

Universal Design Offers Something For Everyone

1

Gateway to Universal Design is an accessible route from the street into the house, useful for wagons, tricycles, strollers, dollies, wheeled suitcases, wheelchairs and motorized scooters.

Builder: Charleston Homes, Hyattsville, Md.

2

Wheelchair Ramp and Entry. Area inside U-shaped ramp is a sheltered garden. Ramp railings, capped in vinyl for low maintenance, match white trim on house. Stairs are also provided for people who have difficulty walking up or down slopes. Note that there is no step at the entrance door.

3

No step at exterior deck. Having the deck level with the interior floor allows use by a person in a wheelchair and is convenient for all. The rocker is for the two-year-old grandson.

4

Kitchen. Space for a parallel wheelchair approach is provided at the sink and appliances. The sink cabinet is long enough for a wheelchair user to sit beside, turn to rinse dishes in the sink, and load the dishwasher in front of the chair. Work space for seated persons is provided at a table (moved for the photo). The bar can be moved for additional aisle space in front of the range. Low-pile carpet makes wheelchair movement easier. Drawer cabinets, corner lazy Susan cabinet and large pantry (not shown) provide more accessible space for wheelchair users. A side-by-side refrigerator-freezer would provide greater accessibility to the freezer than the one shown. Electrical receptacles and switches are within reach for wheelchair users.

5

Bedroom. The main floor bedroom has a door and aisles around the bed three feet wide. Bypass closet doors do not encroach on the aisle.

6

Bathroom. The bathroom is part of an accessible bedroom suite on the main level. The bathroom has a 36-inch wide door with a lever knob and a 60-inch circular turning space for a wheelchair. Stepping stools provide access for a two-year-old grandson. Grab bars and the raised toilet assist wheelchair users. The pedestal sink is wheelchair accessible using an angled approach. Removable armrests on the toilet, like arms on many chairs in the house, assist older persons in standing up.

7

Shower. The shower is 36 inches by 60 inches. The space could be converted to a bathtub or roll-in shower. The 36-inch wide door allows a sideways transfer from a wheelchair onto the movable shower seat. Grab bars are useful in making the transfer and are helpful to anyone taking a shower. The hand-held shower is useful to all.



Universal Design Features

CHECKLIST

n Good lighting. Good overall lighting improves usability everywhere for persons with vision impairments. Outside, lighting increases nighttime security. Good lighting at stairs increases contrast between treads and risers.

n Routes for wheels. Low slope driveway (max. 5% slope) and entry walk with no steps, and level interior routes 36 inches wide with no steps.

n Ramp to the front door. Ramp should be no steeper than 1-inch rise in 1-foot run. Railings are needed on both sides, and a 5-foot square level landing is needed where the ramp turns a corner. Another ramp inside the attached garage is useful, especially in bad weather.

n Slab-on-grade foundations reduce ramp lengths because they usually have no steps on the main level and only one step at the entrance. With slab-on-grade construction, plan extra space on the main level for storage, furnace, water heater and spare rooms.

n An entry porch and exterior deck should be no more than 1/2 inch below the interior floor. Slope the porch floor and provide a roof to shelter guests and keep water away from the house.

n Railings. Install along open sides of porches.

n Patio. Install ramp from the interior.

n Doors. Entry door 36 inches wide and accessible interior doors 34 inches or 36 inches wide. Lever knobs.

n Dual peepholes with one 42-48 inches high.

n Intercom system. Install between rooms and to the front door. Volume controls are helpful to people with hearing impairments.

n Thresholds no more than 3/4 inch high (preferably 1/2 inch) on exterior doors. Install beveled strip (1:2) at bottom door track of sliding glass doors.

n Higher garage doors accommodate raised vans owned by many people today.

n Floors. Surfaces with low-pile carpeting, wood, vinyl, etc., which do not impede movement of wheels. Level surfaces also assist persons with balance or mobility impairments.

Kitchen:

n 30-inch x 48-inch floor space that allows a parallel approach by a person in a wheelchair at the range or cook top and sink, and either a parallel or forward approach to the oven, dishwasher, refrigerator/freezer or trash compactor.

n 40-inch wide aisle between

all cabinets, counters and appliances, and a 60-inch circular turning space in U-shaped kitchens.

n A shallow pantry closet with wheelchair access and a 30-inch wide, 34-inch high counter desk are useful, as are lazy susan corner cabinets, drawer cabinets, pull-out shelves in base cabinets and pull-down shelves in wall cabinets.

n Side-by-side refrigerator-freezer doors provide easier access to the freezer, especially for children and wheelchair users.

n Desk area — countertop 30 inches wide and table height 28 inches to 32 inches high. Work area for seated adults, children.

n Guest room on main level. Plan a 3-foot-wide aisle around the bed and at the closet. Bypass closet doors (each a minimum 32 inches wide) may be preferable because they do not intrude into the aisle. High-low closet rods are within reach of children and wheelchair users and provide more intensive space for storing shirts, slacks and jackets.

Bathroom:

n Space to close the door, use the fixtures and preferably, to turn a wheelchair around ("T-turn" or 60-inch diameter circle).

n Grab bars around shower and/or bathtub, and behind and beside toilet.

n Raised toilet with removable armrests provides assistance in standing.

n Wall-mounted sink, pedestal sink centered on a 30-inch x 48-inch floor space or a 4-foot long vanity with the bowl centered and the top no more than 34 inches high. Use faucets with lever knobs.

n Bottom of mirror 40 inches above floor.

n A 30-inch-wide aisle beside the bathtub can include a wall-mounted sink beside the tub. A toilet beside the tub is less wheelchair accessible.

n 30-inch x 48-inch floor space in front of shower.

n 36-inch x 36-inch shower with seat and hand-held spray. With a larger shower, use a portable seat.

n Electrical receptacles, thermostats and other controls installed 15 inches to 48 inches above floor.

n Laundry. Provide 30-inch x 48-inch clear floor space centered in front of washer and dryer and parallel to wall behind them. Also consider front-loading washer and controls for people using wheelchairs.

Universal Design Features Increase Usability for Everyone

By the year 2030, one third of Americans will be retired. And many of them will have to leave their homes because they no longer serve their needs.

Universal designs that will meet the needs of most buyers throughout their lifetime — homes designed for aging in place — can help alleviate this problem. Many of these homes eliminate steps and provide master bedroom suites and accessible bathrooms on the first floor. Builders are finding that even younger buyers are looking for homes with accessible first floor suites for older relatives and weekend guests — rooms that can also serve as suites for older parents who come to live with them in the future. Buyers also want to make their homes more hospitable for visitors who use wheelchairs.

"I find that more people today

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are asking for first floor bedroom suites and wheelchair accessibility," says Michael Ruehr, president of Charleston Homes in Hyattsville, Md., and builder of the home featured on the opposite page. "The couple I built this house for were working empty-nesters who had elderly parents and some friends who use wheelchairs. That's why they wanted the ramp and accessible suite. But the

accessibility features in this house can be used by everyone."

Universal design features increase usability for everyone — young and old, with and without disabilities. For instance, such features as curb cuts, ramps, low thresholds at doors and low-pile carpet make moving a wheelchair easier, but also are advantageous for children riding tricycles, parents pushing strollers, older people using motorized scooters, movers wheeling dollies and hand-carts and travelers pulling heavy suitcases in and out of homes.

Careful universal design can make homes more usable and more marketable for all home buyers.

On the exterior of homes, low sloping walks and ramps and low thresholds at doorways make entering the house easier for everyone. Inside the house, walkways three feet (Continued on page 13)

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Universal Design Features Are Usable by Everyone

(Continued from page 11) wide and 34- or 36-inch wide doors help occupants carry loads and move furniture, as well as providing convenient routes for people using wheelchairs and walkers.

Decks and porches that are 1/2-inch or less below the interior floor level provide a convenient threshold for things on wheels. Railings installed along

open sides of decks and porches offer stability and assistance for all people, including those with balance or mobility limitations.

Light switches, receptacles and other controls can be reached more easily by children, standing adults and wheelchair users if they are placed between 15 and 48 inches above the floor. Lever knobs on doors are easier to turn, especially when carrying an armload of groceries. Dual peepholes, with one at 42-48 inches high, improve security for children and wheelchair users alike.

Good overall lighting is beneficial for persons with impaired vision, and outside lighting improves nighttime security. Lighting at stairs increases the contrast between treads and risers.

Intercom systems can save steps and make communication easier for everyone. Volume controls are helpful to people with hearing impairments.

In bathrooms, grab bars around tubs and showers are helpful for all bathers when climbing into a tub, sitting down and standing up, or steadying oneself in a shower. Around a toilet, bars are also helpful, especially to older people and wheelchair users. Raised toilets with removable armrests can also provide assistance in standing.

Hand-held shower sprays are convenient for showering small children and for people who sit while showering and can be easily turned away if the water is too hot. Lower mirrors can be used more easily by children, as well as by people in wheelchairs.

Sink counters with space beneath them can double as dressing tables for putting on makeup. A 48-inch long vanity with a bowl centered in it can be used by anyone and is essential for wheelchair users, unless knee space is available under the sink.

Extra floor space in bathrooms is more convenient for drying off and when sharing a bathroom with another person. Turning space is also a great convenience for those using wheelchairs.

In the kitchen, refrigerators with side-by-side doors make freezer space more accessible for children, people of different heights and those using wheelchairs. For the same reason, pantries provide usable shelves for everyone. Drawer cabinets and lazy susan corner cabinets provide extra accessibility for wheelchair users. Pull-out shelves in base cabinets and pull-down shelves in wall cabinets reduce bending and stretching, which is especially important for people with limited shoulder mobility.

A section of counter 30 inches wide and lowered to table height — 28 to 32 inches high — and with no cabinet beneath it, can be used as a desk, computer workstation or food preparation area by anyone seated in a chair or wheel-

chair, and by children who cannot reach the countertop.

In most homes, the kitchen sink is adjacent to the dishwasher. However, if the sink is in a 30-inch cabinet with a 10-inch corner cabinet beside it (or a 36-inch sink cabinet with a 4-inch filler beside it), the 40-inch total space also allows wheelchair users to rinse dishes in the sink and load them into the dishwasher in front of them.

Three-foot-wide aisles are convenient, but a five-foot aisle in

front of a range lets people pass more easily when the oven door is open and also allows wheelchair users to more easily use the oven.

In bedrooms, space for the bed with a three-foot wide aisle around it is convenient for all. By-pass closet doors (each door at least 32 inches wide) may be preferable because they do not intrude on space for walking or operating a wheelchair. Double closet poles 36 and 72 inches high in a portion of the closet are more reachable by children and

wheelchair users, and allow more storage space for shirts and slacks. Adding a 34-inch or 36-inch-wide door to the bedroom allows convenient entry by people who are using wheelchairs and walkers.

These are some of the universal design features that are usable by all. For other ideas, consult the resources listed at left. For further information, contact Dick Morris, senior advisor in the NAHB Construction Standards Department at 1-800-368-5242, ext. 444.

RESOURCES

n The new publication, "The ICC Code Requirements for Housing Accessibility 2000" (CRHA) prepared by NAHB, the U.S. Department of Housing and Urban Development (HUD) and the International Code Council contains numerous design features usable by all homebuyers that may give a marketing edge to builders. HUD approved the code as a safe harbor for apartment builders seeking to comply with the federal Fair Housing Accessibility Act of 1992. Obtain from ICC at address below.

n ICC A117.1-1998, "Accessible and Usable Buildings and Facilities," International Code Council, Inc. (ICC), 5203 Leesburg Pike, Ste. 708, Falls Church, VA 22041, 703-931-4533.

n "Designs for a Lifetime, the Expanding Appeal of Universal Design," National Council on Seniors' Housing (NCOSH), National Association of Home Builders Bookstore, 800-223-2665.

n "Fair Housing Act Design Manual," HUD Customer Service Center, 1-800-767-7468. 300 pages. No charge.

n "Accessible Home Design, Architectural Solutions for the Wheelchair User," Paralyzed Veterans of America, 1-888-860-7244.

n National Kitchen and Bath Association, 687 Willow Grove St., Hackettstown, NJ 07840, (908) 852-0033, <http://www.nkba.org>;

— "Universal Kitchen Planning: Design That Adapts to People."

— "Universal Bathroom Planning: Design That Adapts to People."

— "Universal Interior by Design: Gracious Spaces."

n Publications of Center for Universal Design <http://www.design.ncsu.edu:8120/cud/>.

n NAHB Research Center, 400 Prince George's Blvd., Upper Marlboro, MD 20774-8731, 1-800-638-8556;

— "Directory of Accessible Building Products" (annual).

— "Retrofitting Homes for a Lifetime."

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