



# Low Cost Solutions for Making Your Home Accessible

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Tom has been released from the hospital with a brand new manual wheelchair, bath seat, and toilet rails. However, he can't get in and out of the front door, let alone the bathroom! This article details solutions for making a home more accessible. These ideas apply to persons with mobility impairments using wheelchairs, walkers, braces or crutches. No-cost and low-cost ideas, along with more expensive alternatives, are included. Possible funding sources and additional resources are also identified.

## Start with the Basics

If you use a wheelchair, living in your home can be challenging unless you can answer "yes" to three basic questions.

1. Can you get into the house?
2. Can you get through the doorways?
3. Can you get into and maneuver within the bathroom?

If you answered no to any of these questions, your options are to live with your current situation, move to a more accessible home, build your own home or remodel. Here are some additional questions to help you decide whether it is better to remodel or move/build.

- Has your medical situation stabilized?
- Will you need more housing changes in the future if your abilities should decline?
- What are your goals for independent living?



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- What housing modifications are needed to accommodate your desired level of independence?
- Will you need assistance from a family member or outside caregiver? Does space need to be planned for these people to be able to work or live with you?
- Do you and your caregivers agree on the housing modifications that are needed? Do you need to postpone housing decisions until a caregiving routine has been established?
- What are your vocational goals? Are there better job opportunities in another community?
- What is the structural condition of your home? Does it warrant extensive remodeling?
- How important is the appearance of your home? Can modifications be made without destroying the architectural appearance or resale value of your home?
- What are your financial resources? Do you have enough money (personal, private, or public) to help pay for needed housing modifications and/or the services of a caregiver?

If you decide to relocate, contact a realtor that can help you find an accessible home. If you decide to remodel or build your own home, here are some general guidelines:

**Accessible Entrance:** You will need at least one entrance with no steps, or a way to get around existing steps. Consider these options for creating an accessible entrance:

- Use portable ramps as a temporary solution.
- Build ramp with no more than 1" rise for every 12" length (1 to 12 ratio).
- Re-grade the site to make a ground level entrance without steps. Make sure this does not compromise the foundation by allowing water build-up against the house.
- Build a "bridge" to connect the house and yard on a sloping site.



- Unload from the wheelchair lift in the van directly onto a deck, porch, or landing pad.
- Install a weather-resistant lift or elevator (or provide a protective structure over it).

**Wide doorways:** You will need at least a 32" clear opening to roll a wheelchair through a doorway under your own power. Here are some ways to make an existing doorway wider:

- Remove the door temporarily.
- Install swing-away hinges.
- Reverse swing of door to allow it to open wider.
- Remove some or all of woodwork around door.
- Replace existing door with wider one.

**Usable bathroom:** You will need a 60" diameter circle of maneuvering space to be able to reach fixtures. There are several options to gain more usable floor space.

- Reverse the swing of the door to make it open out instead of into the bathroom.
- Replace the existing door with a pocket door.
- Remove the door (use a curtain for privacy).
- Remove base cabinets to provide knee space under lavatory.
- Relocate fixtures to create more floor space.
- Replace a tub with a shower unit.
- Move lavatory to another space where privacy is not needed.
- Relocate toilet or shower to a corner of the bedroom.
- Take sponge baths instead of tub bath or shower and do bathing in bedroom.
- Borrow space from an adjacent room to make the bathroom larger.
- Add on a new bathroom that is wheelchair accessible.

## Relocate, Restructure, and Rearrange



Before you make plans for additional remodeling, consider no-cost or low-cost ways to relocate activities, restructure tasks, and rearrange furnishings.

**Relocate activities:** If you live in a two-story home or split-level house, you may need to consider ways to relocate activities for eating, sleeping, bathing, and living onto one floor. A family who lived in a tri-level house was almost ready to move when the husband came home from the hospital using a wheelchair. He was unable to perform daily activities independently because the master bedroom, bathroom and kitchen were on different floors. The family rearranged the home so that everything he needed was on the main floor. These changes allowed the husband to function independently during the day when his family was not around. He now had access to the kitchen, bathroom, bedroom, dining room, and office area on one level. During the evening he could move his wheelchair to the lower level, with family assistance, by going out the front door, around the house on a ramped sidewalk, and through the sliding glass doors to the family/living room.

**Restructure tasks:** If some of the household tasks you used to do are no longer accessible, think about eliminating these tasks or having someone else do them for you. For example, other members of the household could get the mail or do the laundry and you could assume some of their responsibilities.

**Rearrange furnishings:** Less “stuff” is more space. A wheelchair or walker takes more space to maneuver in the home. Large pieces of furniture may block access to rooms or to make it difficult to get around. Rearrange furnishings in these rooms to create straight traffic lanes.

## Identify problems and solutions

Now take a detailed look at specific areas of your home where you may be having difficulties. Pay special attention to activities that you want to be able to do. The following checklist identifies potential problems in your housing environment and



possible solutions. For more information about major remodeling or new construction, refer to the Resource Section at the end of this publication.

## **Yard, Walkways, and Driveways**

### *Problem:*

- Rough terrain makes wheelchair, walker, cane or crutches difficult to use.

### *Solution:*

- Use crushed limestone to make dirt pathways smoother.
- Pave walks and driveways with asphalt or concrete.
- Sweep walks frequently to remove debris - twigs, nuts, loose gravel.
- Repair or replace broken sidewalks.

### *Problem:*

- Everyone gets wet while loading or unloading the vehicle in the rain

### *Solution:*

- Extend the roof line of the house or porch to create overhead protection.
- Build a covered walkway from parking area to house.
- Build an open breezeway for overhead protection between house and garage.
- Build a carport or attached garage (plan adequate overhead door clearance for clearance of raised roof van).

### *Problem:*

- Getting the mail takes up too much energy.

### *Solution:*

- Move the mailbox to more accessible location.
- Pave the path to the mailbox.



- Put the mailbox on pulley system to transport the mail between the house and the mailbox.

## **Garage/Carport**

### *Problem:*

- Steps prevent wheelchair access from the garage/carport to the house.

### *Solution:*

- Build a new drop-off parking area outside garage that is accessible to the house at ground level.
- Build a ramp inside the garage.
- Add a lift or elevator inside the garage.
- Slope the floor of the garage so steps or a ramp are not needed (front end near house high, back end near overhead doors at ground level).

### *Problem:*

- Garage is too narrow to get in and out of vehicle.

### *Solution:*

- Unload in driveway.
- Remove part of garage wall to gain maneuvering space for wheelchair or walker.

## **Outside Entrance**

### *Problem:*

- Steps are difficult to climb.

### *Solution:*

- Add non-slip surfaces.
- Repair broken or loose steps.



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- Add sturdy handrails on both sides (should extend beyond the first and last step).
- Rebuild or replace steps if too narrow or too steep.
- Build a ramp to create an alternate route.

### *Problem:*

- Door is hard to open and close.

### *Solution:*

- Modify doorknobs with add-on lever handle.
- Replace doorknobs with lever handles or push plates.
- Install electric door opener.

### *Problem:*

- Door gets damaged when wheelchair bumps into it.

### *Solution:*

- Tack carpet remnant to the bottom of the door.
- Install kick panel to protect the door.
- Add rubber bumpers to the wheelchair foot plate edge.

### *Problem:*

- Raised threshold blocks wheelchair access and poses a tripping hazard.

### *Solution:*

- Replace the raised threshold with one that has a tapered lip.
- Install a wedge-shaped piece of lumber to bridge the gap between the threshold and the floor.
- Install a new threshold that is flush with the floor (doors may have to be modified or replaced).



## Ramp

### *Problem:*

- The ramp detracts from the appearance of the house and alerts outsiders that a person with a disability lives there.

### *Solution:*

- Replace the ramp with earth berm or "bridge" to connect house and yard.
- Unload from the wheelchair lift in van directly onto a deck or porch.
- Disguise the ramp with shrubbery, plantings, retaining walls, or fences.
- Locate the ramp on the side of house away from the road.

### *Problem:*

- Ramp is slippery, especially in rainy or snowy weather.

### *Solution:*

- Add non-slip surface such as silica sand, self-adhesive "grit" strips, or indooroutdoor carpeting.
- Add wood strips, placed horizontally on ramp at 12 foot intervals, to provide traction for the person pushing the wheelchair.
- Replace wooden flooring with expanded iron metal grid work that allows water and snow to fall through holes.
- Extend roof or porch over ramp to provide weather protection.
- Install plastic sheeting on sides of ramp during winter months to provide protection from wind and snow.

### *Problem:*

- Ramp is unsafe.

### *Solution:*

- Reduce the slope of the ramp.
- Add level platforms for landing spots at top and bottom of ramp.



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- Add level platforms for resting spots on a long ramp.
- Add edge protection to keep wheelchair, crutches, cane, or walker from slipping off edge.
- Install handrails on both sides.

### **Entry Space**

*Problem:*

- Entry space is too small for wheelchair use.

*Solution:*

- Remove the interior door.
- Replace the interior door with a sliding or pocket door.

### **Mud Room**

*Problem:*

- Wheelchair brings mud into the house.

*Solution:*

- Use an Astroturf style doormat to clean wheels.
- During the summer months, hose down the wheelchair outside before entering the house; dry by rolling over newspaper or washable throw rugs.
- Install roll-in shower area where both person and wheelchair can be cleaned.

### **Kitchen**

*Problem:*

- Counters are too high to be able to work comfortably from a seated position.

*Solution:*

- Use pull-out cutting board as lowered work surface.



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- Place board across top of open drawer.
- Use lap tray for food preparation area.
- Pull kitchen table/card table near existing kitchen to create seated work area.
- Remove base cabinet(s) and install lower counter or table for seated work area; lower upper cabinet(s) above work area to create reachable storage.
- Install power elevating cabinets and counters.

### *Problem:*

- Sink faucets are hard to reach from wheelchair.

### *Solution:*

- Remove floor of sink cabinet and center doorstop to create knee access (attach doorstop to back side of door to keep cabinet appearance) and insulate pipes to prevent burns.
- Replace separate hot and cold faucets with single-lever control.
- Add extension arm to single-lever faucet.

### *Problem:*

- Can't reach items stored in refrigerator or freezer.

### *Solution:*

- Use lazy Susan to make items accessible.
- Use a reacher.
- Purchase a side-by-side refrigerator/freezer for easier access.
- Select a refrigerator that has a water and ice dispenser in the door.
- Purchase a small refrigerator for supplementary storage next to the seated work area.
- Ask someone else to transfer items from a chest freezer to the freezer section of refrigerator once a week.

### *Problem:*

- Kitchen is too large for the wheelchair user.



## *Solution:*

- Create "mini-kitchen" that allows the wheelchair user to reach everything from one spot. Include microwave oven, portable appliances, and essential supplies and utensils; store small items on countertop shelf unit or rolling cart.

## **Living Areas**

### *Problem:*

- Windows and window coverings are hard to open and operate.

### *Solution:*

- Install auxiliary handle on bottom sash of double hung windows.
- Replace double-hung windows with casement style windows.
- Clear floor space in front of window so controls are easier to reach.
- Select mini-blinds with long wand.
- Install power operated windows and draperies.

### *Problem:*

- Person has trouble getting out of a chair or sofa.

### *Solution:*

- Place a pneumatic seat lifter in chair.
- Use chair that has sturdy arms.
- Raise chair or sofa on wood blocks.

### *Problem:*

- Furniture, walls, and woodwork get damaged by the wheelchair.

### *Solution:*

- Move fragile or valuable furniture to protected location.
- Staple carpet remnants around doorframes.
- Make "sleeves" from carpet remnants to protect chair legs.



- Select durable furniture.
- Use corner guards, carpet, wanes coating, and Plexiglass sheets to protect walls.
- Add rubber bumpers to wheelchair footplates.

## Bedrooms

### *Problem:*

- Bedroom on the upper floor is not accessible

### *Solution:*

- Relocate the bedroom on an accessible floor.
- Place the bed in one end of large room on accessible floor and use bookcases or screens to create privacy "walls".
- Use a daybed in the living room to create a sofa by day and a bed by night.
- Install a stair-lift to another floor (requires a transfer to and from the lift).
- Install a chair-lift to another floor (lifts both wheelchair and person).
- Install residential elevator; elevator shaft can be located outside house by converting windows to access doors.

### *Problem:*

- Person feels "stranded" after getting in bed.

### *Solution:*

- Install an intercom.
- Use a baby monitor as an intercom.
- Use an Electronic Aid to Daily Living (or Environmental Control System) to control bed, phone, lights and audiovisual equipment.
- Program automatic dialer phone with emergency numbers.

### *Problem:*

- Bedroom is too small for maneuvering the wheelchair.



## *Solution:*

- Use a smaller bed.
- Push the bed against one wall to create a wider access route.
- Relocate other furniture to another room.

## **Bathrooms**

### *Problem:*

- Person is worried about falling in the bathroom, especially when taking a bath or shower.

### *Solution:*

- Install grab bars near the tub and shower (be sure grab bars are securely fastened into wall studs).
- Replace existing shower head with a hand-held shower to bathe while seated.
- Purchase bath bench that straddles tub (two legs inside, two legs outside).
- Use hydraulic seat or boom lift to transfer in and out of tub.
- Install transfer shower with built in seat.
- Install roll-in shower (requires transfer to shower chair).
- Build combination shower/toilet compartment so toilet can be used as shower seat.

## **Office**

### *Problem:*

- Person can't get knees under desk.

### *Solution:*

- Put desk on blocks to make knee space higher.
- Use wheelchair that has cut-away arms to fit under desk.
- Transfer to secretarial chair while doing desk work.



- Purchase accessible desk.

*Problem:*

- Work area isn't very efficient.

*Solution:*

- Create L-shaped work area with two work surfaces at right angles to each other (use secretarial chair to pivot from one counter to the other).

## **Laundry**

*Problem:*

- Can't use stairs to reach laundry in basement.

*Solution:*

- Move existing laundry equipment to accessible floor.
- Replace existing equipment with stacked washer dryer unit located on accessible floor.

*Problem:*

- Can't reach controls on laundry equipment

*Solution:*

- Use "reacher" to operate controls.
- Purchase laundry equipment that has touch controls or front controls.
- Purchase front-loading washer and dryer for easier access.

## **Funding**

The following list identifies potential funding sources for making needed modifications. Contact these organizations to determine their eligibility criteria and process for obtaining financial assistance.



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- Division of Vocational Rehabilitation – Call (303) 866-4714 for the office serving your area
- Catastrophic case management programs available through some health insurance companies
- Worker's compensation insurance benefits
- Veterans Administration – Call (303) 894-7474 for Benefits information.
- Public and private social service agencies
- Local church groups
- Community organizations, such as Shriners, Lions, Optimists
- Center for Independent Living – Call (303) 320-1345 to contact the Denver office.
- Area Agencies on Aging – Call (303) 455-1000 to contact the Denver office.
- Federal income tax (deduct medically necessary equipment and structural modifications as medical expenses)
- Community fund raising events for individuals or families



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## MODIFICATION/REMODELING

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## RESOURCES

Accessibly Systems Inc.  
5596 S. Sycamore  
Littleton, CO 80120 303/693-7787  
[www.accessiblesystems.com](http://www.accessiblesystems.com)

Americans with Disabilities Act  
Accessibility Guidelines  
ADAAG Manual  
Checklist for Buildings and Facilities  
U.S. Architectural and Transportation  
Barriers Compliance Board  
1331 F. Street, N.W. Suite 1000  
Washington, D.C. 20004-1111  
800/872-2253  
<http://www.access-board.gov/>

Center for Universal Design 800/647-6777  
<http://www.design.ncsu.edu/cud>

Disability and Business Technical  
Assistance Centers  
<http://www.adata.org/>

Disability Systems, Inc.  
6834 S. University Blvd., #222

Centennial, CO 80122-1515  
303/995-9008  
[www.disabilitysystems.com](http://www.disabilitysystems.com)

Fair Housing Accessibility Guidelines  
<http://www.hud.gov/fhefhag.html>

HUD Homes and Communities  
633 17<sup>th</sup> Street Denver,  
CO 80202  
303/672-5440  
303/672-5248 TDD

Home Modification Action Project  
<http://www.usc.edu/go/hmap>

Homes and Communities – People  
with Disabilities  
<http://www.hud.gov/disabled.html>

## OTHER RESOURCES

Assistive Technology Partners  
601 E. 18th Ave., Suite 130  
Denver, CO 80203  
303/315-1280 Main  
800/255-3477  
303/837-8964 TTY 303/837-1208  
Fax  
[www.uchsc.edu/atp](http://www.uchsc.edu/atp)



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Assistive Technology Partners  
Western Slope Technical Assistance  
Center (WesTAC)  
2897 North Ave., Module 3A  
Grand Junction, CO 81501  
970/248-0876 Main 970/248-0877  
FAX/TTY  
[www.uchsc.edu/atp](http://www.uchsc.edu/atp)

Rocky Mountain ADA Technical  
Assistance Center



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3630 Sinton Road, Suite 103  
Colorado Springs, CO 80907  
800-949-4232 [www.adainfonet.org](http://www.adainfonet.org)

**For more information contact:  
Assistive Technology Partners  
601 E. 18th Ave., Suite 130 Denver,  
CO 80203  
303/315-1280 Main 303/837-8964 TTY  
303/837-1208 Fax 800/255-3477 [www.uchsc.edu/atp](http://www.uchsc.edu/atp)**

Special thanks to the Breaking New Ground, Plowshares #11, for the information contained in this article. This publication may be reproduced without the written permission of ATP provided that the source is appropriately credited.

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Fast Facts made possible by NIDRR Grant #H224A40014