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*This is one of a series of informational brochures to assist in identifying accessible residential design options and is not intended to serve as a substitute for professional design services.*

# INTRODUCTION

## **The Demographics of Disability**

One of the significant demographic trends in the United States during the past two decades has been the increase in percentage of individuals with disabilities.

The 2000 Census reported that 20 percent of the American population has a disability in some form. A major reason for this upward trend in disabilities is the increasing number of seniors in society.

- The 2000 Census reported that 12 percent of all Americans were over the age of 65.
- It is projected that, by 2030, that 25 percent of all Americans will be over the age of 65.
- The 2000 Census also reported that 42 percent of all seniors, 65 and over, had some form of disability.
- Of these, approximately 28 percent reported having a physical disability.

Many of these disabilities make it difficult for a person to perform life activities in traditionally designed residential settings. The difficulties include managing stairs, walking long distances, reaching, bending or bathing.

## **Accessible Design**

Accessible design means designing homes so that individuals with or without disabilities can use them more effectively.

AARP and other surveys report that older homeowners overwhelmingly prefer to age in place.

To support aging in place, residences must be constructed or remodeled to increase access and maneuverability.

Accessible residential design components can assist people with vision, hearing, mobility, cognitive and other challenges in their efforts to remain in the housing circumstances of their choice.

## **Adapting Accessible Design to Your Requirements**

When installed during new construction or remodels, most accessible design components require little additional installation expense.

Many accessible design components are adaptable to existing structures and can be added or removed to address the needs of specific users.

Many products that assist accessibility are designed to blend with their surroundings.

## **Information Resources**

This brochure is offered to increase awareness of accessibility options for design or remodel of a residence. It includes the following components:

- Room-by room checklists of accessibility considerations for designing new homes, remodeling existing homes, and adapting homes to sudden-onset disabling conditions.
- A directory of websites that provide greater scope and depth of information regarding accessible residential design.

## **DESIGN ESSENTIALS**

*(Adapted from Practical Guide to Universal Home Design, published by Iowa Program for Assistive Technology, January 2004.)*

## **SITE PLANNING AND LANDSCAPING**

- Main floor at ground level with no steps or ramps needed to enter. At a minimum, one entrance should be at ground level.
- Maintenance-free exterior and trim.
- Walkway from the point that a vehicle is exited to a barrier-free entrance.
- Level walkways with little or no slope. Any slope should be very gradual - no more than 1 inch of rise per 20 inches of walkway.
- Trees, shrubs and plants that require little maintenance (raking, pruning, watering, etc.).
- All walkways at least 36 inches wide.

## **GENERAL FLOOR PLAN**

Kitchen, bath, laundry and at least one sleeping room (no smaller than 12 feet by 12 feet) on the main floor.

The sleeping room can be used for different purposes at different times, i.e., den, office, playroom.

- Open floor plan (avoid long, narrow hallways); consider large open areas without sharp boundaries between rooms, i.e. kitchen/dining/family room area.

## **LIVING AND DINING AREAS**

- Large enough to accommodate normal furnishings and allow easy maneuvering around them.
- Easy passage from kitchen to dining area.
- Hard floor surfaces are recommended. Plush carpeting is to be avoided.
- Avoid changes in floor levels or floor materials (such as vinyl to carpet) to prevent tripping while carrying food and drink.

## **ENTRANCE**

- Door at least 36 inches wide to allow for a 34-inch clear opening when the door is opened at a right angle.
- No split-level entry.
- Porch floor, stoop or landing at the same level as the floor inside the home (no step up or down to enter home).
- Door locks that are easy to operate, such as keyless locks with a remote control or keypad. Lever-style door handles (not round doorknobs).
- Peepholes at heights for adults, children and people using a wheel chair; or sidelights (tall,

narrow window along one or both sides of the door).

- Good lighting both inside and outside the entrance.
- No raised threshold - much easier for strollers, wheelchairs, walkers, rolling luggage, etc., and reduces the risk of tripping.
- A roof, canopy or awning to protect the entrance from rain and snow (essential when you have no raised threshold under the door).
- Ample landing space both outside and inside the entry door (5 feet by 5 feet for the outside landing). The outside landing should be set off to the side (on the handle edge of the door) to be out of the way of the door swing.
- Front entrance table on which items can be placed during transitions.

## **KITCHEN**

- Enough clear counter space to set down dishes next to all appliances and cupboards.
- Plenty of open floor space to maneuver around the kitchen.
- Anti-scald faucet with a single lever (not two knobs or two handles to turn on and off).

- Counters and other work surfaces at two or more different heights. The lower counter height should have an open space beneath to accommodate seated use.
- Rounded corners, not sharp edges, on counters.
- Open space under the sink to allow for a seated user (be sure to insulate pipes to avoid burns), with flooring material laid all the way to the wall under the sink.
- Raised platform under dishwasher to reduce bending and kneeling. Storage can be incorporated into the platform. Dishwasher height should be determined by the comfort levels of those who use it most, and by what makes sense in the kitchen work flow.
- Appliance controls that are easy to read, easy to reach and can be operated by persons with limited vision.
- Easy access to kitchen storage (pull-out shelves, lazy-Susans in corner cupboards, adjustable-height cupboards).
- Good task lighting over sink, stove and other work areas.

- Ovens should be accessible for seated use: with side-swinging doors and breadboards below to support items being taken from the oven.

## **BATHROOM**

- Door 36 inches wide to allow for a 34-inch clear opening when the door is open at a right angle.
- Ample floor space for maneuvering between bathroom fixtures. Allow at least 30 inches by 48 inches of clear floor space among the fixtures; 60 inches by 60 inches is ideal. (If your shower entrance has no raised threshold, the shower floor can provide part of the clear maneuvering space)
- Walk-in shower with little or no threshold or lip to step over - ideally no more than 1/2 inch and beveled to provide a tiny "ramp" rather than a tripping obstacle. Slope the shower floor a maximum of 1/8 inch per foot.
- Shower size minimum 40 x 40 inches. For roll-in shower and assistance by an attendant, allow 40 x 60 inches.
- Alternatively, design a bathroom closet that can be converted to a walk-in shower, or place the tub in such a way that it can later be replaced with a walk-in shower.

- ❑ Adjustable-height, handheld showerhead, with controls that are conveniently placed and easy to operate.
- ❑ Properly reinforced grab bars in the bath and shower, and at least reinforced walls to allow for grab bars near the toilet.
- ❑ Anti-scald faucet with a single-lever handle, for both the sink and the tub or shower.
- ❑ Extra electrical outlets near the bed (for medical equipment or rechargeable items, for example), placed 18 inches to 24 inches above the floor.
- ❑ Closet rods reachable from a seated or standing position, or adjustable-height rods.
- ❑ Brace ceiling in the event that a tracked ceiling lift will be needed.

## **CLOSETS AND STORAGE**

- ❑ Heights and layout easily accessible for all household members.
- ❑ Well-lit, with a switch located outside the storage area.
- ❑ Adjustable-height shelving and closet rods.

- ❑ Doors and handles that are easy to operate (avoid bi-fold or accordion-type doors).

## **GARAGE**

- ❑ Ample room for maneuvering strollers, lawn mowers,
- ❑ bicycles, wheelchairs, around vehicles. Provide at least a 3-foot clear path around and between all vehicles.
- ❑ Easy pathway from garage to home entrance (no steps to climb, all walks 36" wide).

## **DOORWAYS AND HALLWAYS**

- ❑ All doors 36 inches wide to allow for a 34-inch clear opening when the door is open.
- ❑ Wide, spacious hallways and doorways for moving furniture as well as for maneuvering a wheelchair or walker.
- ❑ Hallways widths of 42 inches are recommended: 36 inches minimum.
- ❑ Lever-type door handles (not round doorknobs).

## **FLOORS**

- ❑ Single level - no sunken floors or split-levels.

- ❑ No changes of level between rooms. If there must be a threshold between two different flooring surfaces, make it very low and beveled.
- ❑ If there must be a step up or down, mark it well with a highly visible, color-contrasting material at the edge.
- ❑ Non-slip flooring throughout the house, especially in the bathroom, kitchen and laundry.
- ❑ Carpeting that is sturdy, low-pile, and tightly woven (such as Berber style).
- ❑ Eliminate throw rugs to minimize the risk of tripping.

## **LAUNDRY**

Laundry area on main floor, near the bathroom and bedrooms (if laundry is in the basement initially, make provisions that would allow relocating it to the main floor - an easily adaptable space with electrical and plumbing connections).

- ❑ Good task lighting in the laundry work area.
- ❑ Appliance controls that are easy to reach and operate, ideally at the front of the appliance.

## **WINDOWS**

- Energy-efficient windows that are easy to open, close and lock and require little strength to use (crank handles are a good choice).
- Placement at a height that allows people to see outdoors while seated or standing - with window sills about 24 to 30 inches above the floor.

## **ELECTRICAL OUTLETS AND CONTROLS**

- Light switches placed about 36 inches to 40 inches above the floor.
- Large rocker-style switches that is easy to turn on and off.
- Electrical outlets placed about 18 inches to 24 inches above the floor, to minimize the need for bending down.
- Thermostat and other controls placed about 48 inches above the floor.
- Thermostat and control panels that are easy to read and simple to operate (check accessible equipment stores or web sites).
- Telephone, cable and modem jacks placed about 18 inches above the floor.
- Circuit breaker panel on the main floor and easy to access, perhaps in the laundry area.

## STAIRS

- ❑ Sturdy handrails on both sides of all stairways, whether inside or outside of the home. For round rails, the usual size is 1 1/4 to 1 1/2 inches in diameter.
- ❑ Stair treads deep enough for the entire foot - at least 8 inches, but 10 to 11 inches is better.
- ❑ Stair rise no higher than 7 inches from one step to the next; a smaller rise is even better.
- ❑ No carpeting on stairs, to reduce the risk of slipping. If carpeting is installed, use a tight weave and no padding.
- ❑ No open risers (open spaces between each step).
- ❑ Steps with no "nosing" (in other words, the tread should not extend out beyond the riser) to minimize the risk of tripping.
- ❑ All stairways well lit, with a light switch at the top and bottom (light switches about 36 inches to 40 inches above the floor).
- ❑ Anti-slip strips on front edges of steps, in color-contrast material.

## INTERNET RESOURCES

### **Iowa Program for Assistive Technology**

<http://iowaat.org>

#### *Practical Guide to Universal Home Design*

*This site is the primary source of the checklist items included in this brochure. The online version contains additional recommendations, diagrams and illustrations.*

### **American Association of Retired Persons**

[www.aarp.org/families/home\\_design](http://www.aarp.org/families/home_design)

*This site contains a home safety checklist along with strategies for designing conforming kitchens, baths and access routes.*

### **California Division of State Architect**

<http://www.dsa.dgs.ca.gov/Access/casp.htm>

*This site contains information on the Certified Accessible Design program for design professionals building officials, contractors and architects.*

### **Fair Housing Accessibility First**

[www.fairhousingfirst.org/training/materials.html](http://www.fairhousingfirst.org/training/materials.html)

*This site includes downloadable PowerPoint slides that*

*support presentations on accessible design*

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## **Able Data**

[www.abledata.com/abledata.cfm?pageid=19327](http://www.abledata.com/abledata.cfm?pageid=19327)

This website describes assistive technology products that support the design and implementation of accessible components. Scroll to *Environmental Adaptations* for the most relevant products.

*NOTE: The websites listed above are for general information only and do not constitute endorsements of programs or products.*