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January 24, 2017

## **RAMPS**

This handout was prepared in an effort to provide assistance and guidance relative to the proper construction of accessible ramps. The intent of this handout is not to be all-inclusive, but rather to present the reader to the most important points of ramp construction.

### **I. The following information was obtained from the 2015 edition of the International Residential Code:**

**R311.8.1 Maximum slope.** Ramps shall have a maximum slope of one unit vertical in twelve 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).

**R311.8.2 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.

**R311.8.3 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).

**R311.8.3.1 Height.** Handrail height, measured above the finished surface of the ramp slope, shall be not less than 34 inches and not more than 38 inches.

**R311.8.3.2 Handrail grip size.** Handrails on ramps shall comply with Section R311.7.8.3

**R311.8.3.3 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 1½ inches between the wall and the handrails.

**R312.1 Guards.** Porches, balconies, ramps or raised floor surfaces located more than 30 inches above the floor or grade below shall have guards not less than 36 inches in height.

**II. The following information was obtained from the 2015 edition of the International Building Code:**

**1012 Ramps**

**1012.1 Scope.** The provisions of this section shall apply to ramps used as a component of a means of egress.

**Exceptions:**

1. Ramped aisles within assembly rooms or spaces shall comply with the provisions in Section 1029.
2. Curb ramps shall comply with ICC A117.1.
3. Vehicle ramps in parking garages for pedestrian exit access shall not be required to comply with Sections 1012.3 through 1012.10 when they are not an accessible route serving accessible parking spaces, other required accessible elements or part of an accessible means of egress.

**1012.2 Slope.** Ramps used as part of a means of egress shall have a running slope not steeper than one unit vertical in 12 unit's horizontal (8-percent slope). The slope of other pedestrian ramps shall not be steeper than one unit vertical in eight unit's horizontal (12.5-percent slope).

**1012.3 Cross slope.** The slope measured perpendicular to the direction of travel of a ramp shall not be steeper than one unit vertical in 48 unit's horizontal (2-percent slope).

**1012.4 Vertical rise.** The rise for any ramp run shall be 30 inches maximum.

**1012.5 Minimum dimensions.** The minimum dimensions of means of egress ramps shall comply with Sections 1012.5.1 through 1012.5.3

**1012.5.1 Width.** The minimum width of a means of egress ramp shall not be less than that required for corridors by Section 1020.2. The clear width of a ramp and the clear width between handrails, if provided, shall be 36 inches, (914mm), minimum.

**1012.5.2 Headroom.** The minimum headroom in all parts of the means of egress ramp shall not be less than 80 inches, (2032mm).

**1012.5.3 Restrictions.** Means of egress ramps shall not reduce in width in the direction of egress travel. Projections into the required ramp and landing width are prohibited. Doors opening onto a landing shall not reduce the clear width to less than 42 inches, (1067mm).

**1012.6 Landings.** Ramps shall have landings at the bottom and top of each ramp, points of turning, entrance, exits and at doors. Landings shall comply with Sections 1010.6.1 through 1010.6.5

**1012.6.1 Slope.** Landings shall have a slope not steeper than one unit vertical in 48 unit's horizontal (2-percent slope) in any direction. Changes in level are not permitted.

**1012.6.2 Width.** The landing shall be at least as wide as the widest ramp run adjoining the landing.

**1012.6.3 Length.** The landing length shall be 60 inches, (1525), minimum.

**Exceptions:**

1. In Group R-2 and R-3 individual dwelling and sleeping units that are not required to be Accessible units, Type A units or Type B units in accordance with Section 1107, landings are permitted to be 36 inches (914 mm) minimum.
2. Where the ramp is not a part of an accessible route, the length of the landing shall not be required to be more than 48 inches (1220 mm) in the direction of travel.

**1012.6.4 Change in direction.** Where changes in direction of travel occur at landings provided between ramp runs, the landing shall be 60 inches by 60 inches (1524 mm by 1524 mm) minimum.

**Exception:**

In Group R-2 and R-3 individual dwelling or sleeping units that are not required to be Accessible units, Type A units or Type B units in accordance with Section 1107, landings are permitted to be 36 inches by 36 inches (914 mm by 914 mm) minimum.

**1012.6.5 Doorways.** Where doorways are located adjacent to a ramp landing, maneuvering clearances required by ICC A117.1 are permitted to overlap the required landing area.

**1012.7 Ramp construction.** Ramps shall be built of materials consistent with the types permitted for the type of construction of the building, except that wood handrails shall be permitted for all types of construction.

**1012.7.1 Ramp surface.** The surface of ramps shall be of slip-resistant materials that are securely attached.

**1012.7.2 Outdoor conditions.** Outdoor ramps and outdoor approaches to ramps shall be designed so that water will not accumulate on walking surfaces.

**1012.8 Handrails.** Ramps with a rise **greater than 6 inches** shall have handrails on both sides. Handrails shall comply with Section 1014.

**1012.9 Guards.** Guards shall be provided where required by Section 1015 and shall be constructed in accordance with Section 1015.

**1012.10 Edge protection.** Edge protection complying with Section 1012.10.1 or 1012.10.2 shall be provided on each side of ramp runs and at each side of ramp landings.

**Exceptions:**

1. Edge protection is not required on ramps that are not required to have handrails, provided they have flared sides that comply with the ICC A117.1 curb ramp provisions.
2. Edge protection is not required on the sides of ramp landings serving an adjoining ramp run or stairway.
3. Edge protection is not required on the sides of ramp landings having a vertical drop off of not more than 1/2 inch, (12.7 mm), within 10 inches, (254 mm), horizontally of the required landing area.

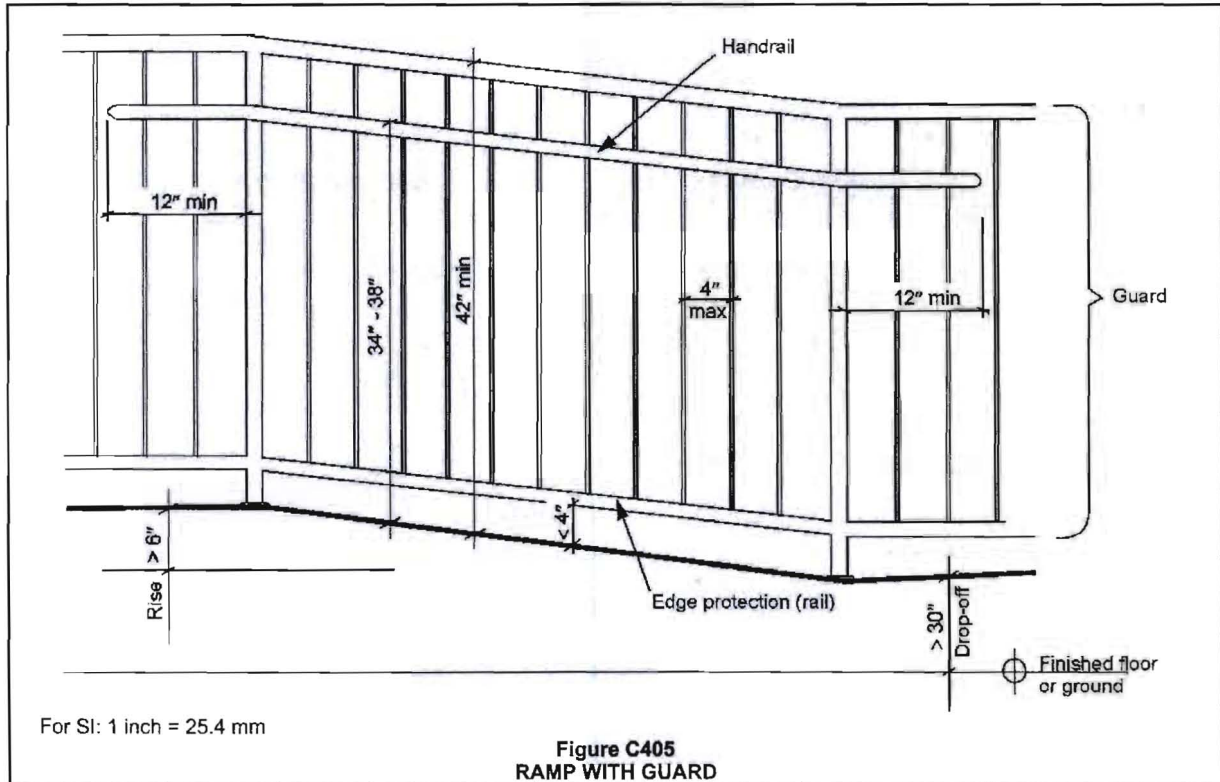
**1012.10.1 Curb, rail, wall or barrier.** A curb, rail, wall or barrier shall be provided to serve as edge protection. A curb shall be not less than 4 inches (102 mm) in height. Barriers shall be constructed so that the barrier prevents the passage of a 4-inch-diameter (102 mm) sphere, where any portion of the sphere is within 4 inches (102 mm) of the floor or ground surface.

**1012.10.2 Extended floor or ground surface.** The floor or ground surface of the ramp run or landing shall extend 12 inches (305 mm) minimum beyond the inside face of a handrail complying with Section 1014



III. The following information was obtained from the 2003 edition of American National Standards Institute (ANSI) and ANSI Commentary:

**Fig. C405**  
**Ramp with Guard**



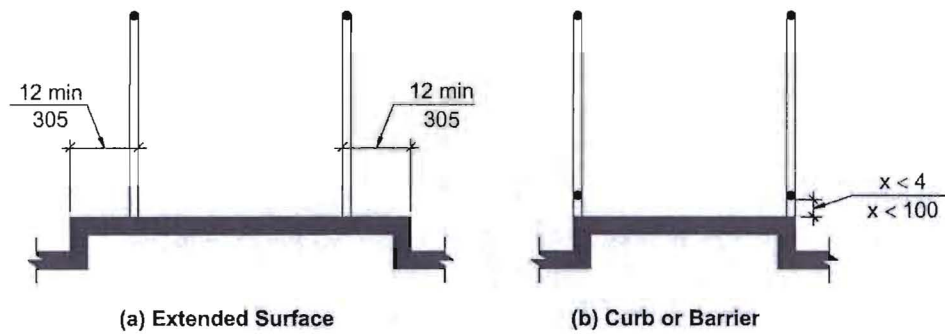
**405.6 Rise.** The rise for any ramp run shall be 30 inches maximum.

**405.9 Edge Protection.** Edge protection complying with Section 405.9.1 or 405.9.2 shall be provided on each side of ramp runs and at each side of ramp landing.

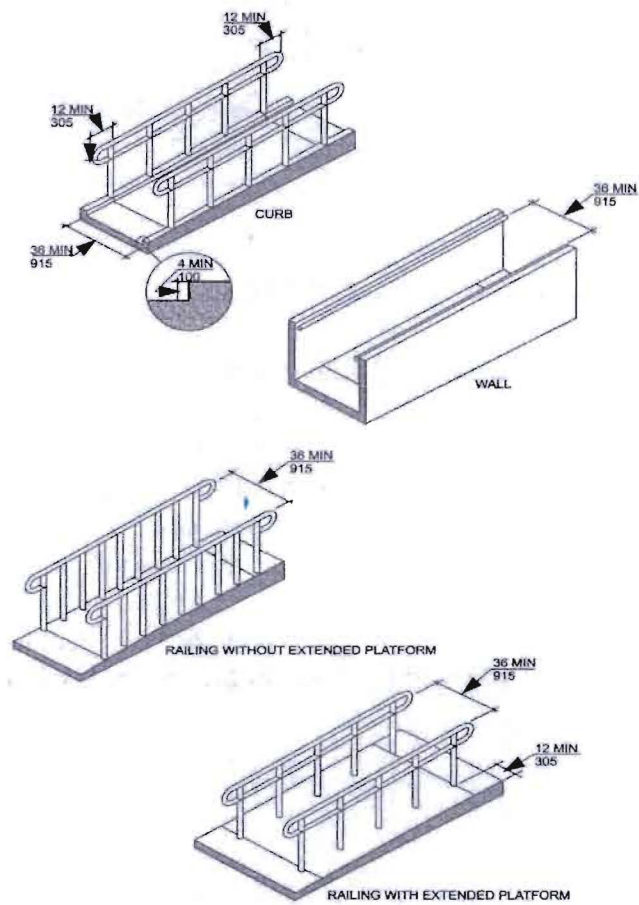
**405.9.1 Extended Floor Surface.** The floor surface of the ramp run or ramp landing shall extend 12 inches minimum beyond the inside face of a railing complying with Section 505.

**405.9.2 Curb or Barrier.** A curb or barrier shall be provided that prevents the passage of a 4-inch diameter sphere where any portion of the sphere is within 4 inches above the floor.

**Fig. 405.9**  
**Ramp Edge Protection**



**Fig. 405.9**  
**Ramp Edge Protection**



**Figure C405.9**  
**EDGE PROTECTION OPTIONS**