Visual Interpretation of the
STAIR BUILDING CODE
2018 International Residential Code

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About this Publication

SMA Visual Interpretation of the 2018 IRC Stairbuilding Codes.

This visual guide simplifies complex technical stair code language using drawings and renderings that exceed the limitations of often misunderstood terminology. Homeowners, Industry Professionals, and Regulators alike have praised the SMA Visual Interpretations of the Stair Building Code. Void of editorial comment they are an essential tool to accurate understanding and visualization of the stairway as it is regulated. The SMA provides these publications to aid in consistent code interpretation by all involved in the safe design, construction and functional use of beautiful stairways, with both regulatory and aesthetic requirements.

SMA and Code Development.

Since 1988, the SMA has continued as a proud participant in the model code development process. We are a member of the International Code Council (ICC) and participate on several committees including the ICC A117.1 Standard for Accessible and Usable Buildings and Facilities and the Deck Code Coalition. The SMA is recognized and respected for our responsible efforts at code reform and interpretation in addition to our trade and industry experience. Our reputation and expertise are assets as we strive to provide safe stairways while allowing freedom of design and aesthetic preference. Thank you to the ICC for providing the SMA permission to print portions of the International Residential Code (IRC) as we work to responsibly inform.

To the User.

Printed copies are available for purchase on the SMA website at stairways.org. This document is just one of the many examples of the value of the SMA to Designers, Builders, Regulators, Stair Industry Professionals and Homeowners. SMA members know their craft and they know the building codes. Their knowledge will be an advantage in your stairway project. You can find SMA Members in your area on our website at stairways.org.

To learn more about the SMA and our code of ethics visit stairways.org, or contact us toll free at 877-500-5759 or sma@stairways.org

Consider Membership.

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. Learn more about the SMA and benefits available as a member by visiting our website stairways.org. You may apply online at sma@stairways.org or contact us toll free 877-500-5759.
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INTERNATIONAL CODE COUNCIL, (ICC) DEFINITIONS

INTERNATIONAL RESIDENTIAL CODE, (IRC) - Section R202 Definitions

R201.3 Terms Defined in other codes. When terms are not defined in this code such terms shall have the meanings ascribed in other code publications of the International Code Council

ALTERNATING TREAD DEVICE. A device that has a series of steps between 50 and 70 degrees (0.87 and 1.22 rad) from horizontal, usually attached to a center support rail in an alternating manner so that the user does not have both feet on the same level at the same time.

FLIGHT. A continuous run of rectangular treads or winders or combination thereof from one landing to another.

GUARD. A building component or a system of building components located near the open sides of elevated walking surfaces that minimizes the possibility of a fall from the walking surface to a lower level.

HANDRAIL. A horizontal or sloping rail intended for grasping by the hand for guidance or support.

NOSING. The leading edge of treads of stairs and of landings at the top of stairway flights.

RAMP. A walking surface that has a running slope steeper than 1 unit vertical in 20 units horizontal (5 percent slope).

RISER. The vertical component of a step or stair.

STAIR. A change in elevation, consisting of one or more risers.

STAIRWAY. One or more flights of stairs, either interior or exterior, with the necessary landings and connecting platforms to form a continuous and uninterrupted passage from one level to another within or attached to a building, porch or deck.

STAIRWAY, SPIRAL. A stairway with a plan view of closed circular form and uniform section-shaped treads radiating from a minimum-diameter circle.

WINDER. A tread with nonparallel edges.

INTERNATIONAL BUILDING CODE, (IBC) - Chapter 2 Definitions

201.1 Scope. Unless otherwise expressly stated, the following words and terms shall, for the purposes of this code, have the meanings shown herein.

ALTERNATING TREAD DEVICE. (Same as IRC Definition above)

FLIGHT. A continuous run of rectangular treads, winders or combination thereof from one landing to another.

GUARD. A building component or a system of building components located at or near the open sides of elevated walking surfaces that minimizes the possibility of a fall from the walking surface to a lower level.

HANDRAIL. (Same as IRC definition above)

NOSING. (Same as IRC definition above)

RAMP. (Same as IRC definition above)

STAIR. (Same as IRC definition above)

STAIRWAY. One or more flights of stairs, either exterior or interior, with the necessary landings and platforms connecting them, to form a continuous and uninterrupted passage from one level to another.

STAIRWAY, SPIRAL. A stairway having a closed circular form in its plan view with uniform section-shaped treads attached to and radiating from a minimum-diameter supporting column.

WINDER. (Same as IRC definition above)

Note: The Terms defined above appear in italics within the document. We have listed all the stair related definitions from both the IRC and the IBC (International Building Code) to aid understanding.
SECTION R311 MEANS OF EGRESS

R311.7 Stairways

IRC DEFINITION:

STAIRWAY. One or more flights of stairs, either interior or exterior, with the necessary landings and connecting platforms to form a continuous and uninterrupted passage from one level to another within or attached to a building, porch or deck.

R311.7.1 Width. Stairways shall be not less than 36 inches (914 mm) in clear width at all points above the permitted handrail height PHOTO 1 & 2 and below the required headroom height PHOTO 2. The clear width of stairways at and below the handrail height, including treads and landings, shall be not less than 31½ inches (787 mm) where a handrail is installed on one side PHOTO 3 and 27 inches (698 mm) where handrails are installed on both sides PHOTO 4.

Exception: The width of spiral stairways shall be in accordance with Section R311.7.10.1 See PHOTO 52, page 19.
R311.7.2. Headroom. The headroom in stairways shall be not less than 6 feet 8 inches (2032 mm) measured vertically from the sloped line adjoining the tread nosing PHOTO 5 or from the floor surface of the landing or platform on that portion of the stairway PHOTO 6.

Exceptions:
1. Where the nosings of treads at the side of a flight extend under the edge of a floor opening through which the stair passes, the floor opening shall not project horizontally into the required headroom more than 4 3/4 inches (121 mm) PHOTOS 7 & 8.
2. The headroom for spiral stairways shall be in accordance with Section R311.7.10.1 PHOTO 55, page 19.
R311.7.3 Vertical rise. A flight of stairs shall not have a vertical rise larger than 151 inches (3835 mm) between floor levels or landings DRAWING 9.

DRAWING 9

FLOOR OR
LANDING

FLIGHT NOT TO EXCEED 151"
WITHOUT LANDINGS

MINIMUM HEADROOM
6'-8"

R311.7.4 Walkline. The walkline across winder treads and landings shall be concentric to the turn DRAWING 10 Figures A-F and parallel to the direction of travel entering and exiting the turn DRAWING 10 Figures A-D. The walkline shall be located 12 inches (305 mm) from the inside of the turn. The 12-inch (305 mm) dimension shall be measured from the widest point of the clear stair width at the walking surface DRAWING 10 Figures A-F. Where winders are adjacent within the flight, DRAWING 12 (p. 8) the point of the widest clear stair width of the adjacent winders shall be used DRAWING 10 Figures E-F.

DRAWING 10

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R311.7.5 Stair treads and risers. Stair treads and risers shall meet the requirements of this section. For the purposes of this section, dimensions and dimensioned surfaces shall be exclusive of carpets, rugs or runners.

PHOTO 11.

All dimension reference surfaces; floors, treads, risers, nosing, are exclusive of carpets, rugs, or runners.

ICC DEFINITION:

FLIGHT. A continuous run of rectangular treads or winders or combination thereof from one landing to another.
R311.7.5.1 Risers. The riser height shall be not more than 7 3/4 inches (196 mm). The riser shall be measured vertically between leading edges of the adjacent treads PHOTO 13. The greatest riser height within any flight DRAWING 12 (p. 8) of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm) PHOTO 14. Risers shall be vertical or sloped from the underside of the nosing of the tread above at an angle not more than 30 degrees (0.51 rad) from the vertical PHOTO 15. At open risers, openings located more than 30 inches (762 mm), as measured vertically, to the floor or grade below shall not permit the passage of a 4-inch-diameter (102 mm) sphere PHOTO 16.

Exceptions:
1. The opening between adjacent treads is not limited on spiral stairways PHOTO 55, Page 19.
2. The riser height of spiral stairways shall be in accordance with Section R311.7.10.1 PHOTO 52, Page 19.
R311.7.5.2 Treads. The tread depth shall be not less than 10 inches (254 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads PHOTO 17 and at a right angle to the tread’s leading edge. The greatest tread depth within any flight DRAWING 12 (p. 8) of stairs shall not exceed the smallest by more than \(\frac{3}{8}\) inch (9.5 mm) PHOTO 18.

**ICC DEFINITION:**

**WINDER.** A tread with nonparallel edges.

Figures A-F illustrate common stairway designs with consistently shaped winder treads at the walkline.
R311.7.5.2.1 Winder treads. *Winder* treads shall have a tread depth of not less than 10 inches (254 mm) measured between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline. *Winder* treads shall have a tread depth of not less than 6 inches (152 mm) at any point within the clear width of the stair **DRAWING 19**. Within any flight of stairs, **DRAWING 12 (p. 8)** the largest winder tread depth at the walkline shall not exceed the smallest winder tread by more than \( \frac{3}{8} \) inch (9.5 mm) **DRAWING 20**. Consistently shaped winders at the walkline shall be allowed within the same flight of stairs as rectangular treads and shall not be required to be within \( \frac{3}{8} \) inch (9.5 mm) of the rectangular tread depth **DRAWING 20**.

**Exception:** The tread depth at spiral stairways shall be in accordance with Section R311.7.10.1 **PHOTO 54**, Page 19.

**R311.7.5.3 Nosings.** Nosings at treads, landings and floors of stairways shall have a radius of curvature at the nosing not greater than \( \frac{9}{16} \) inch (14 mm) **PHOTO 21** or a bevel not greater than \( \frac{1}{2} \) inch (12.7 mm) **PHOTO 22**. A nosing projection not less than \( \frac{3}{4} \) inch (19 mm) and not more than \( 1\frac{1}{4} \) inches (32 mm) shall be provided on stairways **PHOTO 23**. The greatest nosing projection shall not exceed the smallest nosing projection by more than \( \frac{3}{8} \) inch (9.5 mm) within a stairway **PHOTO 24**.

**Exception:** A nosing projection is not required where the tread depth is not less than 11 inches (279 mm).

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**DRAWING 19**

**DRAWING 20**

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**R311.7.5.4 Exterior plastic composite stair treads.** Plastic composite exterior stair treads shall comply with the provisions of this section and Section R507.2.2.

**R311.7.6. Landings for stairways.** There shall be a floor or landing at the top and bottom of each stairway. The width perpendicular to the direction of travel **DRAWING 25** shall be not less than the width of the flight served **DRAWING 26**. For landings of shapes other than square or rectangular the depth at the walk line and the total area shall be not less than that of a quarter circle with a radius equal to the required landing width **DRAWING 27**. Where the stairway has a straight run, the depth in the direction of travel shall be not less than 36 inches (914 mm).

*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.

**R311.7.7 Stairway walking surface.** The walking surface of treads and landings of stairways shall be sloped not steeper than one unit vertical in 48 inches horizontal (2-percent slope) **PHOTO 29**.

**Space required to safely turn a stairway at connecting flights is regulated by depth at the walkline and area.**

**Composite of the two examples at left illustrates equal areas.**

**SLOPE NO STEEPER THAN ONE UNIT VERTICAL IN 48 HORIZONTAL (2% SLOPE)**

**MAXIMUM SLOPE OF 10" TREAD WITH 1-1/4" PROJECTION = .2344"**
ICC DEFINITION:

HANDRAIL. A horizontal or sloping rail intended for grasping by the hand for guidance or support.

R311.7.8 Handrails. Handrails shall be provided on not less than one side of each flight of stairs DRAWING 12 (p. 8) with four or more risers PHOTO 29.

R311.7.8.1 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 30.

Exception:
1. The use of a volute, turnout or starting easing shall be allowed over the lowest tread PHOTO 31.
2. Where handrail fittings or bendings are used to provide continuous transition between flights, transitions at winder treads, the transition from handrail to guard, or used at the start of a flight, the handrail height at the fittings or bendings shall be permitted to exceed 38 inches (956 mm) DRAWING 32.
R311.7.8.2 Handrail projection. Handrails shall not project more than 4 1/2 inches (114 mm) on either side of the stairway PHOTO 33.

Exception: Where nosings of landings, floors PHOTO 34 or passing flights PHOTO 35 project into the stairway reducing the clearance at passing handrails, handrails shall project not more than 6 1/2 inches (165 mm) into the stairway, provided that the stair width and handrail clearance are not reduced to less than that required.

R311.7.8.3. Handrail clearance. Handrails adjacent to a wall shall have a space of not less than 1 1/2 inches (38 mm) between the wall and the handrails PHOTO 36.
R311.7.8.4 Continuity. Handrails shall be continuous for the full length of the flight, DRAWING 12 (p. 8) from a point directly above the top riser of the flight to a point directly above the lowest riser of the flight DRAWING 37 and PHOTO 38. Handrail ends shall be returned PHOTO 39 or shall terminate in newel posts PHOTOS 40, 41 and 31 (p. 13) or safety terminals.

Exception:
1. Handrail continuity shall be permitted to be interrupted by a newel post at a turn in a flight with winders PHOTO 40, at a landing PHOTO 41, or over the lowest tread PHOTO 31 (p. 13).
2. A volute, turnout or starting easing shall be allowed to terminate over the lowest tread PHOTO 31 (p. 13).
R311.7.8.5 Grip-size. Required handrails shall be of one of the following types or provide equivalent graspability.

**Photo 43.** If the handrail is not circular, it shall have a perimeter of not less than 4 inches (102 mm) and not greater than 6 1/4 inches (160 mm) and a cross section of not more than 2 1/4 inches (57 mm). Edges shall have a radius of not less than 0.01 inches (0.25 mm).

**Photo 44.**

1. Type I. Handrails with a circular cross section shall have an outside diameter of 1 1/4 inches (32 mm) and not greater than 2 inches (51 mm).
R311.7.8.5 Grip-size. (continued)

2. Type II. Handrails with a perimeter greater than 6\(\frac{1}{4}\) inches (160 mm) shall have a graspable finger recess area on both sides of the profile. The finger recess shall begin within \(\frac{3}{4}\) inch (19 mm) measured vertically from the tallest portion of the profile and have a depth of not less than \(\frac{5}{16}\) inch (8 mm) within \(\frac{7}{8}\) inch (22 mm) below the widest portion of the profile. This required depth shall continue for not less than \(\frac{3}{8}\) inch (10 mm) to a level that is not less than 1\(\frac{3}{4}\) inches (45 mm) below the tallest portion of the profile. The width of the handrail above the recess shall be not less than 1\(\frac{1}{4}\) inches (32 mm) and not more than 2\(\frac{3}{4}\) inches (70 mm). Edges shall have a radius of not less than 0.01 inch (0.25 mm).

Handrails with a perimeter greater than 6-1/4 inches (160 mm) shall have a graspable finger recess area on both sides of the profile.

The finger recess shall begin within 3/4 inch (19 mm) measured vertically from the tallest portion of the profile and a depth of not less than 5/16 inch (8 mm) within 7/8 inch (22 mm) below the widest portion of the profile.

The width of the handrail above the recess shall be not less than 1-1/4 inches (32 mm) and not more than 2-3/4 inches (70 mm). PHOTO 45. Edges shall have a radius of not less than 0.01 inch (0.25 mm).

R311.7.8.6 Exterior plastic composite handrails. Plastic composite exterior handrails shall comply with the requirements of Section R507.2.2
R311.7.9 Illumination. Stairs shall be provided with illumination in accordance with Section R303.7 DRAWING 49 and R308.8

R303.7 Interior stairway illumination. Interior stairways shall be provided with an artificial light source to illuminate the landings and treads. The light source shall be capable of illuminating treads and landings to levels of not less than 1 foot-candle (11 lux) as measured at the center of treads and landings. There shall be a wall switch at each floor level to control the light source where the stairway has six or more risers.

Exception: A switch is not required where remote, central or automatic control of lighting is provided.

Photo 49

IRC DEFINITION:

SPIRAL STAIRWAY. A stairway with a plan view of closed circular form and uniform section-shaped treads radiating from a minimum diameter circle PHOTO 50 & 51.

Photo 50
Photo 51
R311.7.10 Special stairways. Spiral stairways and bulkhead enclosure stairways shall comply with requirements of Section R311.7 except as specified in Sections R311.7.10.1 and R311.7.10.2.

R311.7.10.1 Spiral stairways. The clear width at and below the handrails at spiral stairways shall be not less than 26 inches (660 mm) PHOTO 52 and the walkline radius shall be not greater than 24½ inches (622 mm) PHOTO 53. Each tread shall have a depth of not less than 6¾ inches (171 mm) at the walkline DRAWING 54. Treads shall be identical, PHOTO 53 and the rise shall be not more than 9½ inches (241 mm) PHOTO 52. Headroom shall be not less than 6 feet 6 inches (1982 mm) PHOTO 55.

R311.7.10.2 Bulkhead enclosure stairways. Stairways serving bulkhead enclosures, not part of the required building egress, providing access from the outside grade level to the basement shall be exempt from the requirements of Sections R311.3 and R311.7 where the height from the basement finished floor level to grade adjacent to the stairway is not more than 8 feet (2438 mm) and the grade level opening to the stairway is covered by a bulkhead enclosure with hinged doors or other approved means.
ICC DEFINITION:

**ALTERNATING TREAD DEVICE.** A device that has a series of steps between 50 to 70 degrees (0.87 and 1.22 rad) from horizontal, usually attached to a center support rail in an alternating manner so that the user does not have both feet on the same level at the same time.

R311.7.11 Alternating tread devices. *Alternating tread devices* shall not be used as an element of a means of egress. Alternating tread devices shall be permitted provided that a required means of egress stairway or ramp serves the same space at each adjoining level **DRAWING 56** or where a means of egress is not required. The clear width at and below the **handrails** shall be not less than 20 inches (508 mm) **PHOTO 57**.

**Exception:** Alternating tread devices are allowed to be used as an element of a means of egress for lofts, mezzanines and similar areas of 200 gross square feet (18.6 m²) or less where such devices do not provide exclusive access to a kitchen or bathroom.

**R311.7.11.1 Treads of alternating tread devices.** *Alternating tread devices* shall have a tread depth of not less than 5 inches (127 mm), a projected tread depth of not less than 8½ inches (216 mm), a tread width of not less than 7 inches (178 mm) and a **riser** height of not more than 9½ inches (241 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projections of adjacent treads. The **riser** height shall be measured vertically between the leading edges of adjacent treads **PHOTO 58**. The **riser** height and tread depth provided shall result in an angle of ascent from the horizontal of between 50 and 70 degrees (0.87 and 1.22 rad). The initial tread of the device shall begin at the same elevation as the platform, landing or floor surface **PHOTO 59**.
R311.7.11.2 Handrails of alternating tread devices. Handrails shall be provided on both sides of alternating tread devices and shall comply with Sections R311.7.8.2 to R311.7.8.6 PHOTO 60. Handrail height shall be uniform, not less than 30 inches (762 mm) and not more than 34 inches (864 mm) PHOTO 61.

R311.7.12 Ships ladders. Ships ladders shall not be used as an element of a means of egress. Ships ladders shall be permitted provided that a required means of egress stairway or ramp serves the same space at each adjoining level or where a means of egress is not required PHOTO 62. The clear width at and below the handrails shall be not less than 20 inches (508 mm) PHOTO 63.

Exception: Ships ladders are allowed to be used as an element of a means of egress for lofts, mezzanines and similar areas of 200 gross square feet (18.6 m²) or less that do not provide exclusive access to a kitchen or bathroom.
R311.7.12.1 Treads of ships ladders. Treads shall have a depth of not less than 5 inches (127 mm). The tread shall be projected such that the total of the tread depth plus the nosing projection is not less than 8 1/2 inches (216 mm) PHOTO 64. The riser height shall be not more than 9 1/2 inches (241 mm) PHOTO 65.

R311.7.12.2 Handrails of ships ladders. Handrails shall be provided on both sides of ships ladders and shall comply with Sections R311.7.8.2 to R311.7.8.6 PHOTO 66 Handrail height shall be uniform, not less than 30 inches (762 mm) and not more than 34 inches (864 mm) PHOTO 67.
R312.1 Guards. Guards shall be provided in accordance with Sections R312.1.1 through R312.1.4.

R312.1.1 Where required. Guards shall be provided for those portions of open-sided walking surfaces, including stairs, ramps and landings, that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side DRAWING 68. Insect screening shall not be considered as a guard.

R312.1.2. Height. Required guards at open-sided walking surfaces, including stairs, porches, balconies or landings, shall be not less than 36 inches (914 mm) in height as measured vertically above the adjacent walking surface or the line connecting the nosings PHOTOS 69 & 70.

Exceptions:
1. Guards on the open sides of stairs shall have a height of not less than 34 inches (864 mm) measured vertically from a line connecting the nosings PHOTO 69.

2. Where the top of the guard serves as a handrail on the open sides of stairs, the top of the guard shall not be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) as measured vertically from a line connecting the nosings PHOTO 69.
R312.1.2 Height. (Continued)

MINIMUM 34" STAIR GUARD HEIGHT
MAXIMUM HEIGHT 38" WHEN TOP OF GUARD SERVES AS HANDRAIL

R312.1.3 Opening limitations. Required guards shall not have openings from the walking surface to the required guard height that allow passage of a sphere 4 inches (102 mm) in diameter PHOTO 71.

Exceptions:
1. The triangular openings at the open side of stair, formed by the riser, tread and bottom rail of a guard, shall not allow passage of a sphere 6 inches (153 mm) in diameter PHOTO 72.
2. Guards on the open side of stairs shall not have openings that allow passage of a sphere 4¾ inches (111 mm) in diameter PHOTO 72.

R312.1.4 Exterior plastic composite guards. Plastic composite exterior guards shall comply with the requirements of Section R317.4.
**APPENDIX - Glazing in Guards and Railings**

**SECTION R308 - GLAZING**

**R308.1 Identification.** Except as indicated in Section R308.1.1 each pane of glazing installed in hazardous locations as defined in Section R308.4 shall be provided with a manufacturer’s designation specifying who applied the designation, the type of glass and the safety glazing standard with which it complies, and that is visible in the final installation. The designation shall be acid etched, sandblasted, ceramic-fired, laser etched, embossed, or be of a type that once applied cannot be removed without being destroyed. A label shall be permitted in lieu of the manufacturer’s designation.

**Exceptions:**
1. For other than tempered glass, manufacturer’s designations are not required provided that the building official approves the use of a certificate, affidavit or other evidence confirming compliance with this code.
2. Tempered spandrel glass is permitted to be identified by the manufacturer with a removable paper designation.

**R308.4.4 Glazing in guards and railings.** Glazing in guards and railings, including structural baluster panels and nonstructural in-fill panels, regardless of area or height above a walking surface shall be considered to be a hazardous location.

**R308.4.4.1 Structural glass baluster panels.** Guards with structural glass baluster panels shall be installed with an attached top rail or handrail. The top rail or handrail shall be supported by not less than three glass baluster panels, or shall be otherwise supported to remain in place should one glass baluster panel fail.

**Exception:** An attached top rail or handrail is not required where the glass baluster panels are laminated glass with two or more glass plies of equal thickness and of the same glass type.

**R308.4.6 Glazing adjacent to stairs and ramps.** Glazing where the bottom exposed edge of the glazing is less than 36 inches (914 mm) above the plane of the adjacent walking surface of stairways, landings between flights of stairs and ramps shall be considered to be a hazardous location.

**Exceptions:**
1. Where glazing is adjacent to a walking surface and a horizontal rail is installed at 34 to 38 inches (864 to 965 mm) above the walking surface. The rail shall be capable of withstanding a horizontal load of 50 pounds per linear foot (730 N/m) without contacting the glass and have a cross-sectional height of not less than 1½ inches (38 mm).
2. Glazing 36 inches (914 mm) or more measured horizontally from the walking surface.

**R308.4.7 Glazing adjacent to the bottom stair landing.** Glazing adjacent to the landing at the bottom of a stairway where the glazing is less than 36 inches (914 mm) above the landing and within a 60-inch (1524 mm) horizontal arc less than 180 degrees from the bottom tread nosing shall be considered to be a hazardous location.

**Exception:** Where the glazing is protected by a guard complying with Section R312 and the plane of the glass is more than 18 inches (457 mm) from the guard.

**Portions of Section 308 not specific to Guards and Rails are not shown.**
INSTRUCTIONS:
1. Position the widest portion on A-B line and left edge touching line A-C. Keep horizontal axis of rail parallel to line A-B. With the rail in position:
   1a. verify < maximum width  
   1b. verify > minimum width  
   1c. verify tallest portion is at or below the limit line  
   1d. verify black box is visible
2. Slide rail down and position tallest portion of rail section touching line A-B and left edge touching line A-C. Keep horizontal axis of rail parallel to line A-B.  
   2a. verify beginning of recess is at or above line C-D  
   2b. verify gray box is visible

NOTE: Type II rails have a perimeter greater than 6-1/4 inches and a finger recess on each side. If profile is asymmetrical both sides must pass.

Full Scale Type II Rail Test

1a. Maximum Width
1b. Minimum Width
1c. Tallest Portion limit
1d. Verify black box is visible
2a. Beginning of Finger Recess
2b. Verify gray box is visible

Range of Controlled Grip Size

Required depth of recess

Reproduction check: solid line measures 2.75 in.
About the Stairbuilders and Manufacturers Association.

The Stairbuilders and Manufacturers Association is the greatest resource of knowledge and tools contributing to the success of our members and the stair industry. Our membership is comprised of residential and commercial stair industry professionals; stairbuilders, stair part manufacturers, installers, distributors and providers of ancillary services to the stair industry.

The SMA represents the stair industry. We ensure its growth and prosperity by promoting products and standards to design and construct safe, beautiful stairways. We offer education, a robust knowledge base, publications, certifications, code consultation and industry networking opportunities that benefit our members. Become a member of the SMA and join us as we continue to provide exceptional value in support of stair industry professionals. Please visit www.stairways.org, call 877-500-5759, or email SMA@stairways.org.