

**Visual Interpretation Of The**  
**I**NTERNATIONAL  
**R**ESIDENTIAL  
**C**ODE  
**2006 STAIR BUILDING CODE**



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The Stairway Manufacturers Association publishes visual interpretations of Building Codes to be accurate pictorial descriptive material void of editorial comment to aid in the understanding of the written text. We provide this document as a learning tool to aid designers, builders, homeowners, building officials, stair builders, and others in the shelter industry to accurately and consistently interpret the building code related to stairways.

The SMA has participated in the model code development process since 1988. We support the International Code Council's development process through our membership and are recognized and respected for our responsible efforts at code reform and interpretation in addition to our trade and industry experience that we bring to the table. This experience and reputation is an asset to our continued efforts to provide safe stairways and reduce stairway accidents while allowing freedom of design, and aesthetic properties of preference.

In addition to our experience in the code development process we use the commentaries published by the International Code Council as a resource for each visual interpretation.

The SMA wishes to thank the ICC for their permission to print portions of the IRC and in full recognition of our responsibility to educate and inform we invite your feedback and comments.

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If you find this document to be of significant value, then you will find it equally beneficial to associate with a member of the Stairway Manufacturer's Association (SMA). The members of the SMA have taken on the task of influencing the development of responsible and functional building codes. They are the very individuals effectively communicating consistent interpretation of each stair code. A resulting product of their effort is this Visual Interpretation. SMA members know their craft of Stair Design and Construction and they know Building Codes. You are encouraged to contact a member of the SMA before you begin your next stairway project.



**The Stair Industry**  
**Dedicated to Safety & Quality**

*If your work is related to stairs and you can prescribe to the ethics and quality standards of the SMA you may qualify for membership. To learn more about the SMA go to [www.stairways.org](http://www.stairways.org), or contact us at [sma@stairways.org](mailto:sma@stairways.org).*

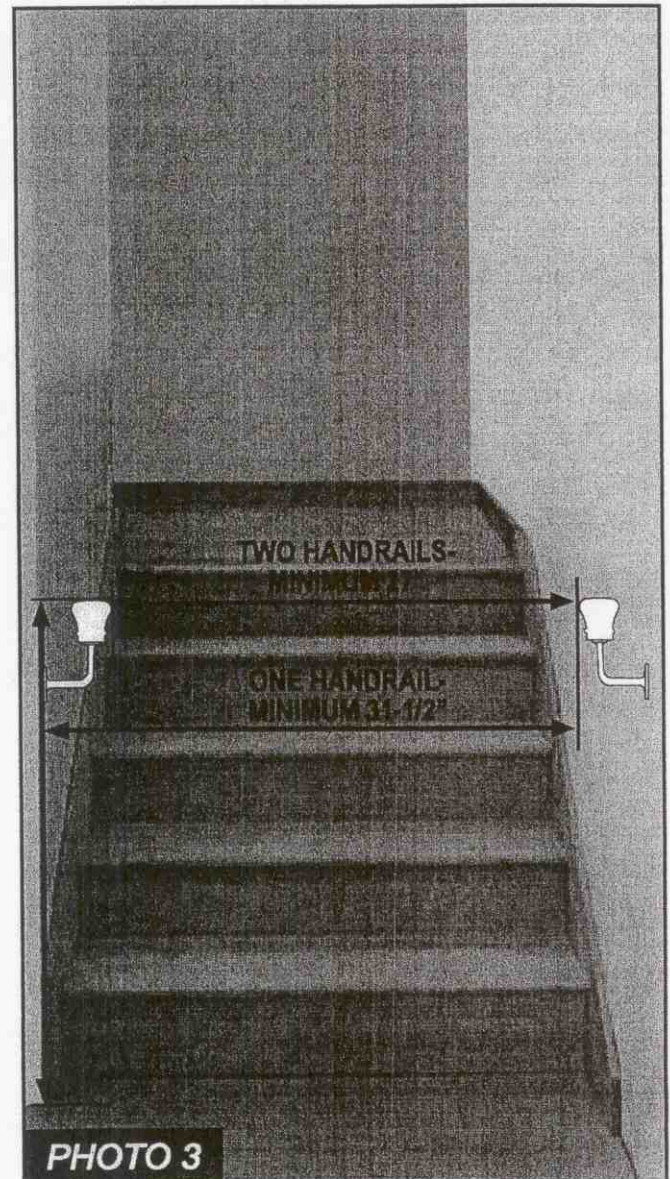
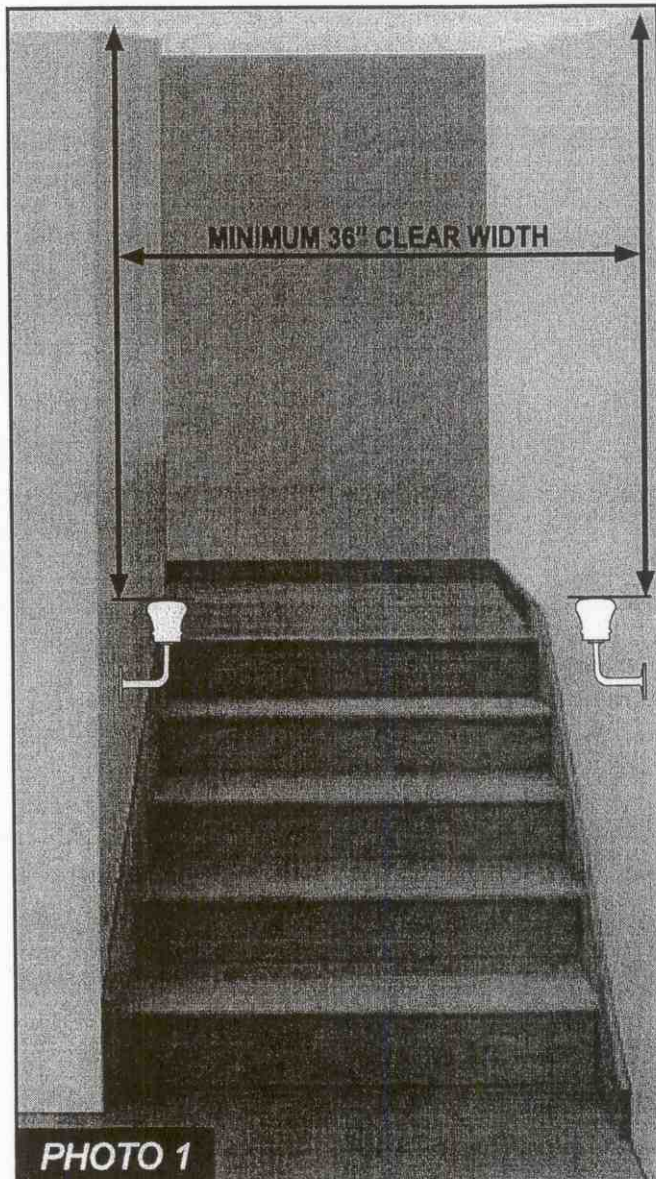
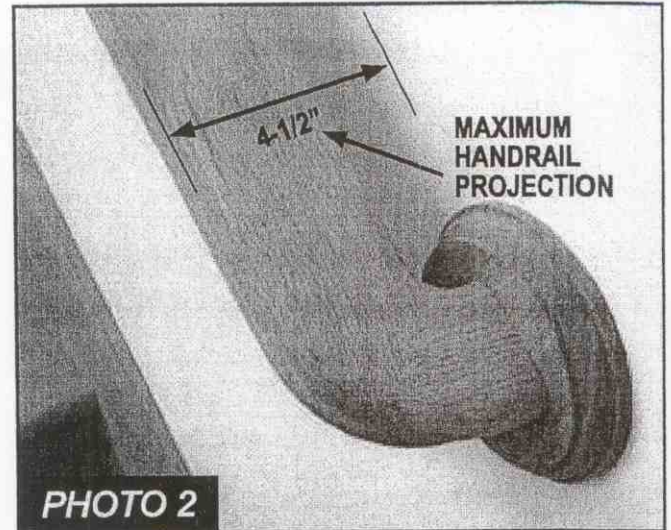
## SECTION R311.5 STAIRWAYS

### R311.5.1 Width.

Stairways shall not be less than 36 inches (914 mm) in clear width at all points above the permitted handrail height and below the required headroom height.

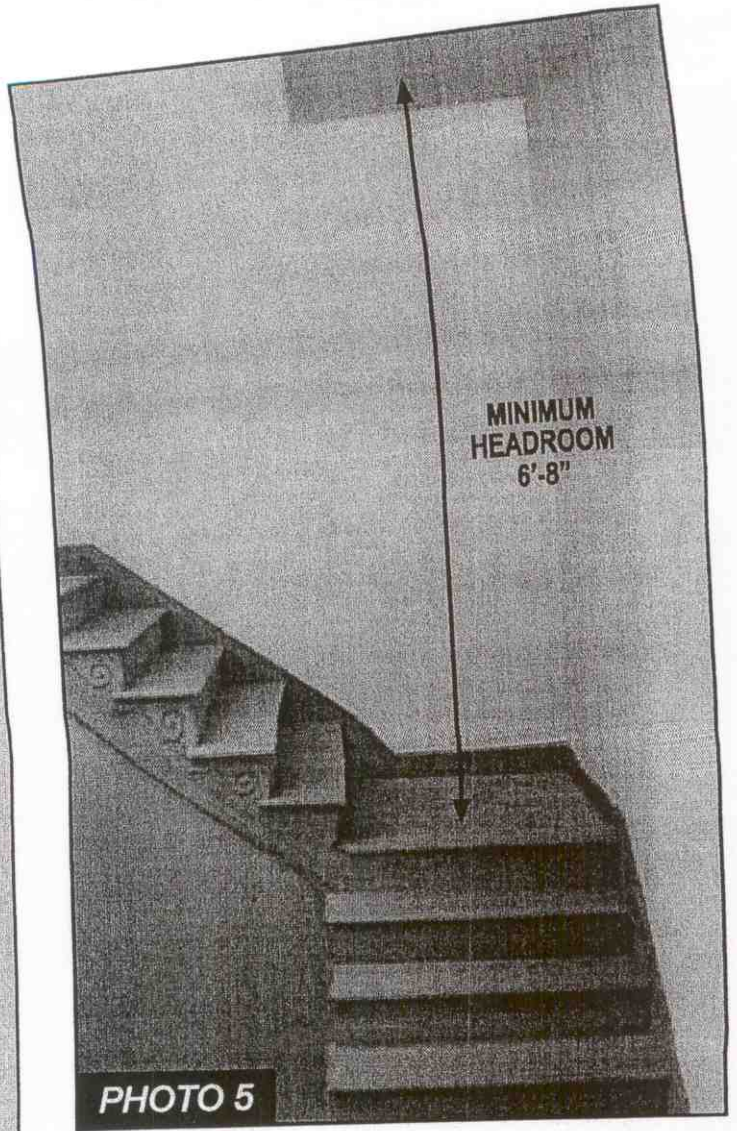
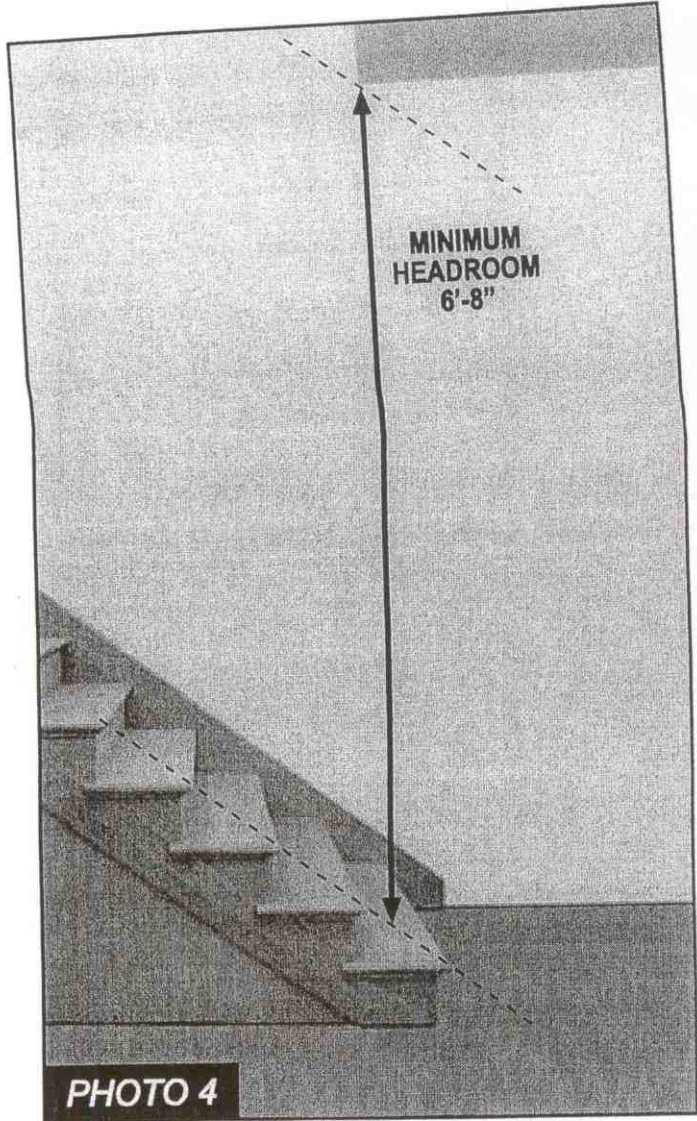
**PHOTO 1.** Handrails shall not project more than 4.5 inches (114 mm) on either side of the stairway **PHOTO 2** and the minimum clear width of the stairway at and below the handrail height, including treads and landings, shall not be less than 31.5 inches (787 mm) where a handrail is installed on one side and 27 inches (698 mm) where handrails are provided on both sides **PHOTO 3**.

*Exception:* The width of spiral stairways shall be in accordance with Section R311.5.8.  
See **PHOTO 35** on page 12.



**R311.5.2 Headroom.**

The minimum headroom in all parts of the stairway shall not be less than 6 feet, 8 inches (2036 mm) measured vertically from the sloped plane adjoining the tread nosing **PHOTO 4** or from the floor surface of the landing or platform. **PHOTO 5.**



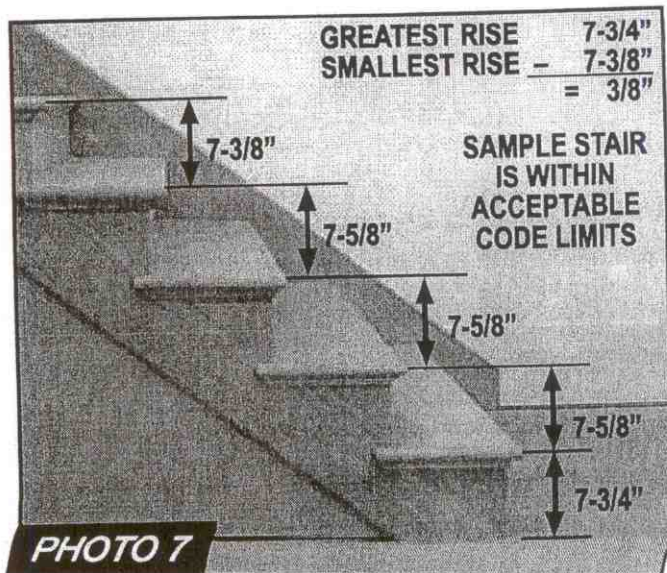
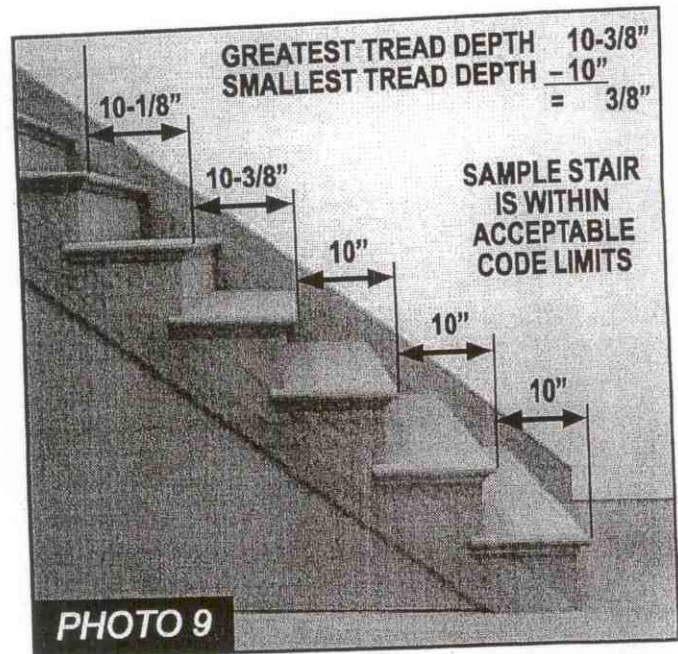
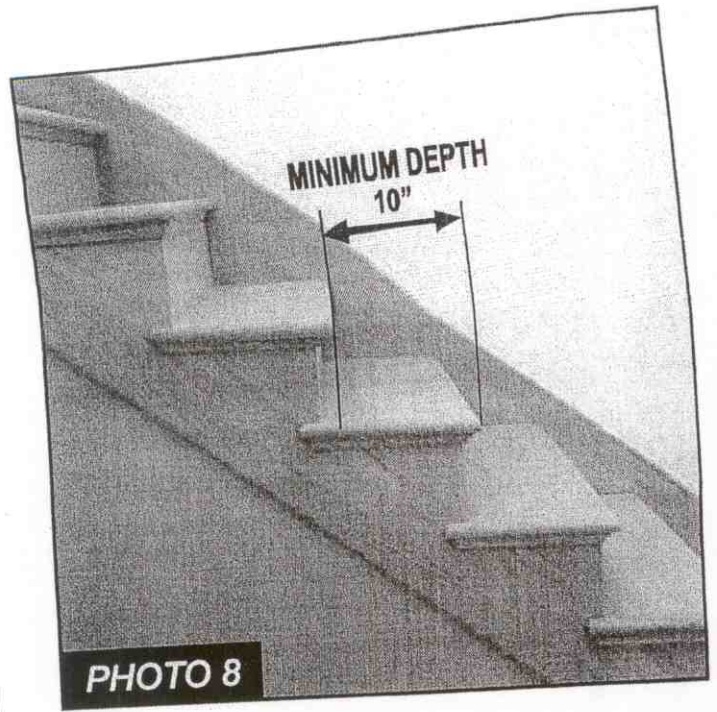
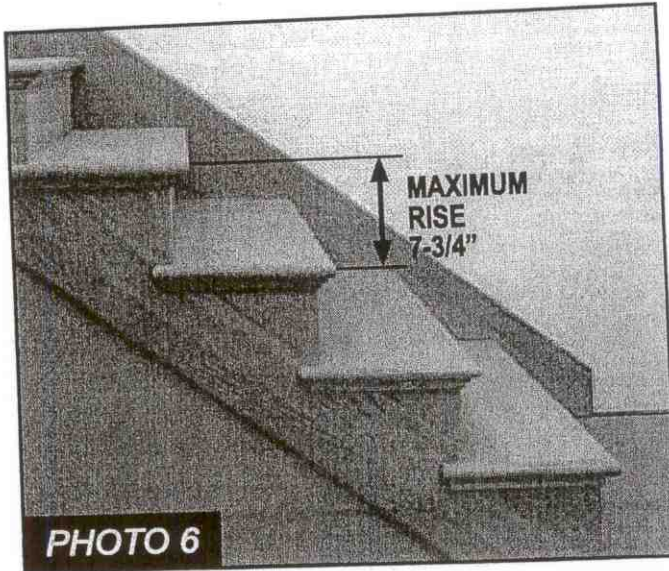
### R311.5.3 Stair treads and risers.

#### R311.5.3.1 Riser height.

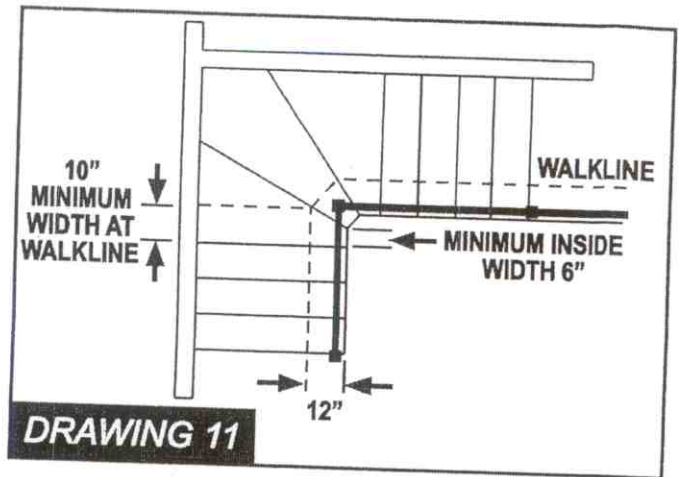
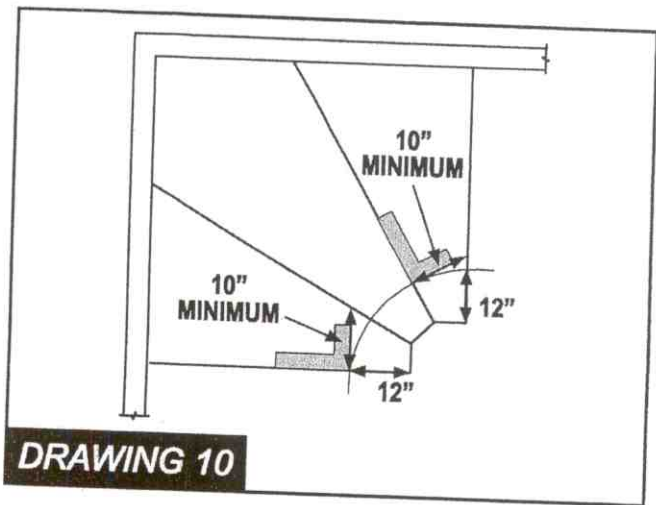
The maximum riser height shall be 7¾ inches (196 mm). The riser shall be measured vertically between leading edges of the adjacent treads. **PHOTO 6.** The greatest riser height within any flight of stairs shall not exceed the smallest by more than ⅜ inch (9.5 mm). **PHOTO 7.**

#### R311.5.3.2 Tread depth.

The minimum tread depth shall be 10 inches (254 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. **PHOTO 8.** The greatest tread depth within any flight of stairs shall not exceed the smallest by more than ⅜ inch (9.5 mm). **PHOTO 9.**

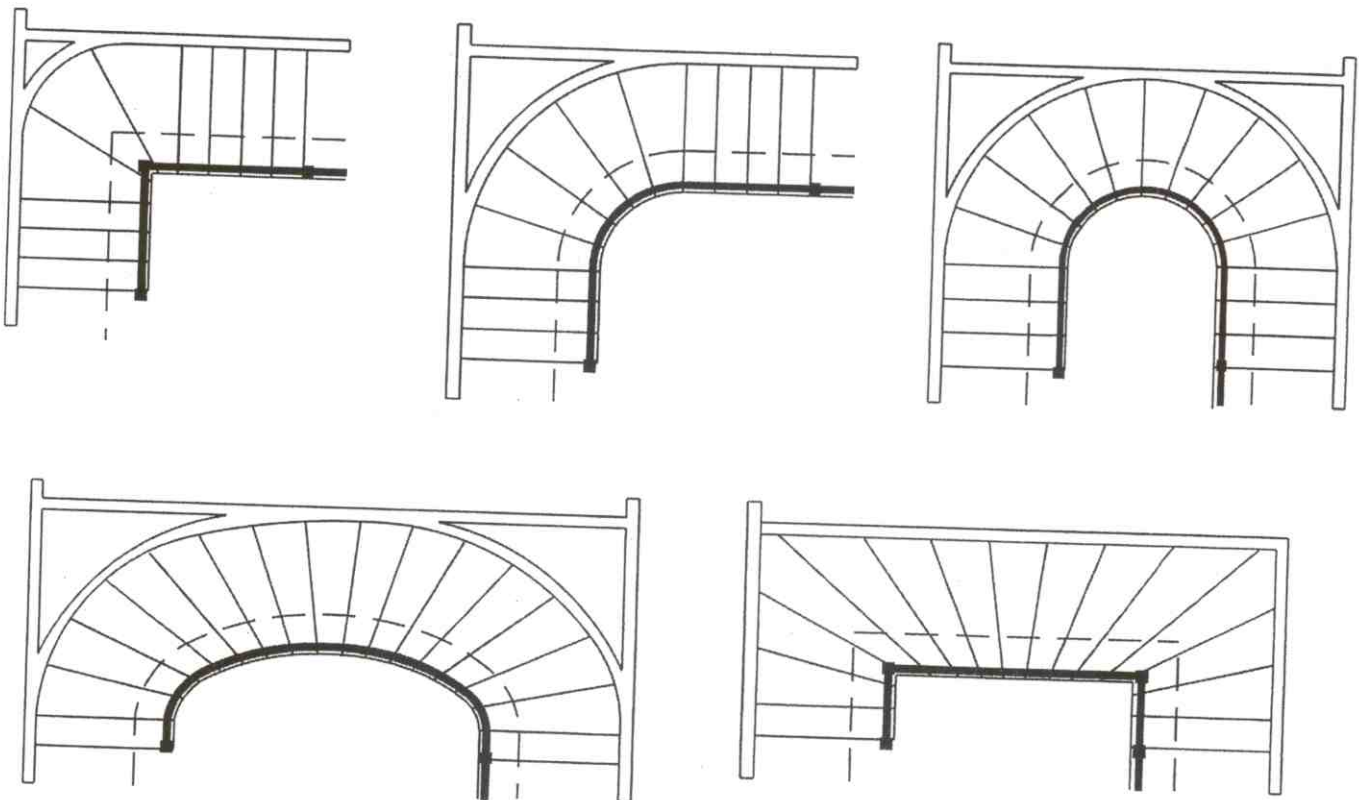


Winder treads shall have a minimum tread depth of 10 inches (254 mm) measured as above at a point 12 inches (305 mm) from the side where the treads are narrower. **DRAWING 10.** Winder treads shall have a minimum tread depth of 6 inches (152 mm) at any point. **DRAWING 11.** Within any flight of stairs, the greatest winder tread depth at the 12 inch (305 mm) walk line shall not exceed the smallest by more than ⅜ inches (9.5 mm).



**WINDER** - A tread with non-parallel edges (as defined in Chapter 2 - IRC, IBC).

**ALTERNATE WINDER TREAD DESIGNS**



### R311.5.3.3 Profile.

The radius of curvature at the leading edge of the tread shall be no greater than  $\frac{9}{16}$  inch (14.3 mm).

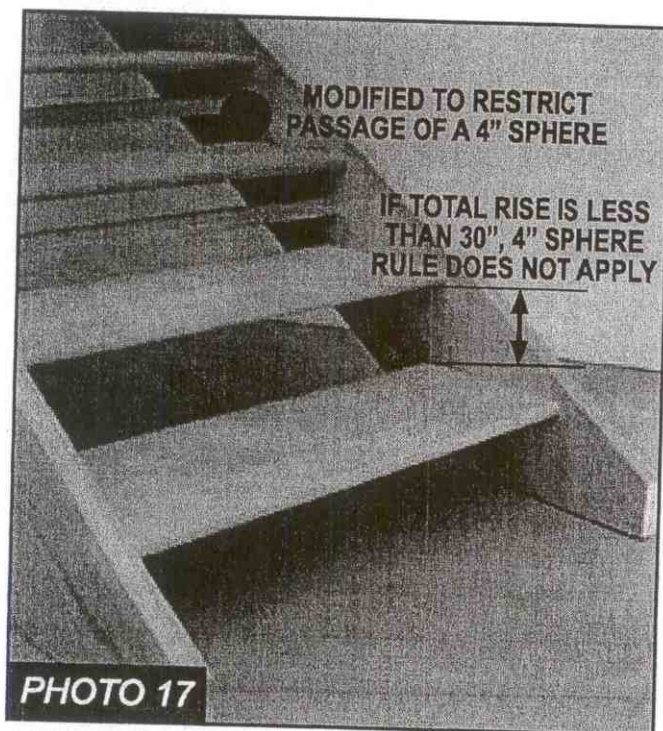
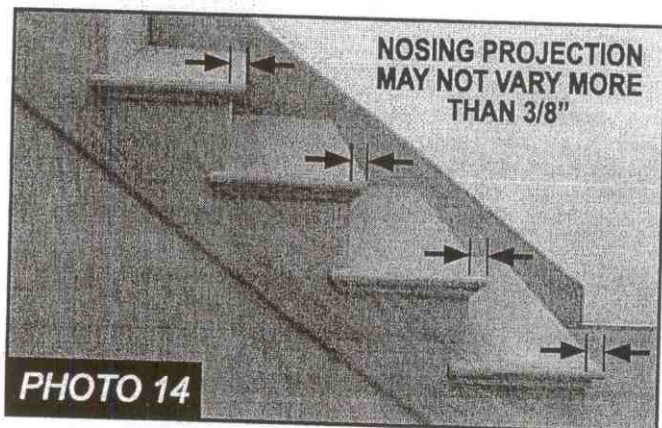
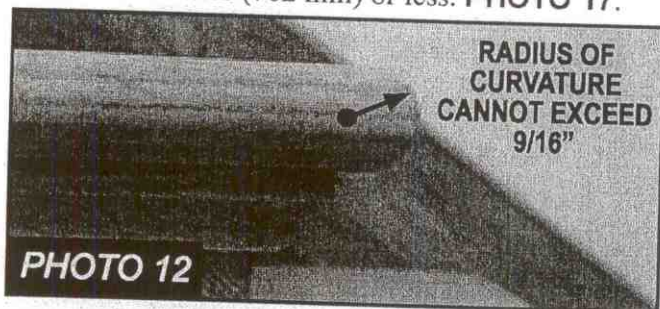
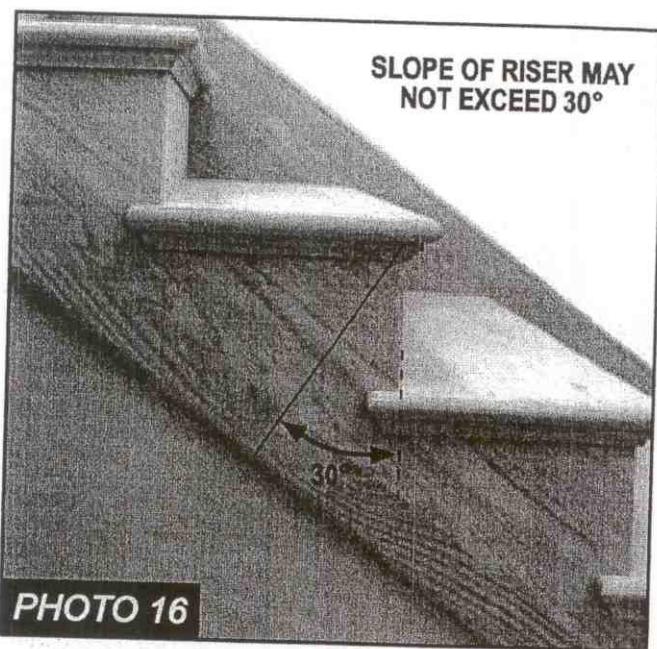
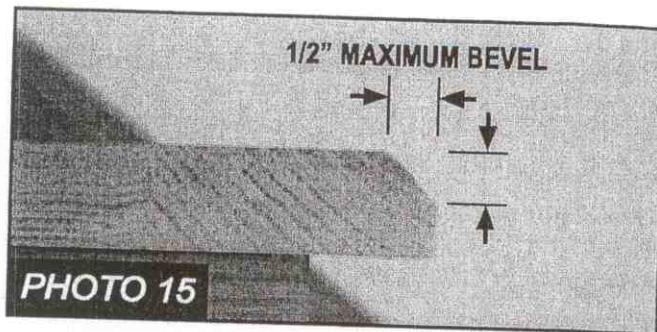
**PHOTO 12.** A nosing not less than  $\frac{3}{4}$  inch (19 mm) but not more than  $1\frac{1}{4}$  inches (32 mm) shall be provided on stairways with solid risers. **PHOTO 13.**

The greatest nosing projection shall not exceed the smallest nosing projection by more than  $\frac{3}{8}$  inch (9.5 mm) between two stories, including the nosing at the level of floors and landings. **PHOTO 14.** Beveling of nosing shall not exceed  $\frac{1}{2}$  inch (12.7 mm).

**PHOTO 15.** Risers shall be vertical or sloped from the underside of the leading edge of the tread above at an angle not more than 30 (0.51 rad) degrees from the vertical. **PHOTO 16.** Open risers are permitted, provided that the opening between treads does not permit the passage of a 4-inch diameter (102 mm) sphere. **PHOTO 17.**

*Exceptions:* 1. A nosing is not required where the tread depth is a minimum of 11 inches (279 mm).

2. The opening between adjacent treads is not limited on stairs with a total rise of 30 inches (762 mm) or less. **PHOTO 17.**

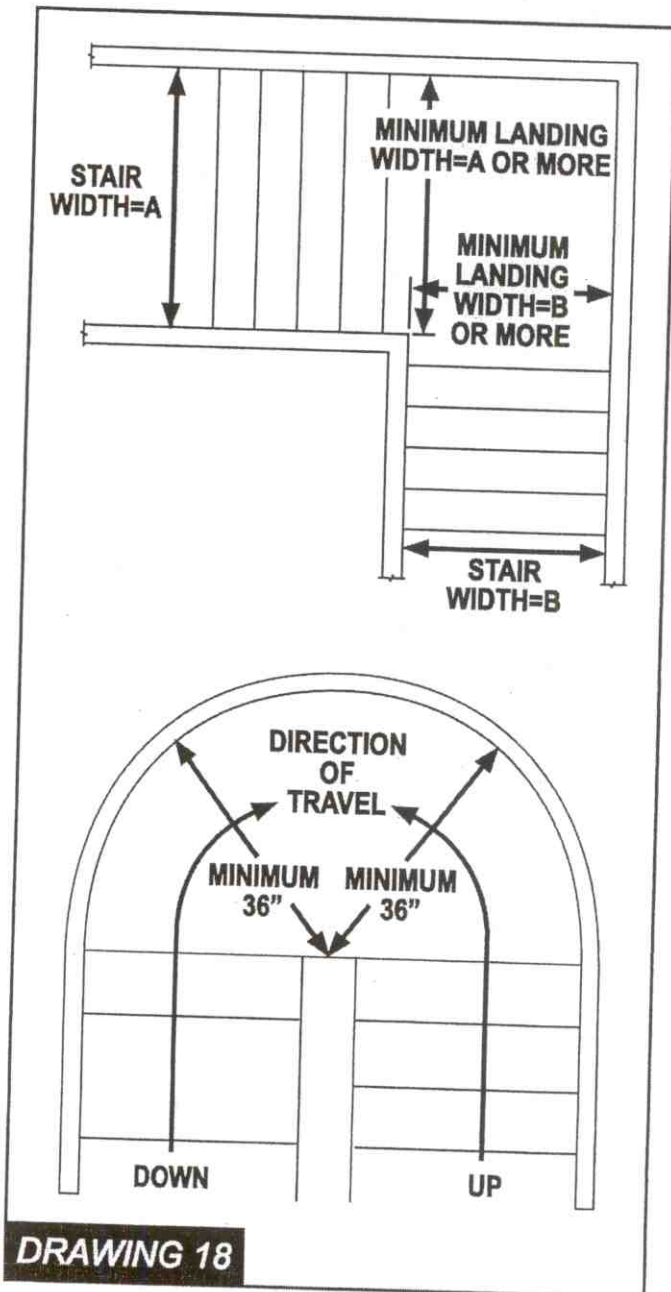


### R311.5.4 Landings for Stairways.

There shall be a floor or landing at the top and bottom of each stairway.

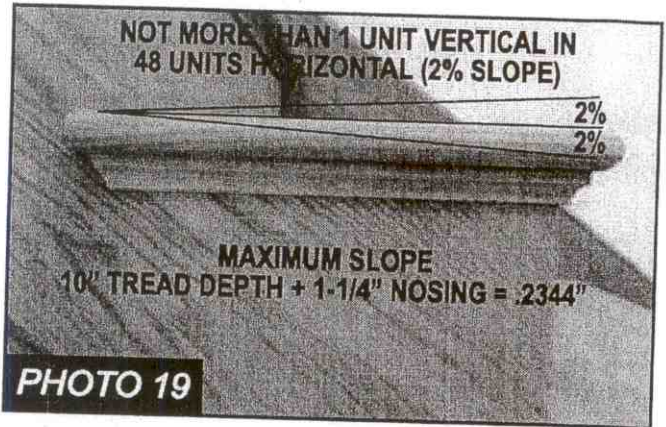
*Exception:* A floor or landing is not required at the top of an interior flight of stairs, including stairs in an enclosed garage, provided a door does not swing over the stairs.

A flight of stairs shall not have a vertical rise greater than 12 feet (3658 mm) between floor levels or landings. The width of each landing shall not be less than the stairway served. Every landing shall have a minimum dimension of 36 inches (914 mm) measured in the direction of travel. **DRAWING 18.**



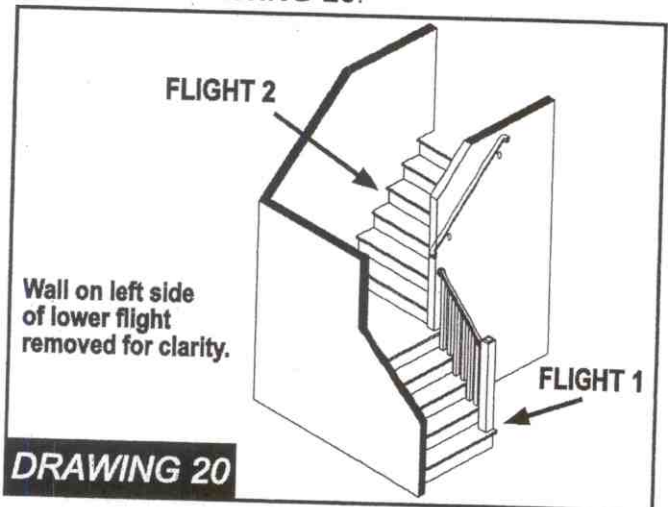
### R311.5.5 Stairway walking surface.

The walking surface of treads and landings of stairways shall be sloped no steeper than one unit vertical in 48 inches horizontal (2-percent slope). **PHOTO 19.**



### R311.5.6 Handrails.

Handrails shall be provided on at least one side of each continuous run of treads or flight with four or more risers. **DRAWING 20.**

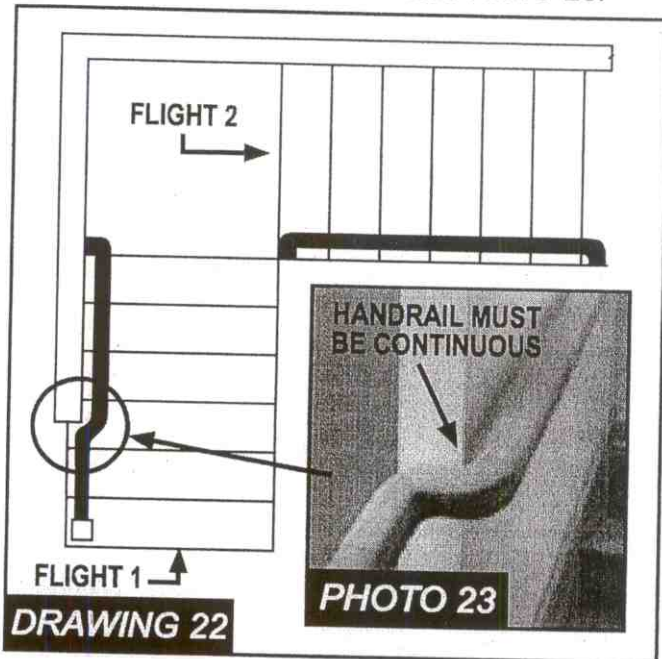


**R311.5.6.1 Height.** Handrail height, measured vertically from the sloped plane adjoining the tread nosing, or finish surface of ramp slope, shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm). **PHOTO 21.**



**R311.5.6.2 Continuity.**

Handrails for stairways shall be continuous for the full length of the flight, from a point directly above the top riser of the flight to a point directly above lowest riser of the flight. **DRAWING 22** and **PHOTO 23**. Handrail ends shall be returned **PHOTO 24** or shall terminate in newel posts or safety terminals. Handrails adjacent to a wall shall have a space of not less than 1½ inches (38 mm) between the wall and the handrails. **PHOTO 25**.



- Exceptions:*
1. Handrails shall be permitted to be interrupted by a newel post at the turn. **PHOTO 26**.
  2. The use of a volute, turnout, starting easing or starting newel shall be allowed over the lowest tread. **PHOTO 27**.

