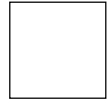


*designing and
remodeling your
home for*



**ACCESS,
USABILITY, AND
ADAPTABILITY**

This is one of a series of informational brochures to assist the public with issues of concern regarding design in Santa Cruz County. This is not intended to serve as a substitute for professional design services.

This brochure has been developed with the assistance and guidance of the County of Santa Cruz Commission on Disabilities.

County of Santa Cruz

**DESIGN
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INTRODUCTION



The Demographics of Disability

One of the significant demographic shifts in the United States in the past two years has been the increasing proportion of people with disabilities. The Census of 2000 indicates that approximately 20 percent of the American population has a disability of some nature.

This increase can be partially attributed to medical advances that allow people born with disabilities to live longer lives and that allow the victims of illness and accidents to continue living.

A second and more significant reason is the increasing number of seniors in society. The 2000 Census indicated that 12 percent of all Americans are over the age of 65. By 2030, this figure could be as high as 20 percent to 25 percent of the overall American population. This increase in the population of seniors is accompanied by an increase in the number of people with disabilities.

The Census of 2000 indicates that 41.9 percent of all seniors (those 65 and over) have some form of disability, with approximately 28 percent having a physical disability. Seniors who suffer a temporary disability due to an injury take longer to recover. It must be understood that having a physical disability does not necessarily mean being forced to use a wheelchair or power scooter. Many people with disabilities are ambulatory but have difficulties such as managing stairs, walking long distances, reaching, bending or bathing.

Accessible Design

According to the AARP, older homeowners overwhelmingly prefer to age in place, which means living at homes safely, independently and comfortably, regardless of age or level of ability. To permit aging in place, your house must be constructed or remodeled to increase access and maneuverability.

In recent years, the disability community has advocated for housing and services that address needs in the home, rather than in structured residential settings or institutions. Accessible design means designing homes so that individuals with or without disabilities can use them. This includes people with vision, hearing, mobility, cognitive and other impairments.

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INTRODUCTION



The Rationale of Accessible Design for All

Solutions that create no additional cost and no noticeable change in appearance can result from simple planning procedures and selection of available products. Wider, instead of narrower, doors can be substituted and flat thresholds can easily replace raised ones, aiding not just people with mobility problems but also the millions who struggle just to move their bulky pieces of furniture into new residences or offices each year.

The following, room by room checklist, can help you anticipate needs and consider your options for enhancing the flexibility and ease of your home.

Home Modification / Remodeling

Home modification, or changes to your home that can make it more comfortable, safer, and easier for daily activities can be a key factor in increasing the likelihood of staying independent, injury-free and active. Many times small, simple things can be done to make a home more comfortable. Start by conducting a home safety check. Set your priorities and remember, safety comes first.

In addition to fixed, universally designed features, designers may include adaptable elements. These can be easily and economically added or removed when needed for a specific user. Such flexible facilities and products are usable by almost everyone and are thus significantly more marketable.

Universal and adaptable features are generally no more expensive than traditional features. Many recent innovations in technology have made it easier for designers to specify both universal and specialized components. As the construction and manufacturing industries respond to the aging of the population and new legal structures, "better for everyone" and "planning ahead for your family's needs" will begin to replace "handicapped" and "elderly" as marketing approaches. As comfort, safety, and flexibility become more important key words in advertising, emerging technologies will continue to respond to the needs of people of all ages, abilities and sizes.

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DESIGN ESSENTIALS

1

(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.
- R** 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.
- R** 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, etc.
- 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.
- R** 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.

R = strongly consider when remodeling

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DESIGN ESSENTIALS

2

(adapted from *Practical Guide to Universal Home Design*,
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ENTRANCE

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

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(adapted from *Practical Guide to Universal Home Design*,
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KITCHEN

- R** Enough clear counter space to set down dishes next to all appliances and cupboards.
- Plenty of open floor space to maneuver around the kitchen.
- R** Anti-scald faucet with a single lever (not two knobs or two handles to turn on and off).
- R** 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.
- R** Rounded corners, not sharp edges, on counters.
- R** 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.
- R** 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.
- R** Appliance controls that are easy to read, easy to reach and can be operated by persons with limited vision.
- R** Easy access to kitchen storage (pull-out shelves, lazy Susans in corner cupboards, adjustable-height cupboards).
- R** 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.

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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).
- R** 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.
- R** Shower size: minimum 36 x 36 inches; for a roll-in shower, allow 36 inches by 60 inches.
- R** 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.
- R** Anti-scald faucet with a single-lever handle, for both the sink and the tub or shower.
- R** Clearance under the sink to allow for a seated user, with flooring material extended into the open area under the sink (Be sure to insulate pipes to prevent burns)..
- R** Rounded corners, not sharp edges on bathroom counters.
- R** Toilet seat height appropriate for the household - 17 to 19 inches high for middle-aged and older people, lower for children.
- R** Mirror placed for both standing and sitting, such as a full-length or tilting mirror.
- R** Good quality, non-glare lighting, in all areas including the shower.
- Brace ceiling in the event that a tracked ceiling lift will be needed.

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BEDROOMS

- Doors 36 inches wide to allow for a 34-inch clear opening.
- R** Ample maneuvering space after all furniture is in the room - at least 36 inches on both sides of the bed, and ideally 60 inches on one side of the bed.
- Light switches reachable from the bedside and door, and located about 36 inches to 40 inches above the floor.
- Telephone jack near the bed.
- Extra electrical outlets near the bed (for medical equipment or rechargeable items, for example), placed 18 inches to 24 inches above the floor.
- R** 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

- R** Heights and layout easily accessible for all household members.
- R** Well-lit, with a switch located outside the storage area.
- R** Adjustable-height shelving and closet rods.
- R** Doors and handles that are easy to operate (avoid bifold or accordion-type doors).

GARAGE

- R** 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).

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DESIGN ESSENTIALS

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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 is recommended: 36 inches minimum.
- R** 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.
- R** If there must be a step up or down, mark it well with a highly visible, color-contrasting material at the edge.
- R** Nonslip flooring throughout the house, especially in the bathroom, kitchen and laundry.
- R** Carpeting that is sturdy, low-pile, and tightly woven (such as Berber style).
- R** 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.

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WINDOWS

- R** 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.
- R** Large rocker-style switches that are 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.
- R** 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.

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STAIRS

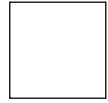
- R** Sturdy handrails on both sides of all stairways, whether inside or outside of the home. For round rails, the usual size is 1 1/4 to 1 1/2 inches in diameter.
- Stair treads deep enough for the entire foot - at least 8 inches, but 10 to 11 inches is better.
- Stair rise no higher than 7 inches from one step to the next; a smaller rise is even better.
- R** 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.
- R** All stairways well lit, with a light switch at the top and bottom (light switches about 36 inches to 40 inches above the floor).
- R** Anti-slip strips on front edges of steps, in color-contrast material.

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PLANNING DEPARTMENT

Tom Burns, Director
Mark Deming, Assistant Director
Lawrence Kasparowitz, Urban Designer

COMMISSION ON DISABILITIES

Mary Thuerwacher, Commission Coordinator

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INTERNET RESOURCES

Iowa Program for Assistive Technology

Practical Guide to Universal Home Design

www.uiowa.edu/infotech/universalthomedesign.pdf

This site is the source of the body of this brochure. The online version contains diagrams and illustrations. It includes recommendations not listed in the brochure as "worth considering."

American Association of Retired Persons

www.aarp.org/families/home_design/

This site contains a useful feature called "Rate Your Home." There are sections which include strategies for compliant kitchens, baths and access routes.

The National Association of Homebuilders

Make Your House a Home for a Lifetime (brochure)

www.nahb.org

This site promotes the use of "Certified Aging-in-Place Specialists", however there are also generic brochures which appear helpful.

Fair Housing Accessibility First

www.fairhousingfirst.org/training/materials.html

This site includes modules that are downloadable, PowerPoint presentation slides are intended for instructors.

North Carolina State University

www.design/ncsu/edu/cud/

This site has extensive educational content regarding universal design.

NOTE: *the websites listed above are for general information only - the County of Santa Cruz does not endorse any specific products or advocate groups.*