



# Residential Ramps

## Specifications for the construction residential ramps.



CITY OF WARREN - BUILDING CODE DEPARTMENT  
318 W. Third Avenue, Warren, PA 16365 · (814) 723-6300 · www.cityofwarrenpa.gov

### RAMP CONSTRUCTION

**Footings.** Footings for ramps attached to the primary structure or greater than 600 square feet, shall be protected from frost and shall extend a minimum of 36 inches below grade. Footings for freestanding ramps 600 square feet or less shall be placed at least 12 inches below the undisturbed ground surface.

**Ramp attachment.** Exterior ramps and landings shall be positively anchored to the primary structure to resist both vertical and lateral forces or shall be designed to be self-supporting. Attachment shall not be accomplished by use of toenails or nails subject to withdrawal.

**Maximum slope.** Ramps shall have a maximum slope of 1 unit vertical in 12 units horizontal (8.3 percent slope).

**Exception:** Where it is technically infeasible to comply because of site constraints, ramps may have a maximum slope of one unit vertical in eight horizontal (12.5 percent slope).

**Ramp width.** Ramps shall not be less than 36 inches in clear width.

**Landings required.** A minimum 3 foot by 3 foot landing shall be provided:

1. At the top and bottom of ramps.
2. Where doors open onto ramps.
3. Where ramps change direction.

**Handrails required.** Handrails shall be provided on at least one side of all ramps exceeding a slope of one unit vertical in 12 units horizontal (8.33 percent slope).

**Handrail Height.** Handrail height, measured above the finished surface of the ramp slope, shall be not less than 34 inches and not less than 38 inches.

**Handrail grip size.** All required handrails shall be of one of the following types or provide equivalent graspability.

1. Type I. Handrails with a circular cross section shall have an outside diameter of at least 1 1/4 inches and not greater than 2 inches. If the handrail is not circular, it shall have a perimeter dimension of at least 4 inches and not greater than 6 1/4 inches with a maximum cross section of dimension of 2 1/4 inches. Edges shall have a minimum radius of 0.01 inch.
2. Type II. Handrails with a perimeter greater than 6 1/4 inches shall have a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of 3/4 inch measured vertically from the tallest portion of the profile and achieve a depth of at least 5/16 inch within 7/8 inch below the widest portion of the profile. This required depth shall continue for at least 3/8 inch to a level that is not less than 1 3/4 inches below the tallest portion of the profile. The minimum width of the handrail above the recess shall be 1 1/4 inches to a maximum of 2 3/4 inches. Edges shall have a minimum radius of 0.01 inch.

**Handrail continuity.** Handrails where required on ramps shall be continuous for the full length of the ramp. Handrail ends shall be returned or shall terminate in newel posts or safety terminals. Handrails adjacent to a wall shall have a space of not less than 1 1/2 inches between the wall and the handrails.

### GUARDS

**Guards required.** Guards shall be located along open-sided walking surfaces, including stairs, ramps and landings, that are located more than 30 inches measured vertically to the floor or grade below at any point within 36 inches horizontally to the edge of the open side. Insect screening shall not be considered as a guard.

**Guard height.** Required *guards* at open-sided walking surfaces, including stairs, porches, balconies or landings, shall be above the adjacent walking surface, adjacent fixed seating or the line connecting the leading edges of the treads.

#### **Exceptions:**

1. Guards on the open sides of stairs shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the leading edges of the treads.
2. Where the top of the guard also serves as a handrail on the open sides of stairs, the top of the guard shall be not less than 34 inches and not more than 38 inches (measured vertically from a line connecting the leading edges of the treads).

**Guard opening limitations.** Required guards shall not have openings from the walking surface to the required guard height which allow passage of a sphere 4 inches in diameter.

#### **Exceptions:**

1. The triangular openings at the open side of a stair, formed by the riser, tread and bottom rail of a guard, shall not allow passage of a sphere 6 inches in diameter.
2. Guards on the open sides of stairs shall not have openings which allow passage of a sphere 4 3/8 inches in diameter.

**Exterior wood/plastic composite guards.** Wood/plastic composites used in exterior deck boards, handrails and guardrail systems shall bear a label indicating the required performance levels and demonstrating compliance with the provisions of ASTM D 7032. Wood/plastic composites shall be installed in accordance with the manufacturer's instructions.

**Edge protection.** While not required by the Residential Code, an additional safety feature on a ramp designed for wheelchair users is a curb for edge protection on each side of the ramp and landings near the floor. Edge protection is provided to prevent people from traveling off the ramp. If edge protection is installed, it should be a curb or barrier that prevents the passage of a 4-inch diameter sphere

*This is only a guide. Refer to the 2015 International Residential Code for more detailed requirements.*