and/or carport.
  - Built-in shelf, bench or table with knee space below located outside the door.
- Full length sidelights, windows in doors, and/or windows nearby.
  - Wide-angle viewers and TV monitors.
  - Lighted doorbell at a reachable height, intercom with portable telephone link, and/or hardwired intercom.
  - Light outside entry door and motion detector controlled lights.
  - House number should be large, high contrast, located in a prominent place.

#### Interior Circulation
- An open plan design.
- At least one bedroom and accessible bathroom should be located on an accessible ground floor entry level (same level as kitchen, living room, etc.).

### BENEFITS

- Reduces tripping hazards.
- Dollies and handtrucks move over easily.
- Allows for maneuvering while opening or closing door.
- Provides sheltered space for people while unlocking the door, waiting for a carpool, making deliveries, etc.
- Less weather damage to door finish.
- Provides a place to put packages while opening doors.
- Allows all residents, including children and people using wheelchairs to see who is at the door before opening it.
- Allows visitors to communicate with residents.
- View of approaching visitors.
- Adds general illumination and sense of security.
- Illuminates lockset.
- Eliminates dark approaches to the home.
- Easy for friends and emergency personnel to locate residence.
- Minimizes hallways and doorways and maximizes sight lines.
CHARACTERISTICS

 Clear door opening width (32” minimum, 34” - 36” wide doors), for all doorways.

 Flush thresholds at all doorways.

 Clear floor space (18” minimum) beside door on pull side at latch jamb.

 Circulation route 42” minimum width.

 Turning space in all rooms (5’ diameter).

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BENEFITS

Improves circulation, especially with many visitors, such as at parties.

Reduces damage to door jambs when moving large furniture or appliances, equipment, ladders.

Provides space to move out of the way of the door swing when pulling it open.

Provides maneuvering room in the hallways and archways.

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Vertical Circulation

 All stairs should be appropriate width and have space at the bottom for later installation of a platform lift, if needed.

If a two-story dwelling:

 at least one set of stacked closets, pantries, or storage spaces with knock-out floor

 a residential elevator with minimum 3’ x 4’ clear floor area installed at the time of initial construction.

 Stair handrails to extend horizontally beyond top and bottom risers.

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Easy access between floors.

Becomes shaft for later elevator installation- at a great cost savings.

Steady users at top and bottom of stairs

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Bathrooms

When more than one bathroom is provided, all should meet the following criteria, including bathrooms on the second floor.

 At least one bathroom must have one of the following accessible bathing fixtures:
  • minimum 5’ x 3’ (4’ preferred), curbless shower
  OR
  • tub with integral seat, waterproof floor, and a floor drain.
### CHARACTERISTICS

- Other bathrooms in the same house may have a tub with an integral seat or a 3’ x 3’ transfer shower with “L” shaped folding seat and 1/2” maximum lip (curb) in lieu of fixtures described above. When possible, arrange at least one shower control for right-hand use and one for left-hand use.

- Adequate maneuvering space: 60” diameter turning space in the room and 30” x 48” clear floor spaces at each fixture. Spaces may overlap.

- Clear space (3’) in front and to one side of toilet.

- Toilet centered 18” from any side wall, cabinet, or tub.

- Broad blocking in walls around toilet, tub, and shower for future placement and relocation of grab bars.
  - Grab bars should not be stainless steel or chrome. Use colors to match decor.

- Lavatory counter height 32” minimum.
  - Knee space under lavatory (29” high). May be open knee space or achieved by means of removable vanity or fold-back or self-storing doors. Pipe protection panels must be provided to prevent contact with hot or sharp surfaces.
  - Countertop lavatories preferred with bowl mounted as close to front edge as possible.
  - Wall hung lavatories acceptable with appropriate pipe protection.
  - Pedestal lavatories are not acceptable.

### BENEFITS

- Allows people to sit in tub/shower without needing additional equipment.

- Allows for easy maneuvering to and around toilet.

- Provides space for transfers to and from toilet.

- Allows for custom placement of grab bars after construction without opening wall to add blocking.

- Grab bars make it easier and safer for everyone to get in and out of the tub or shower.

- Grab bars also double as towel bars but are more durable.

- Allows someone to use lavatory from a seated position.
## CHARACTERISTICS

- Long mirrors should be placed with bottom no more than 36” above finished floor and top at least 72” high.
- Full-length mirrors are good choices.

### Fixture Controls

- Offset controls in tub/shower with adjacent clear floor space.

### BENEFITS

- Children and persons seated can use mirror while at sink.
- Reduces water damage to wall finish behind sink.
- Makes it easier to clean behind faucet.
- Makes room seem more spacious.

- Allows for easy access from outside the tub/shower reducing reaching and bending, without inconvenience when inside.

### Kitchens

- Space between face of cabinets and cabinets and walls should be 48” minimum.

### BENEFITS

- Can be adjusted to the height of each user.
- Helps avoid wetting hairstyle, bandages, casts.
- Can be used for back massage, rinsing hair, washing the dog, etc.

- Prevents scalding people who cannot move out of the way quickly if water temperature and/or pressure change suddenly.
- Saves hot water.

- Provides open storage space for serving cart, trash can, recycle bins, etc.
- Permits sitting on a stool to work at the sink or cooktop.
### CHARACTERISTICS

- **Variable height (28” - 42”) work surfaces such as countertops, sinks, and or cooktops.** May be mechanically adjustable in 2” increments or be electrically powered, through a continuous range.

  - Contrasting color border treatment on countertops.

- **Stretches of continuous countertops particularly between refrigerator, sink, and stove top.**

  - Adjustable height shelves in wall cabinets.
  - Full-extension, pull-out drawers, shelves and racks in base cabinets.

- **Full height pantry storage with easy access pull-out and/or adjustable height shelves.**

  - Front-mounted controls on all appliances.
  - Cooktop or range with staggered burners and front or side-mounted controls.
  - Glare-free task lighting to illuminate work areas without too much reflectivity.

  - Side-by-side refrigerator with pull out shelving.

- **Under counter or drawer type refrigerators installed on raised platforms.**

- **Built-in oven with knee space beside, set for one pull-out oven rack at the same height as adjacent countertop.**

  - Drop-in range with knee space beside, top set at 34” above finished floor.

### BENEFITS

- Allows tall people to work without excessive bending by bringing work closer to user.

- More usable by children, and shorter adults, so the whole family can help with meal preparation.

- Allows person to work while seated.

  - Provides built-in desk in kitchen.

  - Makes it easier to detect the edge of counters and reduces likelihood of spills.

  - Makes it easier to repair damaged edges without matching entire countertop.

  - Allows sliding of heavy items, and easy, one-level food flow.

- Easy reach to all storage space.

  - Easier to maneuver large items in and out of cabinets.

  - Makes storage at all heights reachable.

  - Provides maximum storage capacity.

  - Facilitates easy reach.

  - Eliminates dangerous reaching over hot burners reducing the chance of burns and spills.

  - Allows easy reach of otherwise hard-to-get items.

  - Provides optimum access to storage space between 18” and 48” high.

  - Transfer dishes from oven to counter without lifting or reaching.
<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>BENEFITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Dishwasher raised on a platform or drawer unit, so top rack is level with adjacent countertop.</td>
<td>Places racks within easy reach requiring less bending.</td>
</tr>
<tr>
<td>o Single-lever water controls at all plumbing fixtures and faucets.</td>
<td>Easier to adjust water temperature and volume. Can operate with a single hand or elbow. Single-lever controls with fewer parts are less costly to repair, maintain and clean.</td>
</tr>
</tbody>
</table>

**Laundry Areas**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Front-loading washers and dryers, with front controls, raised on platforms.</td>
<td>Reduces the need to bend, stoop, or lean over to reach clothes.</td>
</tr>
<tr>
<td>✖ Laundry sink and countertop surface no more than 34” above finished floor with knee space below.</td>
<td>Easier to access appliances from seated position.</td>
</tr>
<tr>
<td>✖ Clear floor space 36” wide across full width in front of washer and dryer and extending at least 18” beyond right and left sides. (Extended space can be part of knee space under counter tops, sink, etc.)</td>
<td></td>
</tr>
</tbody>
</table>

**Storage**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>✖ 50% of all storage should be less than 54” high.</td>
<td>More flexible storage space.</td>
</tr>
<tr>
<td>o Adjustable height closet rods and shelves.</td>
<td>Increased storage space if using double closet rod.</td>
</tr>
<tr>
<td>o Power operated clothing carousels.</td>
<td>Accommodates height and reach of specific users, including children.</td>
</tr>
<tr>
<td>o Motorized cabinets that raise and lower.</td>
<td></td>
</tr>
</tbody>
</table>
### CHARACTERISTICS

#### Garages And Carports
- Power operated overhead doors.
- **X** 8’ minimum door height or alternate on-site parking for tall vehicles.
- **X** Extra length and width around cars.
- **X** Sloping garage floor (with through-the-wall vents at bottom of slope to release fumes) in lieu of stepped entrance with ramp from garage to house interior.
- Avoid ramps in garages.

#### Decks
- **X** Build deck at same level as house floor.
- **X** Keep deck clear of the house and use slatted decking for positive drainage.

#### Hardware
- Lever door handles
- Push plates
- Loop handle pulls on drawers and cabinet doors—no knobs
- Touch latches
- Magnetic latches in lieu of mechanical locks

#### Home Automation
- Motion detector light switches in garages, utility spaces, entrances, and basements.
- Remote controls for selected lights.
- Remote controls for heating and cooling.
- Doorbell intercoms that connect to portable telephones.
- Audible and visual alarms for doorbell, baby monitor, smoke detectors, etc.

### BENEFITS

- Improved circulation and access to parked cars.
- Easy to operate with elbow or knee if hands are full.
- Requires little or no strength or twisting.
- Alarms noticable even if person is unable to hear because of other noise or hearing loss.
### CHARACTERISTICS

#### Light and Color
- Color contrast between floor surfaces and trim. Avoid glossy surfaces.
- Color contrast difference between stair treads and risers.
- Emphasize lighting at stairs, entrances and task lighting.
- Ambient, focused, and variable lighting.
- Contrast between countertops and front edges or cabinet faces.

#### Switches and Controls
- Light switches 44" - 48" high, and thermostats 48" maximum height.
- Easy-touch rocker or hands free switches. (See Home Automation.)
- Electrical outlets at beds and desks, four-plex boxes each side for computer and electronic equipment as well as personal use equipment.
- Electrical outlets, 18" minimum height.

*Electrical panel with top no more than 54" above floor located with a minimum 30" x 48" clear floor space in front.*

### BENEFITS

- Allows easy recognition of the junction of floor surfaces and walls.
- Allows adjustment to suit demands of task.
- Easier to reach with hands full (e.g. with elbow). More accessible to children.
- Easier to reach without bending and from seated position.
- Users are less likely to unplug appliances by pulling on cord.
### CHARACTERISTICS

#### Windows

- Windows for viewing, 36" maximum sill height.
- Use casement, awning, hopper, or jalousie style windows.
  - Use crank operated style and power operators whenever possible.

#### Sliding Doors

- Exterior sliding doors: drop frame and threshold into subfloor to reduce height of track, or ramp the finished floor to top of track.
- Interior pocket doors: when fully open door should extend 2" minimum outside doorjamb and be equipped with open-loop handles for easy gripping.
- By passing closet doors: each panel should create an opening at least 32" clear.

### BENEFITS

Can look out from seated position.
Longer length windows add more natural light and elegance to rooms.
Reduce reaching to open, close, and lock windows.
UNIVERSAL PRODUCT CHARACTERISTICS

The Universal Design Product Characteristics below lists features to consider when selecting home architectural products, appliances and fixtures. Our goal is to promote the selection and use of products that are well designed, attractive, and have easy-to-use features that result in a convenient, comfortable and safe home environment for people of all ages and abilities.

Some features may work well for some needs but may be a problem for others. For example, smooth stovetops help many with hand or arm limitations cook more easily and safely by allowing for the sliding of pots on and off the heat element. However, smooth tops may provide insufficient visual cueing for those with vision problems. Few products will have all the features listed. Use this list to select features that best meet individual needs.

<table>
<thead>
<tr>
<th>CONTROLS</th>
<th>DISPLAY / LABELS</th>
<th>OTHER FEATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microwave Oven</td>
<td><strong>High contrast graphics (white on black)</strong></td>
<td>Microwave/convection combination</td>
</tr>
<tr>
<td>Raised, cupped or otherwise detectable by touch</td>
<td>1/4&quot; or larger lettering</td>
<td>No lip at front edge</td>
</tr>
<tr>
<td>Easily programmable settings</td>
<td>Redundant signals, visual and audible alarms</td>
<td>Lighted interior</td>
</tr>
<tr>
<td>Can be used with low effort and with minimum finger use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal programming required</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ranges

<table>
<thead>
<tr>
<th>FRONT OR SIDE MOUNTED</th>
<th>DISPLAY / LABELS</th>
<th>OTHER FEATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ramped, cupped or otherwise detectable by touch</td>
<td><strong>High contrast graphics (white on black)</strong></td>
<td>Off set burners</td>
</tr>
<tr>
<td>Can be used with low effort and with minimum finger use</td>
<td>1/4&quot; or larger lettering</td>
<td>Smooth cook top</td>
</tr>
<tr>
<td>Clear relationship to function (how it works and what it operates)</td>
<td>Redundant signals, visual and audible alarms</td>
<td>&quot;Cool&quot; cook top burners</td>
</tr>
</tbody>
</table>

Stovetops

<table>
<thead>
<tr>
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</tr>
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<tr>
<td>Ramped, cupped or otherwise detectable by touch</td>
<td><strong>High contrast graphics (white on black)</strong></td>
<td>Off set burners</td>
</tr>
<tr>
<td>Can be used with low effort and with minimum finger use</td>
<td>1/4&quot; or larger lettering</td>
<td>Smooth cook top</td>
</tr>
<tr>
<td>Clear relationship to function (how it works and what it operates)</td>
<td>Color contrast with counter</td>
<td>&quot;Cool&quot; cook top burners</td>
</tr>
<tr>
<td></td>
<td>Redundant signals, visual and audible alarms</td>
<td></td>
</tr>
</tbody>
</table>

Wall Ovens

<table>
<thead>
<tr>
<th>DISPLAY / LABELS</th>
<th>OTHER FEATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can be used with low effort and with minimum finger use</td>
<td><strong>Large size lettering (1/4&quot; high)</strong></td>
</tr>
<tr>
<td>Clear relationship to function (how it works and what it operates)</td>
<td>High contrast graphics (white on black)</td>
</tr>
<tr>
<td></td>
<td>Redundant signals, visual and audible alarms</td>
</tr>
<tr>
<td></td>
<td>Side hinged door</td>
</tr>
<tr>
<td></td>
<td>Mount so one rack is level with adjacent counter</td>
</tr>
</tbody>
</table>
### Universal Product Characteristics

<table>
<thead>
<tr>
<th>CONTROLS</th>
<th>DISPLAY / LABELS</th>
<th>OTHER FEATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Refrigerator</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Handles that can be used with low effort and with minimum finger use</td>
<td>• 1/4” or larger lettering</td>
<td>• Easy adjustable shelves</td>
</tr>
<tr>
<td>• Full height handles</td>
<td>• High contrast graphics (white on black)</td>
<td>• Side-by-side or freezer-under style</td>
</tr>
<tr>
<td>• Reachable interior controls</td>
<td>• Interior lights place to illuminate objects from the front</td>
<td>• Pull out shelves or adjustable shelves</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 180° Opening doors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Under counter drawer type units</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Beverage dispenser</td>
</tr>
<tr>
<td><strong>Dishwasher</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Raised, cupped or otherwise detectable by touch</td>
<td>• High contrast graphics (white on black)</td>
<td>• Under counter drawer type unit</td>
</tr>
<tr>
<td>• Can be used with low effort and with minimum finger use</td>
<td>• 1/4” or larger lettering</td>
<td>• Height adjustable racks</td>
</tr>
<tr>
<td>• Minimal programming required</td>
<td>• Redundant signals, visual &amp; audible alarms</td>
<td>• Raised 6” or more for easy access</td>
</tr>
<tr>
<td>• Clear relationship to function (how it works and what it operates)</td>
<td>• Interior lights</td>
<td></td>
</tr>
<tr>
<td><strong>Clothes Washer</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Front mounted controls</td>
<td>• High contrast graphics (white on black)</td>
<td>• Smaller sizes can be easier to reach into</td>
</tr>
<tr>
<td>• Raised, cupped or otherwise detectable by touch</td>
<td>• 1/4” or larger lettering</td>
<td>• Front loading</td>
</tr>
<tr>
<td>• Can be used with low effort and with minimum finger use</td>
<td>• Redundant signals, visual &amp; audible alarms</td>
<td>• Minimal programming</td>
</tr>
<tr>
<td>• Clear relationship to function (how it works and what it operates)</td>
<td>• Interior lights</td>
<td>• Side hinged</td>
</tr>
<tr>
<td><strong>Clothes Dryer</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Front mounted controls</td>
<td>• High contrast graphics (white on black)</td>
<td>• Front detergent loading</td>
</tr>
<tr>
<td>• Raised, cupped or otherwise detectable by touch</td>
<td>• 1/4” or larger lettering</td>
<td>• Raised 6” or more for easy access</td>
</tr>
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<td>• Can be used with low effort and with minimum finger use</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>• Interior lights</td>
<td></td>
</tr>
<tr>
<td><strong>Kitchen Cabinets (base cabinets)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Loop or touch latch hardware</td>
<td>• Interior lights</td>
<td>• Pull-out shelves/pantry</td>
</tr>
<tr>
<td>• Smooth operating, full extension slides on drawers and pull-out shelving</td>
<td>• Intermittent glass doors</td>
<td>• Pull-out cutting boards</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Lazy Susan in corners</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 9” toe space option</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Base cabinet heights from 27 1/2” to 40 1/2”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Formaldehyde-free construction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Open storage racks</td>
</tr>
</tbody>
</table>
## Universal Product Characteristics

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<tr>
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</tr>
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<tbody>
<tr>
<td><strong>Kitchen Cabinets (Upper cabinets)</strong></td>
<td>• Glass doors on wall cabinets&lt;br&gt; • Interior lights</td>
<td>• Formaldehyde-free construction&lt;br&gt; • Pull down shelving or adjustable height installation&lt;br&gt; • Open storage racks</td>
</tr>
<tr>
<td><strong>Kitchen Sinks</strong></td>
<td>• Color contrast with counter</td>
<td>• Shallow 6 1/2 - 7 1/2”&lt;br&gt; • Rear mounted drain&lt;br&gt; • Disposal or two-basin sink</td>
</tr>
<tr>
<td><strong>Bathroom Sinks</strong></td>
<td>• Color contrast with counter</td>
<td>• Shallow 6 1/2 - 7 1/2”&lt;br&gt; • Rear mounted drain</td>
</tr>
<tr>
<td><strong>Faucets</strong></td>
<td>• Easy to distinguish hot from cold with letters and color&lt;br&gt; • Color contrasting handles</td>
<td>• Built-in spray or pull out spray</td>
</tr>
<tr>
<td><strong>Grab Bars</strong></td>
<td>• Non-slip surface&lt;br&gt; • Comfortable diameter for user</td>
<td>• 1/4 - 1 1/2” diameter&lt;br&gt; • Available in many colors&lt;br&gt; • Maximum 1 1/2” gap between wall and bar</td>
</tr>
<tr>
<td><strong>Toilets</strong></td>
<td>N/A</td>
<td>• 17” - 19” seat height option&lt;br&gt; • Elongated bowl&lt;br&gt; • Bidet features&lt;br&gt; • 18” to center of bowl from nearest sideline</td>
</tr>
<tr>
<td><strong>Shower/Tub Mix Valves</strong></td>
<td>• Easy to distinguish hot from cold with letters and color&lt;br&gt; • Temperature display</td>
<td>• Anti-Scald features&lt;br&gt; • Pressure balanced&lt;br&gt; • Pre-set temperature settings&lt;br&gt; • 69” minimum hand shower hose length</td>
</tr>
</tbody>
</table>
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<th>DISPLAY / LABELS</th>
<th>OTHER FEATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Home Automation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Remote control</td>
<td>• High contrast graphics (white on black)</td>
<td>• Remote sensing</td>
</tr>
<tr>
<td>• Large button hand held unit</td>
<td>• 1/4” or larger lettering</td>
<td>• Computer, TV or phone access</td>
</tr>
<tr>
<td>• Easy to set relationship between transmitter and receiver</td>
<td>• Redundant signals, visual and audible alarms</td>
<td>• Voice activation</td>
</tr>
<tr>
<td>• Limited number of buttons</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Closet</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Lighted rocker switch outside of door or door activated switch</td>
<td>• Interior lights mounted to illuminate contents from behind user</td>
<td>• Lighted closet interior</td>
</tr>
<tr>
<td>• Loop or lever handles</td>
<td></td>
<td>• Adjustable height closet rod or rods mounted at two heights</td>
</tr>
<tr>
<td>• Fold back door hinge hardware</td>
<td></td>
<td>• Adjustable closet shelving/rod system</td>
</tr>
<tr>
<td>• Door jamb switch</td>
<td></td>
<td>• Recessed floor track</td>
</tr>
<tr>
<td>• Lit Switch</td>
<td></td>
<td>• Walk in capability</td>
</tr>
<tr>
<td><strong>Door Handles</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Lever type 5” long</td>
<td>N/A</td>
<td>• Smooth edges</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Lever handle turns back to door</td>
</tr>
<tr>
<td><strong>Windows</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Can be opened with one hand, closed fist</td>
<td>• Hardware color contrasting with casement</td>
<td>• Can be fitted with power opener</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Casement/awning type</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Locks and cranks no higher than 44”</td>
</tr>
<tr>
<td><strong>Doors Lockset</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Large deadbolt handle</td>
<td>• Easy to see, night lit</td>
<td>• Remote electrical operation</td>
</tr>
<tr>
<td>• Easy to turn</td>
<td>• “Locked” indicator</td>
<td></td>
</tr>
<tr>
<td>• Mortise style (integral latch and lock)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Lever handle</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Light Switches</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Rocker panel or touch controls allow low-effort use</td>
<td>• Color contrast with wall</td>
<td>• Glow-in-the-dark or lighted for night use</td>
</tr>
<tr>
<td>• Mounted between 44” to 48”</td>
<td></td>
<td>• Motion detecting features increase safety</td>
</tr>
<tr>
<td><strong>Lifts or Elevator</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Controls on both sides of cab</td>
<td>• High contrast lettering</td>
<td>• At least 32” X 48” interior floor space</td>
</tr>
<tr>
<td>• Controls no higher than 44”</td>
<td>• Redundant signals - visual and audible cues</td>
<td>• Automatic opening doors</td>
</tr>
<tr>
<td>• Can be used with low effort and with minimum finger use</td>
<td>• Raised or Braille lettering</td>
<td>• Backup power source</td>
</tr>
<tr>
<td>• Raised, cupped or otherwise detectable by touch</td>
<td></td>
<td>• Emergency phone system</td>
</tr>
</tbody>
</table>
This selected list of Web sites will help you find information on topics related to universal design and accessibility as related to housing.

**Floor Plans & Home Design**
- **AARP Home Design**
  [http://www.aarp.org/families/home_design/](http://www.aarp.org/families/home_design/)
- **Architectural Designs**
- **B 4 You Build**
- **Charles Schwab Universal Design Smart Homes**
  [http://www.universaldesignonline.com](http://www.universaldesignonline.com)
- **Design Basics**
  [http://www.designbasics.com](http://www.designbasics.com)
- **Housing Zone**
  [http://www.housingzone.com](http://www.housingzone.com)
- **Southern Living-House Plans**
  [http://www.slhouseplans.com](http://www.slhouseplans.com)
- **Universal Design .com**
  [http://www.universaldesign.com](http://www.universaldesign.com)

**Housing Checklists**
- **AARP Housing Checklists**
  [http://www.aarp.org/families/home_design/rate_home/](http://www.aarp.org/families/home_design/rate_home/)
- **Canadian Safety Council, Home Adaptation Checklist**
- **Kansas State University, Creating Accessible Homes**

**Manufactured/Affordable Housing**
- **Affordable Comfort**
- **Affordable Housing Design Advisor**
- **Cardinal Homes**

**Manufactured / Affordable housing Cont:**
- **Dept. of Housing and Urban Development-Manufactured Housing**
- **Excel Homes**
- **Habitat for Humanity International**
  [http://www.habitat.org](http://www.habitat.org)
- **Housing Assistance Council**
  [http://www.ruralhome.org](http://www.ruralhome.org)
- **Fleetwood Homes**
  [http://www.fleetwoodhomes.com](http://www.fleetwoodhomes.com)
- **Journal of Manufactured Housing**
  [http://www.journalmfdhousing.com](http://www.journalmfdhousing.com)
- **The Homestore**
- **Manufactured Housing Institute**
  [http://www.manufacturedhousing.org/default.aspx](http://www.manufacturedhousing.org/default.aspx)
- **Mod-U-Kraf**
  [http://www.mod-ukraf.com](http://www.mod-ukraf.com)
- **National Affordable Housing Network**
  [http://www.nahn.com](http://www.nahn.com)
- **Rebuilding Together**
  [http://www.rebuildingtogether.org](http://www.rebuildingtogether.org)

**Manufactured/Affordable Housing Cont:**
- **Advanced Design Institute**
  [http://www.advanceddesign.org](http://www.advanceddesign.org)
- **American Institutes of Architects**
  [http://www.aia.org/index.htm](http://www.aia.org/index.htm)
- **American Society of Interior Designers**
  [http://www.asid.org](http://www.asid.org)
- **HomeSight**
  [http://www.homesight.org](http://www.homesight.org)
Organizations Cont:

National Association of Home Builders
http://www.nahb.com
National Association of the Remodeling Industry
http://www.nari.org
National Kitchen and Bath Association
http://www nkba.org
Project Action
http://projectaction.easterseals.com

Research
The Aware Home
http://awarehome.imtc.gatech.edu
Center for the Built Environment
http://www.cbe.berkeley.edu
MIT Age Lab
http://agelab.mit.edu
NAHB Research Center

UD & Home Modifications
Institute for Human Centered Design
http://www.adaptenv.org
Center for Inclusive Design and Environmental Access
http://www.ap.buffalo.edu/idea
Concrete Change -- Visitability
http://www.concretechange.org
Nat. Research Center on Supportive Housing & Home Modifications
http://www.homemods.org
Remodeling Online
http://www.remodeling.hw.net
Whole Building Design Guide
http://www.wbdg.org