



LIFE-CYCLE HOUSING

Evaluate Before Buying, Building or Remodeling

Accessible housing is a term developed in the 1960's. The American National Standards Institute (ANSI) published the first voluntary standard on accessible design. These standards recommend fixed features designed primarily to meet the needs of those persons with major disabilities (such as disabled World War II veterans and polio or automobile accident victims.)

Adaptable housing provides for flexible accessible design. It works equally well for the able-bodied or the physically disabled. An adaptable housing unit is an accessible dwelling unit. However, it also has features that may eliminate special appearances and/or meet the needs of the individual user by adding or adjusting elements. An adaptable housing unit includes all of the accessible features described by national standards (such as wider doors, clear floor space, accessible routes) while allowing a choice of certain adjustable features or fixed accessible features.

Most people take for granted their ability to live and function easily at home. Almost everybody--four out of five, according to research--eventually will have some physical problem that could make it difficult to live independently.

A person with a broken leg or a stroke could need crutches, a walker or a wheelchair. A heart attack victim or an older person may have limited movement. The design or arrangement of a house can make life difficult or easy for such a person.

Living independently at home is important to most people. People want to be able to get about, take care of themselves, cook meals, do laundry and clean the house. People also want guests to be able to get around easily and comfortably.

Fortunately, people do not have to live with poorly arranged living spaces. All types of homes (new, existing or adapted) which use *life-cycle or adaptable* design ideas help people live independently. With more people living longer, adaptable housing make good economic sense since it costs less to include these features during the planning stage.

A life cycle house includes *fixed accessible* features (wider doors and halls, open floor spaces, clear traffic patterns, etc.). It also provides for *adaptable* features, such as wall reinforcement for grab bars and removable base cabinets for future knee space.

Everyone hopes that their house will be easy to sell in the future. Adaptable features make a housing unit more appealing to all ages, and they increase occupant comfort and independence while adding

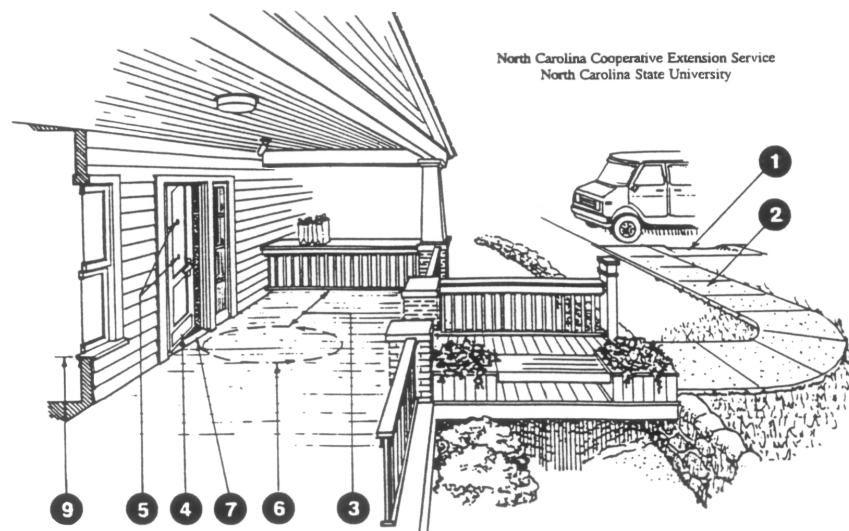
to property value. A life-cycle house can be attractive through the use of decorator finishes and materials and modern building and landscaping techniques.

TAKE A LOOK AT YOUR HOME

Do you want a home that will *adjust* to you as you grow older? Use the following checklist to identify possible problems or areas that might need changing. Ask yourself this questions about your present home or a house you are considering buying, building or renting. *Could I continue to live in this house if I had a broken leg, arthritis, or were using a walker or a wheelchair?*

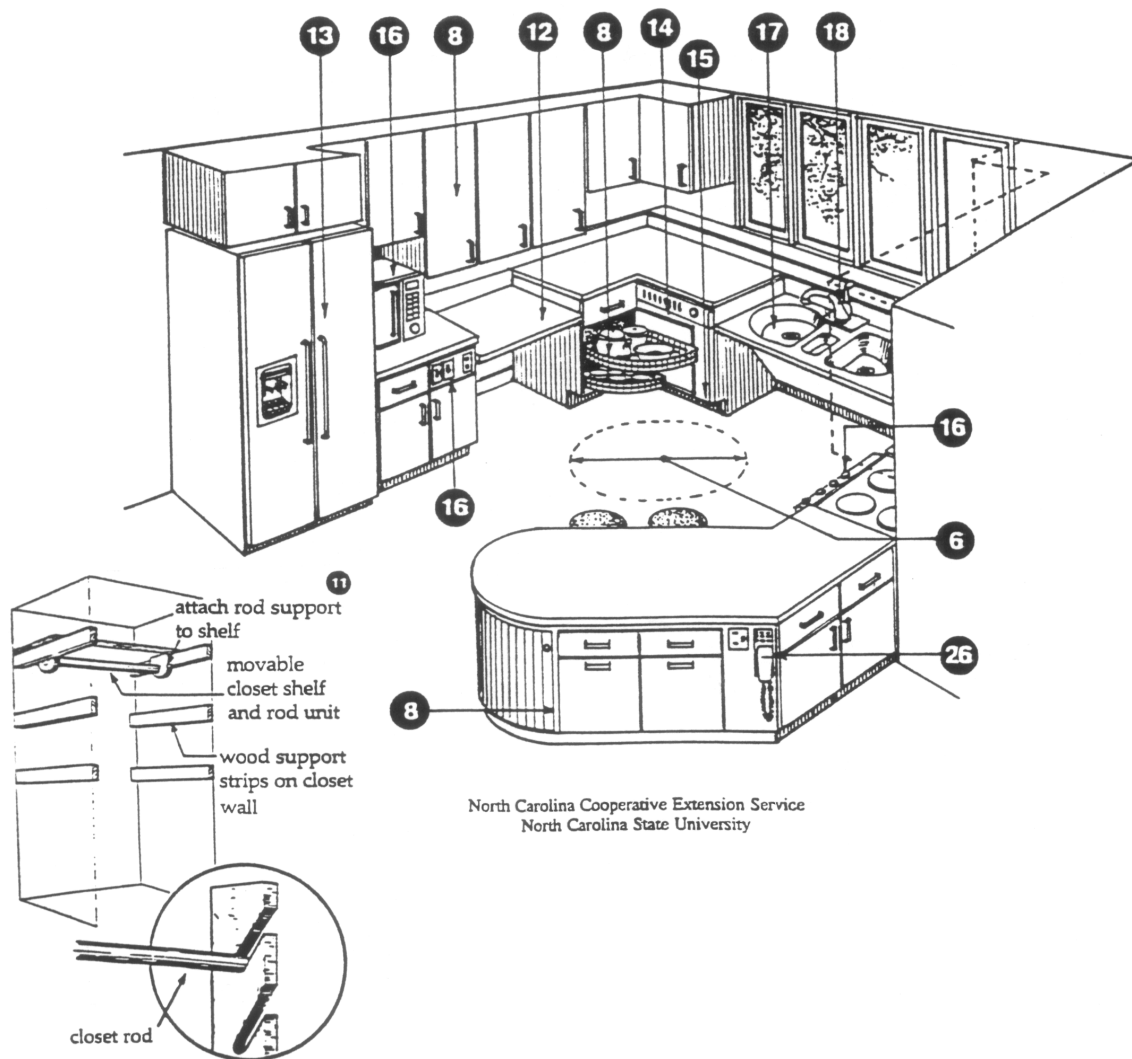
GETTING INTO AND AROUND THE HOUSE

- There is at least one way (a ramp or no steps) to enter the house without climbing steps.
- There is a curb cut from the street level to sidewalk.¹
- There is enough entry area space to allow building ramp at least 5 feet wide. The slope is no steeper than 5 percent--a rise of 12 inches for each 12 feet of distance. Landing space includes 18-24 inches on the latch side of the door.^{1 2 3}
- The clean *open* space at entries and other doors is a minimum of 32 inches wide (36 inches pre-preferred).⁴
- A lowered peephole on exterior doors adds to safety.⁵
- There is at least one bedroom and one bathroom on the ground or entry level with no steps to climb.
- Kitchen, bathroom, one bedroom, and carport/garage have open space free and clear of obstructions. A wheelchair needs a 60-inch diameter circle to make a U-turn.⁶
- Hallways are 48 inches wide (allow wheelchair, person using walker or two people to pass or turn around).
- Doorways have *no or low thresholds*. Beveled thresholds are no higher than 1/2-inch (3/4-inch for exterior doors).⁷
- There is storage space in the kitchen, bath, bedroom, workroom/shop and laundry at reachable heights (for short or tall people and wheelchair users).⁸
- Windows are low enough to see out of when sitting. The controls are between 18-56 inches above the floor (40 inches is a good average).⁹
- Interior stair risers are no higher than 6-7 inches and the treads 11-12 inches deep (*no open risers*). Risers on exterior stairs are no higher than 4 inches.¹⁰
- Clothes rods are reachable by all people (rod height 42-72 inches from the floor).¹¹
- There is at least one 30-inch high, 32-inch wide counter in the kitchen, bath, and study or office with clear knee space.¹²



KITCHEN AND LAUNDRY

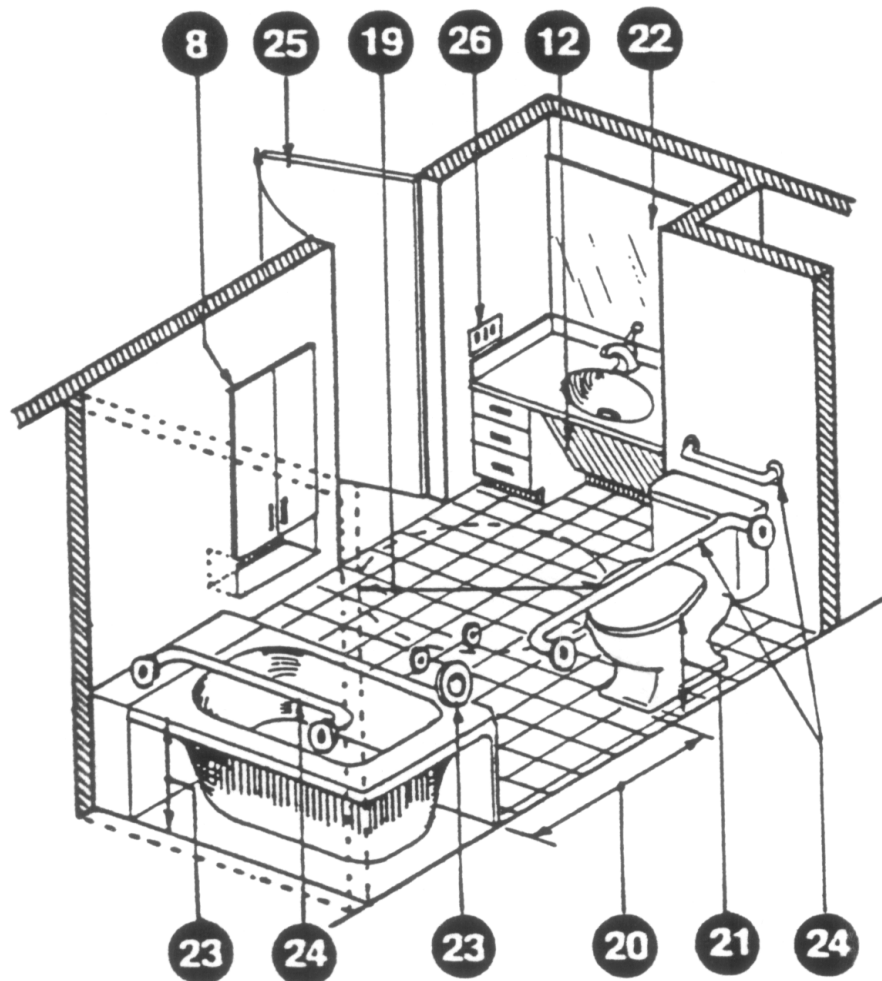
- There is a refrigerator and freezer space accessible to users of all heights, including wheelchair users.¹³
- Dishwasher, clothes washer and dryer are front loading.¹⁴
- Toe space at bottom of kitchen base cabinets is 8 $\frac{3}{4}$ - 10 inches high and 6-8 inches deep for wheelchair footrest.¹⁵
- Bottom of oven is 30 inches above kitchen floor surface.
- Range, cook top, oven, dishwasher, garbage disposal and compactor controls can be reached by a seated person.¹⁶
- At least one kitchen sink is shallow (5-6 $\frac{1}{2}$ -inches deep), with drain at rear. The hot water supply and waste pipes under the sink are *insulated*. This protects a seated user from burns on legs.¹⁷
- Sink faucet is single control (lever or push type) with long rounded handle, accompanied by a sprayer hose.¹⁸



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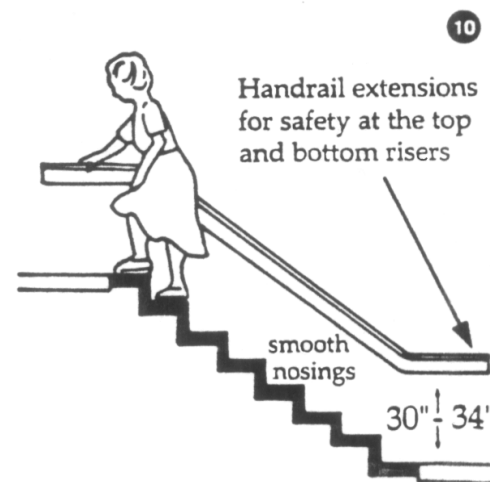
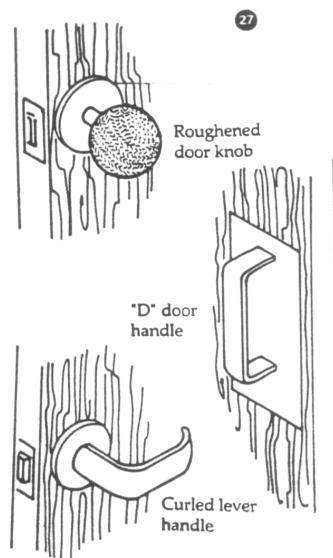
BATHROOM

- Bathroom is large enough for a wheelchair or walker user to use all fixtures (sink, toilet, shower or tub).^{6,19}
- There is at least 32 inches clear space on one side of the toilet and 42 inches clear space in front.²⁰
- Toilet seat height is 15-19 inches above floor.²¹
- Bathroom mirror bottom is no more than 40 inches above floor, with top at 74 inches. A full-length mirror hung horizontally over the lavatory counter provides view for any user.²²
- Bathtub height is 16-20 inches, water controls 18 inches above the tub rim. Place the controls where they can be operated from outside the tub.²³
- Roll-in shower size is a minimum 60 inches long by 40 inches wide for wheelchair use.
- Seat in shower is 16-19 inches high, 16 inches wide and 16 inches deep.
- An adjustable shower head with a single control faucet is placed 42-72 inches above the floor. The spray unit (at least 60 inches long) is usable as a fixed or hand-held shower.
- There are grab bars at the toilet, tub and shower.²⁴
- Bathroom door opens out to allow for more space inside the room, and to help someone who has fallen in the bathroom.²⁵
- Flooring is slip-resistant, *especially* when wet.



SAFETY

- Smoke detectors and fire extinguishers are near kitchen and sleeping areas (mounted about 40 inches above floor).
- Flooring is slip-and-skid resistant. Carpet, if used, is a low-pile type that allows a wheelchair to roll easily.
- Wall switches, phones and temperature thermostat can be reached from a wheelchair (40-48 inches above floor).²⁶
- Doors to stairs or other hazardous areas have ridged beaded or roughened door knobs or handles (to signal danger).²⁷
- Stair handrails are mounted 30-34 inches above floor. They *extend* 12-18 inches beyond the top and bottom step.¹⁰
- Stairs are well-lighted, and the top and bottom steps are marked to show the beginning and end of the steps.



SUMMARY

Housing planned and constructed to be *accessible* or *adaptable* reduces future costs. Communities that provide accessible housing across the life cycle are more successful in attracting and retaining older residents. Developers and builders who build life-cycle housing find a ready and growing market for their products. Consumers who build, buy, remodel or rent life-cycle housing are better able to maintain independence and the self-esteem that goes with independence. In addition, these consumers find that temporary or permanent physical disabilities are much easier to deal with when living in a life-cycle house.

In summary, life-cycle housing is convenient, conserving of human energy, and can be as aesthetically pleasing as the imagination allows. Planning for future changes helps keep dollar costs down, but the real reward is continued independence! Check your house, apartment or condominium now. Is it a life-cycle house?

RESOURCES

A Consumer's Guide to Home Adaptations. 1989. Adaptive Environments Center, 374 Congress Street, Suite 301, Boston, MA 02210.

American National Standard for Building and Facilities-Providing Accessibility and Usability for Physically Handicapped People (A117.1-1986), American National Standards Institute, Inc., 1430 Broadway, New York, NY 10018, Phone: (212) 354-3300.

Bostrom, James A., Mace, Ronald L., and Long, Marion. *Adaptable Housing: A Technical Manual for Implementing Adaptable Dwelling Unit Specifications*. 1987. U.S. Department of Housing and Urban Development -HUD USER, PO Box 6091, Rockville, MD. 20850, Phone: 1(800) 245-2691.

Center for Accessible Housing, North Carolina State University, PO Box 8613, Raleigh, NC 27695-8613, Phone: (919) 515-3082.

Gardner, (Mahrer), Linda L. *Kitchen Adaptations for Independent Living*. 1989. Clemson University Cooperative Extension Service, Clemson, SC 29634, Phone: (803) 656-3145.

Making Buildings and Facilities Accessible to and Usable by the Physically Handicapped. 1989. The North Carolina Department of Insurance, Volume I-C, North Carolina State Building Code General Construction, PO Box 26387, Raleigh, NC 27611, Phone: (919) 733-3901.

N.C. Human Resource Department, Division of Aging, 693 Palmer Drive, Raleigh, NC 27603, Phone: (919) 733-3983.

Paralyzed Veterans of America, 801 18th Street, NW, Washington, DC 20006, Phone: (202) 872-1300.

Raschko, Bettyann B. *Housing Interiors for the Disabled and Elderly*. 1982. Van Nostrand Reinhold, 7625 Empire Drive, Florence, KY 41041, Phone: (1-800) 926-2665.

The Accessible Design File. 1991. Barrier Free Environments, Inc., Van Nostrand Reinhold, 7625 Empire Drive, Florence, KY 41042, Phone: (1-800) 926-2665.

The DoAble Renewable Home: Making Your Home Fit Your Needs. 1985. American Association of Retired Persons, 1909 K. Street, NW, Washington, DC 20049, Phone: (202) 728-4470.

Uniform Federal Accessibility Standards FED-STD-795. 1988. U.S. Architectural and Transportation Barriers Compliance Board, 1111 18th Street, NW, Suite 501, Washington, DC 20036-3894, Phone: (202) 653-7834.

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