# Grab Bars and Handrails

Transfer and balance aids are important safety features needed wherever a disabled person changes position (such as on or off the toilet), changes levels (at an entry or stairway) or remains stable in an unsafe or slippery environment (in the bathtub or shower). Handrails and grab bars are the most common types of aids.

Grab bars are available from many manufacturers. They’re produced in a very wide array of layouts, diameters, wall clearances and grip surfaces. Bars are most commonly manufactured out of metal, but high-impact plastic units or metal bars coated with plastic are marketed as well. They now come in “designer colors” and with attractive shapes and appearances that blend in and don’t look “institutional.”

Plumbers or plumbing supply firms carry the largest selection, but building supply centers now carry a number of basic models. Because there are so many types with so many features, make sure to check manufacturers’ literature thoroughly when placing an order and specify precise model numbers according to length, right or left side, etc.

Before looking at selection and installation issues, it's important to point out two mistakes frequently made in installing grab bars in homes. One is the assumption that bars must be installed in the exact locations specified by state or federal access codes. The Minnesota State Building Code’s accessibility requirements and similar design codes were developed to govern installation of accessibility features in public and commercial locations (which includes multifamily housing). Single-family homes are exempt from these code requirements, because modifications should either be tailored to the unique needs of a particular disabled person and household/home or installed with capacity for flexible adjustment over time.

The second mistake often made is assuming that bars are only installed for a disabled person’s needs. In many cases, they’re installed to provide a helper with support and bracing. Also, since grab bars are a good safety feature, they can benefit everyone in the household in more ways than one - remember that bars can always serve as an extra towel rack, but never vice versa.

There are five key features to check when selecting and installing these aids:

* “Fit” for a user’s hand
* Safety clearance from the mounting surface
* Material used and grip surface treatment
* Placement
* Ability to support the user

## Fit

Some people find that a round or oval shape 1-1/2” in diameter fits their hands best. This is also the size accessibility codes require for public/commercial installations. However, aids are typically available in 1-1/4” or even 1 “ diameters, which may be much more comfortable for young children or many adults with smaller hands. Carefully evaluate needs and don’t let the numbers here fool you. They sound very small but actually result in very large differences in grip stability - make up some bars out of cardboard tubing and test the difference.

## Clearance

Grab bars and handrail clearance from a wall should be large enough to allow comfortable reaching and gripping but small enough to prevent an arm from sliding down between the aid and the wall. 1-1/2” is the distance specified by access codes for public/commercial installations, and is a good guideline for home projects as well. However, a smaller clearance may be important if young children are around or are the primary users.

## Material

Bathroom grab bars and balance aids should be made of stainless steel or plastic to resist mold, mildew, bacterial growth and corrosion. A caution when installing metal bars is to make sure that the screws and other fasteners are of an acceptable type of metal - if they're not, breakdown will occur over time where the two come in contact.

Aids with a textured grip surface should be installed in areas where users’ hands will be wet and/or soapy. One finely textured steel finish is called “peened” surfacing - it looks and feels like sandpaper. Another rougher, cross-hatched treatment is called “knurled” surfacing.

Tubular metal rails or properly sanded/sealed wood handrails can be used for interior stairs, hallways, ramps, etc. For units installed outside, metal rails or piping should be avoided because wet gloves/hands can stick to them in the winter.

## Placement

A user's physical capabilities, mobility equipment required, and constraints presented by room layout or fixtures all affect aids’ shapes and placements. In selecting an aid, factors that have to be considered include:

* Comfortable range of reach
* Whether the user will lean, push, or pull (like a chin-up) on the aid for support or in making a transfer
* Whether a trapeze, pull-down or swing-away bar would work better than a fixed bar
* “Handedness” or “sidedness” - whether the person prefers or must have the aid located on a particular side of a fixture, wall, stairwell, etc.
* Horizontal, vertical, and angled mountings, and how the orientation will ease or complicate gripping or improve leverage
* Federal/state accessibility code requirements. (Although not mandated in homes, the code settings *may* match a particular user’s needs.)

## Support/mounting

Aids must have proper “backing” or reinforcement to prevent them from bending anywhere along their lengths or pulling out of their mountings. Nearly all grab bar and some handrail remodeling installations involve removing a section of wall covering and sheetrock, inserting backing/anchoring and then patching/refinishing the wall.

Backing must be installed because many bars have a circular mounting plate with three screws, and the screws are spaced so that not all three can be drilled into the face (narrow edge) of a wall stud. Also, some bar lengths (like 18”, 24” and 30”)don't match the standard 16” spacing commonly used for centering wall studs in residential construction.

When backing must be inserted in an opened-up wall, 2” x 8” or 2” x 10” lumber is typically nailed horizontally between studs to create a mounting plate. If bar location is somewhat in question or may need to change over time, a sheet of plywood (1/2” minimum) can be installed to provide a panel for easy relocation. Wall studs are notched to the depth of the panel's thickness, the panel attached, new sheetrock installed over it to create a level surface for refinishing and the aid mounted.

Stainless steel aids are typically designed to support 250 pounds anywhere along their lengths. Where wood handrails are installed, they need support brackets spaced closely enough along the rail's length to handle a similar load and prevent bending - 30” to 36” distances are recommended.