

all about

DOORS

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photos by Mark H. Lichter, A.I.A.

Choosing the right doors for your accessible home is easy, once you know the basics.

Homes can include dozens of interior and exterior doors that serve a variety of purposes. Attractive doors contribute to the home's overall aesthetics.

Some door installations, however, can be barriers to people who use assistive devices such as wheelchairs and walkers. It is therefore important that you carefully select each door for your new home or remodeling project. To do this, you must consider the door's purpose and understand the available options.

There is no universally correct door. Every type has advantages and disadvantages that can only be evaluated for specific installations. If your remodeling project has limited alternatives for replacing inaccessible doors, some "tricks" may help you deal with narrow doors and tight locations.

USES OF DOORS

Historically, the door's purpose was probably personal protection. Primitive structures had removable barriers that occupants installed to protect themselves from danger and discomfort. With the advent of forged metal hinges and keyed locks, doors became easier to operate and more effective deterrents to entry.

Personal safety and security remain important functions for modern exterior doors. Security components such as locksets, deadbolts, and peepholes can also be critical to wheelchair accessibility. Some doors serve to protect occupants from potential dangers. Those that separate the garage, for example, are constructed of metal for better fire resistance. In an emergency situation, many doors can be exits. If your house has a ground-floor bedroom, installing a direct

Wood decks can be constructed flush with the house's floor level for an easy transition. For a number of technical reasons, it is more difficult to construct a masonry patio in the same manner. For accessibility, paired French doors should be six feet wide. This can take up a lot of wall space in a small home, so other options can be considered.

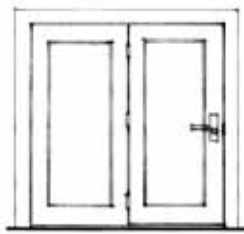




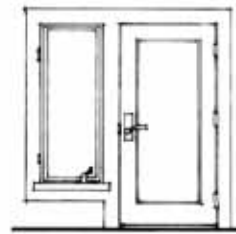
SLIDING DOORS:
One unit slides across the other to allow passage. A screen is stored in front of the fixed unit and pulled across for ventilation. The total unit must be at least six feet wide, and the available opening is still less than 32 inches clear. The floor tracks can be awkward for wheelchair passage.



FRENCH DOORS:
Each leaf's width should be sufficient to allow wheelchair passage. Therefore, the total unit must be at least six feet wide. If screen doors are installed, they must swing in the opposite direction of the glass doors.



CENTER-HINGED PATIO DOORS:
The operable unit swings back on the adjacent stationary unit. For wheelchair access, the unit should be six feet wide. A sliding insect screen is stored in front of the fixed door.



PATIO DOOR AND WINDOW:
In this arrangement, the total width can be less than six feet even though the door is 36 inches wide. The window can be casement or double-hung equipped with an insect screen. For safety, it must have tempered glass.



PATIO DOOR WITH SIDELIGHT:
The door is flanked by a fixed glass sidelight whose width can be adjusted to suit the available wall space. For ventilation, the door has a screen that swings in the opposite direction.

outside door could be a safety benefit.

Proper exterior doors mitigate adverse climatic conditions with thermal insulation to reduce heat transmission, and weather stripping to prevent drafts. On the other hand, interior doors are designed to facilitate air circulation. Heating and air-conditioning systems depend on air flow, either underneath the door (termed "undercut") or through a louver.

Interior doors are often installed to separate incompatible activities. For example, closed doors can provide visual and acoustic privacy between adjacent bathrooms and bedrooms. They can also visually screen unsightly elements. A cluttered mud room, for example, might be closed off from an adjacent kitchen.

During the daytime, doors can increase available natural light. Exterior doors with glass "lights" provide direct illumination like windows. Even solid interior doors (when open) provide natural light by accessing windows in adjacent rooms. For example, a dark interior hall can "borrow" light from adjoining bedrooms. If the doors are

closed, however, this light is lost. For this arrangement to work, the connecting doors need to be out-of-the-way when they are "open."

Doors can also be an important part of a home's interior trim. Many styles are available with panels, flush, or even replicas of old batten units. They can have a variety of glass lights. Doors can be made of wood, metal, or several composite materials; they can be solid or hollow-core construction. Functionally, doors can be installed as singles or in pairs. They can operate by sliding, swinging, or folding back on themselves.

For the convenience of wheelchair users, any accessible door must:

- ◆ Be wide enough to allow comfortable passage
- ◆ Be installed with adequate maneuvering clearance to operate and then pass through the unit
- ◆ Include a low threshold or transition strip that won't obstruct a wheelchair's small caster wheels
- ◆ Be equipped with appropriate hardware that can be easily operated with low hand function

DOORS TO THE OUTSIDE

Most homes include exterior doors installed at the front entry, garage, and at decks, balconies, or patios. Each installation requires a different type.

Front doors, for example, are typically wide, solid wood, swinging units. Since they offer visitors their first impression, these units are often attractive and outfitted with decorative hardware. The front door's extra width allows easy access and also conveys their symbolic importance.

Large homes sometimes install double entry doors. These are usually located in a dedicated foyer. Together, the door and the space provide a graceful entrance to the home.

Most front doors are wide enough to allow comfortable wheelchair passage, and the foyer has adequate room to easily open and close the unit. Particular attention should be paid to the threshold, however, to make sure it is low enough to allow passage of the caster wheels.

Accessibility codes recommend a maximum threshold height of one-half inch with a tapered profile. In the real

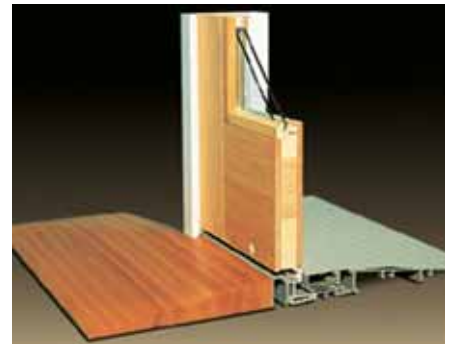
Recommendations

Have you ever gone through a doorway and mashed your fingers on the edge of a box you were carrying or smashed your fingers on your wheel because you just barely had enough room? Not too much fun, is it? So give yourself a break and plan plenty of room for your doorways.

Doors can be one of the biggest obstacles in your daily life. You should be aware of several things to make your life easier:

- ▶ Any door must be capable of being opened in a single motion.
- ▶ Lever-style handles are easier to grasp than round ones. Your therapist can recommend various ways to adapt door handles, handles to cabinets, etc.
- ▶ The best height for door handles is approximately three feet. Your therapist can help determine what heights work best for you.
- ▶ No matter how careful you try to be, your wheelchair's footrests are going to scratch your doors from time to time. Kick plates on both sides of your doors are recommended to protect them from this kind of damage.

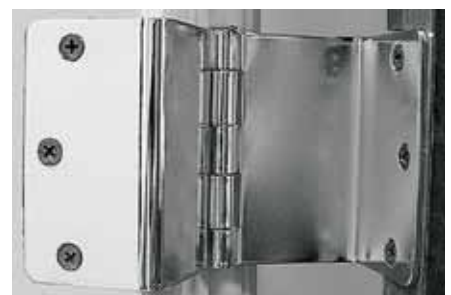
Excerpted from Yes, You Can! A Guide to Self-Care for Persons with Spinal Cord Injury, Third Edition. ©2000, Paralyzed Veterans of America.



Small tapered ramps for sliding doors facilitate wheelchair passage over the bottom tracks. In some cases, the ramp can only be installed when the insect screen is eliminated.



Various types of accessible hardware are available to lock and operate patio doors. Consult the manufacturer for the options and select the type that suits you best.



Swing-clear hinges can increase an existing doorway's opening. The increase approximately equals the door's thickness.

doors do not seal well, creating uncomfortable drafts. French doors are also difficult to screen for insects. Typically, screen doors are installed to outswing while the glass doors swing in. Negotiating this arrangement can

world, however, this low height is difficult to achieve since threshold installations are complicated by different floor heights inside and outside the door.

A related consideration is the selection of sill weather-stripping. Transversing an interlocking-type threshold in a wheelchair can be difficult because of its untapered profile. Other types of sill weather-stripping, such as sweep strips, which are attached to the door, do not impede wheelchair access. A low threshold can also complicate the use of an area rug or mat inside because the door isn't high enough to clear the floor covering as it opens.

For security, front doors are equipped with keyed locksets. When locked, the key must be turned to activate the door latch. For some wheelchair users, the key itself can be difficult to insert and rotate. Special assistive devices are available to help grasp and rotate the key. When the door is unlocked, a knob or lever is used to activate the latch. Many hardware types are available for this function so individual homeowners can select units they find easiest to use. Options include levers, paddles, and knobs of various shapes.

For safety, occupants must be able to preview visitors, so visual access to the

outside should be provided by peep holes, sidelights, or glass panels in the door itself. For any of these options, the height should be adjusted, if necessary, to accommodate wheelchair users.

Garage personal doors should be thermally insulated, swinging units, usually made of metal. Most are wide enough for wheelchair users, but a low step is often located at the door threshold. This is usually a building-code requirement. For wheelchair users, the step typically requires constructing a small ramp inside the garage.

Many homes also have patio doors that are swinging units or "sliders." These are typically full-light doors that provide an unobstructed outside view. To enhance the panorama, two patio doors are often paired. For wheelchair accessibility, "French" doors and sliders have advantages and disadvantages.

For convenience, each leaf of paired French doors should be wide enough to accommodate wheelchair passage (so both doors don't need to be opened). This typically requires a 36-inch-wide single unit; therefore, the pair needs to be at least six feet wide. Many small rooms do not include sufficient wall space to accommodate a six-foot-wide unit.

Another drawback is that paired-



Resources

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The Jib window is the elegant colonial-era version of a modern garden door. A tall double-hung window is equipped with lower panels that swing open to create a doorway in pleasant weather. When closed, the jib window matches the other windows inside the room.

be awkward for wheelchair users.

Ventilation screens are necessary because patio doors are typically left open to provide natural ventilation to a room during temperate seasons. One option that addresses several problems is to install a single full-light door that is paired with either a fixed sidelight or an adjacent operable window. This arrangement can reduce the minimum width of the combined door and window units and also increases weather tightness.

Another option, if you have sufficient wall space, is a center-hinged patio door unit. In this arrangement, a pair of glass

doors is hinged at the center (rather than the side) with one stationary and one operable unit. The operable unit swings back to store directly in front of the inoperable one (thus maintaining the view and light). A sliding insect-screen is stored in front of the fixed unit. For accessibility, the total unit still must be more than six feet wide.

Most wheelchair users find good-quality sliding doors easy to operate, but the high threshold can be difficult to traverse. Slider thresholds have three tracks: one for each door leaf and one for an insect screen. For drainage, each

track is situated higher than the next so the total height is more than 1¼ inches. Many door manufacturers offer tapered wedges to minimize the track's obstruction. For wheelchair passage, a sliding unit should be at least six feet wide (this will provide approximately 29 inches of clear opening).

SELECTING INTERIOR DOORS

Most interior doors are swinging units. These should be wide enough to provide comfortable access—but no larger. Wider doors are more cumbersome for wheelchair users to operate and take up more space inside small rooms. For wheelchair passage, a narrower door will

suffice if a wheelchair can travel straight through the opening. If users must initiate a turn as they pass through the opening, however, more width is required.

Accessibility codes typically require a clear width of 32 inches. This is generously provided by 36-inch swinging units and *almost* provided by 34-inch-wide ones. These requirements can be adjusted to some extent to suit a specific user, based on his or her wheelchair and the accessories installed.

If an existing swinging door isn't wide enough, modifications can be made on either a temporary or permanent basis. If the narrow door won't swing fully open (180° position), the leaf can be removed from the hinges. This also eliminates the door's function, however, so a curtain or screen may need to replace it.

Another option is to install special hardware called "offset" or "swing-clear" hinges. These increase the opening width by little more than the door thickness (about 1.5 to 2 inches). This provides about the same increase as door removal, so you might want to test this solution before changing the hinges.

In order to operate a swinging door, adjacent floor clearances must be available to conveniently position the wheelchair as the unit is opened. This requires floor space that is clear of the door's arc. Without this space, the wheelchair user must back up as the door opens.

If sufficient clear space is not available, there are several options. In some instances, the swing direction can be reversed, either left-to-right or in-to-out, to make operation easier. Reversing the door swing requires modifications to the hinges and latch hardware. The door leaf and the frame may need to be repaired after the switch is made.

If there is not sufficient clear floor space for a wheelchair user to operate an existing door but the opening is wide enough to allow passage, a power operator can be installed. These units are typically controlled by a wall switch. The device is mounted on the wall above the door. The expense of

installing these operators depends on the door and switch location.

Many wheelchair users consider pocket doors easier to operate than swinging doors. The pocket door's primary advantage is that it slides sideways into the adjacent wall. Since the door doesn't swing, there is no arc to clear during operation. When they are stored (open), pocket doors don't take up space in either room.

Pocket doors also have disadvantages. For example, the adjacent "pocket" eliminates available wall space for electric switches, ducts, and similar functions. Pocket doors don't fit in every location because a comparable straight section of wall must be available next to the opening. The pocket wall also needs to be a few inches thicker than most interior partitions.

With the passage of time, pocket doors tend to require more maintenance, which is usually difficult to perform because the track runs inside the pocket. If you are installing pocket doors, select the hardware before you begin. Surface-mounted hardware is easy to grasp, but the door remains in the partially open position. This effectively reduces the opening width so adjustments may be necessary.

Doors also provide access to shallow

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closets and pantries. These doors allow users to reach into an interior space to remove or replace its contents. For wheelchair users, these "access" doors do not need to meet the same width requirements as passage doors, but the other considerations are similar.

SUMMARY

All doors in your project should be carefully reviewed in the planning stage to ensure you make the best possible selections. Each should perform the desired function, be easy to operate, and contribute to the home's overall ambiance. If a door doesn't meet all these requirements, you can often alter the floor plans slightly so it does.

After selecting the appropriate door type for a specific function and location, focus on other features such as hardware, accessories, and threshold. When possible, visit product showrooms to see and operate the doors you are considering. If you can't visit a showroom, use Internet catalogs and brochures.

With forethought and planning, your home can be accessible, convenient, attractive, and safe. ■



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