



General Guidelines for Accessible Ramps

Please note that these general rules serve only as a guideline. If you are building for a private residence, you have no legal obligation to follow ADA guidelines unless required to by your local building code. We present these guidelines as a known, safe standard. Always remember that USABILITY is paramount when constructing any modification. Make whatever adjustments are necessary to accommodate the individual being served.

Pitch/Slope:

The running slope of the ramp should never exceed (be steeper than) 1:12. That is, for every inch of elevation change the ramp should be 1 foot long. Cross slope should not exceed 1:48. That is, for a 4 foot wide ramp, the ramp should be within 1 inch of perfectly level.

Width:

The minimum considered width should never be less than 36 inches. 48 is always preferred. Remembering that most board lumber is typically sold in lengths in multiples of 4 feet long (8, 12, 16, etc.) you will often wind up with less wasted material in a 48" wide ramp. You should never interrupt any single plank on the surface of the ramp. For example, you should not use two, 2 foot long pieces of lumber to make one, 4 foot plank.

Hand Rails:

Hand rails are paramount for safe function of the ramp. Handrails must be provided on both sides of the ramp. The top of the gripping surface of the handrail should be a minimum of 34 inches above the ramp surface, and no more than 38 inches from the ramp surface. EXCEPTION: If the person for whom the ramp is being built would better benefit from a taller or lower grip. Please note that this exception is NOT ADA compliant. In our experience, a 2x6 board sanded smooth, turned on its side makes a great hand grip. A 2x4 on its wide side is probably too wide to comfortably grip and is not recommended. In fact, for a round rail the cross-section should be between 1.25 inches and 2 inches maximum, and for a non-round grip, should have a perimeter dimension of at least 4 inches minimum and 6.25 inches maximum. The rail should stand-off from any adjacent surface by at least 1.5 inches on all sides.

Hip/Foot Rails:

Keeping in mind that the primary function of the ramp is safe usability, we look for two additional barriers to be in place on the handrail frame. The first one, which is ADA mandatory, is a running board, block, or rail that begins NO HIGHER than 4 inches above the ramp surface. 2-4" is great. There is no maximum height, however typically we recommend a single 2x6 board. This board serves two purposes: 1) It prevents a wheelchair wheel, walker tip, cane tip, or wheelchair frame from hitting the stringers of the hand rail structure AND prevents them from slipping through those stringers, causing the person to fall. Imagine a wet surface and a cane user, where the cane slips through the stringers. You may place this rail at the deck surface, but for West Virginia and our snowfall, we recommend 2-4 inches so that snow may be swept under the rail. The second rail, which is not ADA mandatory, is a hip rail of the same dimensions as the foot rail. This is simply a convenience and added safety measure, to prevent a wheelchair user from hitting his or her knee on the handrail structure; think of it as a bumper rail. Generally, this rail is placed equidistant between the top and bottom rails.

Length/Landings:

The maximum unobstructed length for any ramp section is 30 feet. If a ramp needs to go greater than 30 feet to accommodate a greater height, a landing must be installed. Landings must be at least as wide as the ramp surface, have no significant slope (1:48) and be at least 60 inches long. These are provided as rest points and/or places to regain control should an operator lose control of his/her appliance. If the ramp is changing direction (A "dogleg" or 90 degree turn for space accommodation) the turn must be accompanied by a landing not smaller than 60x60.

Deck Surface:

It is never OK to use sheet products for ramp surface. 2x6 pressure treated lumber, engineered, or composite materials are the ideal products. Sheet products are simply too slippery, too prone to mold/mildew, and too structurally unsound. The space between boards should never exceed ½ inch, and obviously boards should run perpendicular to the run of the ramp. The lip to get on or off the ramp should not exceed ¼ inch if not beveled, or ½ inch if beveled.

Construction Guidelines:

The designer and builder must remember that ramps, by design, take a lot of abuse and wear. A typical 200 lb person who uses a power chair will be distributing a minimum of 450lbs across a footprint of probably not greater than 2x2 feet in only 4 points of contact (with as much as 85% of that load on the rear wheels). Even a smaller person in a manual chair will be placing approximately 80% of their weight plus the weight of the chair on just the two points where the large wheels touch the floor surface. The surface must not be allowed to flex, as very quickly the ramp will rip itself apart. Preventing flex for a 500lb application requires significant hardware and engineering. We encourage you to fully plan out the installation before you begin construction.

For more complete details, we encourage you to consult the 2010 ADA Standards for Accessible Design, available free on the web at: http://www.ada.gov/2010ADASTandards_index.htm



Figure 1 A metal ramp, the bottom rail is integrated into the ramp surface.



Figure 2 This ramp is unfinished, but notice the deck materials and density of support structure.



Figure 3 Alternate construction with decorative spindles. This ramp does not have the optional middle rail. The carpeting was added by the consumer and is not necessarily recommended by the NWVCIL.



Figure 4 A long concrete ramp. Brushed concrete is required for these applications; notice the landing in the middle of the ramp.