

Wisconsin Stair Code

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SPS 321.035 Interior circulation.

(1) Doors and openings. All doors and openings to the following areas shall be at least 80 inches high and provide either a net clear opening width of 30 inches or be a 32-inch door:

(a) Except as provided under pars. **(b)** and **(c)**, all entrances into common use areas.

(b) At least 50% of the bedrooms.

(c)

1. At least one full bathroom, including doors or openings to a sink, toilet and tub or shower. If this bathroom is accessible only through a bedroom, the bedroom door shall meet the minimum width requirements of this section.

2. If one or more full bathrooms are provided on the first floor, the bathroom meeting the requirements under this section shall be on the first floor.

Note: This section does not require a full bathroom on the first floor.

(2) Hallways.

(a) Except as allowed under par. **(b)**, the clear width of hallways shall be at least 36 inches.

(b) The following are allowed to infringe on the required clear width of a hallway:

1. Door hardware and finish trim.

2. Handrails may infringe into the minimum width of a hallway up to 4½ inches on each side.

3. Heating registers may infringe into the minimum width of a hallway up to 4½ inches and no part of the register may be more than 38 inches above the floor.

4. Ducts, pipes, light fixtures, structural features, and corner treatments that are within 84 inches of the floor may infringe into the minimum width of a hallway by a maximum of 4½ inches on each side.

5. Unlimited infringements are allowed in a hallway more than 84 inches above the floor.

(3) Kitchens.

(a) There shall be at least 30 inches of clearance between a wall, a permanently-installed kitchen island, permanently-installed kitchen cabinets and the following kitchen appliances, if provided:

1. A range, cook top or oven.

2. A sink, refrigerator or freezer.

(b) Measurements shall be taken from the face of the wall, island, cabinet or appliance, ignoring knobs and handles.

Note: See ICC/ANSI A117.1 chapter 10 for more guidelines relating to doors and accessible routes. Under that standard, doors must be at least 80-inches in height and provide a minimum net clear opening of 31¾-inches in width in order to provide accessibility for people with disabilities.

History: CR 08-043: cr. Register March 2009 No. 639, eff. 4-1-09.

SPS 321.04 Stairways and elevated areas.

(1) Scope.

(a) *General.* Except as provided under par. **(b)**, the following stairways shall conform to the requirements of this section.

1. Every interior and exterior stairway attached to, or supported by any part of the structure covered under this code.

2. Tub access stairs, unless they are an integral part of an approved plumbing product.

(b) *Exceptions.* The following stairways are not required to comply with the requirements of this section:

1. Stairways leading to non-habitable attics or crawl spaces.

2. Non-required stairways connecting the basement directly to the exterior of the structure without communicating with any other part of the structure.

(2) Details.

(a) Width.

1. Except for spiral staircases under subd. 2., stairways shall measure at least 36 inches in width. Handrails and associated trim may project a maximum of 4.5 inches into the required width at each side of the stairway. The minimum clear width at and below the handrail, including at treads and landings, may not be less than 31.5 inches where a handrail is installed on one side, and 27 inches where handrails are provided on both sides.
2. Spiral staircases shall be at least 26 inches wide measured from the outer edge of the supporting column to the inner edge of the handrail.

(b) Riser height.

1.
 - a. Except for spiral staircases under subd. 2., risers may not exceed 8 inches in height measured vertically from tread to tread.
 - b. At the top and bottom of a flight, measurement shall be taken from the top of the nosing to the finished floor surface unless the finished surface is carpeting, in which case measurement shall be made to the hard surface below the carpeting.
2. Risers in spiral staircases may not exceed 9.5 inches in height measured vertically from tread to tread.

(c) Tread depth.

1. 'Rectangular treads.' Rectangular treads shall have minimum tread depth of 9 inches measured horizontally from nosing to nosing.
2. 'Spiral staircase treads.' Spiral staircase treads shall have a minimum tread depth of 7 inches from nosing to nosing measured at a point 12 inches from the outer edge of the center column.
3. 'Winder treads in series.' Two or more winder treads may be placed immediately adjacent to each other anywhere in a stairway provided both of the following conditions are met:
 - a. The winder treads shall have a minimum tread depth of 7 inches measured at a point 12 inches from the narrow end of the tread.
 - b. The depth of the immediately adjoining winder treads shall be equal at a point 12 inches from the narrow end of the tread or inside face of spindles or balusters.
- c. Winder treads may not be used on a straight stairway.
4. 'Individual winder treads.'
 - a. An individual winder tread may be placed between rectangular treads or at the end of a flight of rectangular treads provided the tread depth is at least 9 inches, when measured at a distance of 12 inches from the narrow end of the tread or from the inside face of the wall.
 - b. There may be more than one individual winder tread in a stairway.
 - c. Winder treads may not be used on a straight stairway.

(d) Headroom.

1. Stairways shall be provided with a minimum headroom clearance of 76 inches measured vertically from a line parallel to the nosing of the treads to the ceiling, soffit or any overhead obstruction directly above that line.
2. The headroom clearance shall be maintained over an intermediate landing.
3. The headroom clearance shall be maintained over a landing that is at the top or bottom of a stairway for a minimum distance of 36 inches in the direction of travel of the stairway.

(e) Uniformity.

1. Within a stairway flight, the greatest tread depth may not exceed the smallest tread depth by more than 3/8 inch and the greatest riser height may not exceed the smallest riser height by more than 3/8 inch.
2. The allowed variation in uniformity under subd. 1. may not be used to exceed the maximum riser height under par. (b) or to decrease the minimum tread depth under par. (c).

- (f) Open risers.** Stairways with open risers shall be constructed to prevent the through-passage of a sphere with a diameter of 4 inches or larger between any 2 adjacent treads.

(g) Walking surface. The walking surface of stair treads and landings shall be a planar surface that is free of lips or protrusions that could present a tripping hazard.

(3) Handrails and guards.

(a) General.

1. A flight of stairs with more than 3 risers shall be provided with at least one handrail for the full length of the flight.
2. Guards shall be provided on all open sides of stairs consisting of more than 3 risers and on all open sides of areas that are elevated more than 24 inches above the floor or exterior grade.

Note: A handrail provided at 30 to 38 inches above the tread nosing meets the height requirement for a guard on a stairway.

3.

- a. Except as provided in subd. 3. b., guards shall be constructed to prevent the through-passage of a sphere with a diameter of 4 3/8 inches, when applying a force of 4 pounds.
- b. The triangular area formed by the tread, riser and bottom rail shall have an opening size that prevents the through-passage of a sphere with a diameter of 6 inches, when applying a force of 4 pounds.
- c. Rope, cable, or similar materials used in guard infill shall be strung with maximum openings of 3 1/2 inches with vertical supports a maximum of 4 feet apart.

Note: In some cases, the vertical supports could be simple cable stays that offer vertical support to the rope or cable span. Structural posts must be supplied to provide the rail with the minimum 200 pound load resistance, as well as to resist the tensile loads exerted by the tightened rope or cable.

4.

- a. Handrails and guards shall be designed and constructed to withstand a 200 pound load applied in any direction.
 - b. Handrail or guard infill components, balusters and panel fillers shall withstand a horizontally applied perpendicular load of 50 pounds on any one-foot-square area.
 - c. Glazing used in handrail or guard assemblies shall be safety glazing.
5. Exterior handrails and guards shall be constructed of metal, decay resistant or pressure-treated wood, or shall be protected from the weather.

(b) Handrails.

1. 'Height.'

- a. Handrails shall be located at least 30 inches, but no more than 38 inches above the nosing of the treads, except as provided in subds. 1. b. to d. Measurement shall be taken from the hard structural surface beneath any finish material to the top of the rail. Variations in uniformity are allowed only when a rail contacts a wall or newel post or where a turnout or volute is provided at the bottom tread.
- b. A volute, turnout, or starting easing that does not comply with subd. 1. a. may extend over the lowest tread.
- c. Transition fittings on handrails may extend above the 38-inch height limit.
- d. Where handrail fittings or bendings are used to provide a continuous transition between flights, or at winder treads, or from a handrail to a guard, or at the start of a flight, the height at the fittings or bendings may exceed 38 inches.

2. 'Clearance.' The clearance between a handrail and the wall surface shall be at least 1 1/2 inches.

3. 'Winders.'

- a. Except as provided under subd. 3. b., the required handrail on winder stairs shall be placed on the side where the treads are wider.
- b. Where all winder treads in a flight have a depth of at least 9 inches from nosing to nosing measured at a point 12 inches from the narrow end of the tread, the required handrail may be located on either side of the stairway.

4. 'Projection.' Handrails and associated trim may project into the required width of stairs and landings a maximum of 4 1/2 inches on each side.

5. 'Size and configuration.' Handrails shall be symmetrical about the vertical centerline to allow for equal wraparound of the thumb and fingers.

- a. Handrails with a round or truncated round cross sectional gripping surface shall have a maximum whole diameter of 2 inches.

- b.** Handrails with a rectangular cross sectional gripping surface shall have a maximum perimeter of 6 1/4 inches with a maximum cross sectional dimension of 2 7/8 inches.
- c.** Handrails with other cross sections shall have a maximum cross sectional dimension of the gripping surface of 2 7/8 inches with a maximum linear gripping surface measurement of 6 1/4 inches and a minimum linear gripping surface of 4 inches.

Note: See ch. [SPS 325 Appendix A](#) for further information on handrail measurement.

6. 'Continuity.' Handrails shall be continuous for the entire length of the stairs except in any one of the following cases:

- a.** A handrail may be discontinuous at an intermediate landing.
- b.** A handrail may have newel posts.
- c.** A handrail may terminate at an intermediate wall provided the lower end of the upper rail is returned to the wall or provided with a flared end, the horizontal offset between the 2 rails is no more than 12 inches measured from the center of the rails, and both the upper and lower rails can be reached from the same tread without taking a step.

(c) Guards.

1. 'Application.'

- a.** All openings between floors, and open sides of landings, platforms, balconies or porches that are more than 24 inches above grade or a floor shall be protected with guards.
 - b.** The requirements under subd. [1. a.](#) apply where insect screens are the only means of enclosure or protection for a surface that is more than 24 inches above grade or a floor.
 - c.** For exterior applications, the 24 inch vertical measurement shall be taken from the lowest point within 3 feet horizontally from the edge of the deck, landing, porch or similar structure.
 - d.** This paragraph does not apply to window wells, egress wells, and retaining walls.
- 2.** 'Height.' Guards shall extend to at least 36 inches above the floor or to the underside of a stair handrail complying with [s. SPS 321.04 \(3\) \(b\)](#). Measurement shall be taken from the hard structural surface beneath any finish material to the top of the guard.
- 3.** 'Opening size.' Guards shall be constructed to prevent the through-passage of a sphere with a diameter of 4 3/8 inches, when applying a force of 4 pounds.

(4) Landings.

(a) Intermediate landings.

- 1.** A level intermediate landing shall be provided in any stairway with a height of 12 feet or more.
- 2.** Intermediate landings that connect 2 or more straight flights of stairs, or 2 flights of stairs at a right angle, shall be at least as wide as the treads and shall measure at least 36 inches in the direction of travel.
- 3.** Curved or irregular landing shall have a radius of at least 36 inches.
- 4.** Curved or irregular landings shall have a minimum straight line measurement of 26 inches between the nosing of the 2 connecting treads measured at a point 18 inches from the narrow end of the landing measured along the nosing of the 2 treads.

(b) Landings at the top and base of stairs. A level landing shall be provided at the top and base of every stairs except as provided in par. [\(d\)](#). The landing shall be at least as wide as the treads and shall measure at least 3 feet in the direction of travel.

(c) Doors at landings. Except as provided in subds. [1.](#) to [3.](#) and par. [\(d\)](#), level landings shall be provided on each side of any door located at the top or base of a stair, regardless of the direction of swing. In the following exceptions, a stairway between a dwelling and an attached garage, carport or porch is considered to be an interior stair:

- 1.** A landing is not required between the door and the top of interior stairs if the door does not swing over the stairs.
- 2.** A landing is not required between the door and the top of an interior stairs of 1 or 2 risers regardless of the direction of swing.
- 3.** A landing is not required between a sliding glass door or an in-swinging glass door and the top of an exterior stairway of 3 or fewer risers.

(d) Exterior landings.

1. The exterior landing, platform, or sidewalk at an exterior doorway shall be located a maximum of 8 inches below the interior floor elevation, be sloped away from the doorway at a minimal rate that ensures drainage, and have a length of at least 36 inches in the direction of travel out of the dwelling.


2. The landing at the base of an exterior stair shall be sloped away from the stair at a minimal rate that ensures drainage.

History: Cr. Register, November, 1979, No. 287, eff. 6-1-80; r. and recr. Register, February, 1985, No. 350, eff. 3-1-85; am. (intro.), r. and recr. (1) (c), renum. (3) (f) to Comm 21.042, Register, January, 1989, No. 397, eff. 2-1-89; r. and recr. (intro.) and (3) (c), am. (1) (a), (2) (a) and (c) 2. and (3) (a), cr. (2) (c) 6., March, 1992, No. 435, eff. 4-1-92; r. and recr., Register, November, 1995, No. 479, eff. 12-1-95; am. (1) (c) 1. and (d), renum. (2) (intro.) to (b) to be (2) (a) to (c) and am. (a), r. (2) (b) (intro.), Register, February, 1997, No. 494, eff. 3-1-97; reprinted to restore dropped copy, Register, March, 1997, No. 495; r. (1), renum. (intro.) to be (1) and am., renum. (2) and (3) to be (3) and (4), cr. (2) and r. and recr. (4) (a), Register, March, 2001, No. 543, eff. 4-1-01; CR 02-077: am. (2) (b) 1., (e) 1. and (3) (a), cr. (2) (f) and (3) (c) 3., r. and recr. (3) (b) 3., renum. (4) (c) to be (4) (c) 1. (intro.), a. to c. and 2. and am. (4) (c) 1. (intro.) and 2. Register May 2003, No. 569, eff. 8-1-03; CR 03-097: am. (2) (f), (3) (a) 3., and (c) 3. Register November 2004 No. 587, eff. 1-1-05; CR 08-043: r. and recr. (1), am. (2) (c) 2., 3. b. and (e) 1., cr. (2) (c) 3. c., 4. c., (g), (3) (a) 3. c., 4. b., c., (c) 1. b. and c., renum. (3) (a) 4. and (c) 1. to be (3) (a) 4. a. and (c) 1. a. Register March 2009 No. 639, eff. 4-1-09; CR 15-041: am. (1) (a) 2., (2) (a) 1., (c) 4. a., b., (3) (title), (a) 1. to 5., renum. (3) (b) 1. to (3) (b) 1. a. and am., cr. (3) (b) 1. b. to d., am. (3) (b) 3. a., b., (c) (title), 1. a., cr. (3) (c) 1. d., am. (3) (c) 2., 3., (4) (a) 2., (b), renum. (4) (c) 1. to (c) and am. (intro.) and 3., renum. (4) (c) 2. to (4) (d) 1. and am., cr. (4) (d) (title), 2. Register December 2015 No. 720, eff. 1-1-16; CR 15-041: am. (4) (c) 3. (omitted Register December 2015 No. 720) Register January 2016 No. 721.

SPS 321.042 Ladders. Ladders which are used as part of a required exit shall conform to this section.

(1) Design load. Ladders shall be designed to withstand loads of at least 200 pounds.

(2) Tread or rungs.

(a) Minimum tread requirements shall be specified in Table 321.042. Treads less than 9 inches in width shall have open risers. All treads shall be uniform in dimension. - See PDF for table 

(b) Rungs may only be used for ladders with a pitch range of 75° to 90°. Rungs shall be at least 1 inch in diameter for metal ladders and 1 1/2 inch for wood ladders. All rungs shall be uniform in dimension.

(3) Risers. Risers shall be uniform in height and shall conform with Table 321.042.

(4) Width. The width of the ladder shall be a minimum of 20 inches wide and a maximum of 30 inches wide.

(5) Handrails.

(a) Handrails shall be required for ladders with pitches less than 65°.

(b) Handrails shall be located so the top of the handrail is at least 30 inches, but not more than 38 inches, above the nosing of the treads.

(c) Open handrails shall be provided with intermediate rails or an ornamental pattern such that a sphere with a diameter of 6 inches or larger cannot pass through.

(d) The clearance between the handrail and the wall surface shall be at least 1½ inches.

(e) Handrails shall be designed and constructed to withstand a 200 pound load applied in any direction.

(6) Clearances.

(a) The ladder shall have a minimum clearance of at least 15 inches on either side of the center of the tread.

(b) The edge of the tread nearest to the wall behind the ladder shall be separated from the wall by at least 7 inches.

(c) A passage way clearance of at least 30 inches parallel to the slope of a 90° ladder shall be provided. A passage way clearance of at least 36 inches parallel to the slope of a 75° ladder shall be provided. Clearances for intermediate pitches shall vary between these 2 limits in proportion to the slope.

(d) For ladders with less than a 75° pitch the vertical clearance above any tread or rung to an overhead obstruction shall be at least 6 feet 4 inches measured from the leading edge of the tread or rung.

History: Renum. from Comm 21.04 (3) (f), cr. (intro.), Register, January, 1989, No. 397, eff. 2-1-89; am. (6) (b), Register, November, 1995, No. 479, eff. 12-1-95; am. (5) (b) and (c), Register, January, 1999, No. 517, eff. 2-1-99; correction in (2) (a), (3) made under s. 13.92 (4) (b) 7., Stats., Register December 2011 No. 672.

SPS 321.045 Ramps.

(1) General. Every exterior or interior ramp which leads to or from an exit shall comply with the requirements of this section.

Note: See ICC/ANSI A117.1 chapter 5 for more guidelines relating to the design and construction of an accessible ramp. Under that standard, ramps along an accessible route for people with disabilities should have a slope of not more than 1-foot of rise in 12-feet of run and should have handrails on both sides of the ramp.

- (2)** Slope. Ramps shall not have a gradient greater than 1 in 8 or one foot of rise in 8 feet of run. Walkways with gradients less than 1 in 20 or one foot of rise in 20 feet of run are not considered to be ramps.
- (3)** Surface and width. Ramps shall have a slip resistant surface and shall have a minimum width of 36 inches measured between handrails.
- (4)** Handrails. Handrails shall be provided on all open sides of ramps. Every ramp that overcomes a change in elevation of more than 8 inches shall be provided with at least one handrail.
 - (a)** Ramps which have a gradient greater than 8.33% or 1:12 or one foot rise in 12 feet of run and which overcome a change in elevation of more than 24 inches, shall be provided with handrails on both sides.
 - (b)** Handrails shall be located so the top of the handrail is at least 30 inches, but not more than 38 inches above the ramp surface.
 - (c)**
 - 1.** Open-sided ramps shall have the area below the handrail protected by intermediate rails or an ornamental pattern to prevent the passage of a sphere with a diameter of 4 3/8 inches when applying a force of 4 pounds, except as provided in subd. 2.
 - 2.** This paragraph does not apply to ramps having a walking surface that is less than 24 inches above adjacent grade, if a toe-kick or side rail is provided to 4 inches above the walking surface, and a mid-rail is provided between the toe-kick or side rail and the handrail.
 - (d)** The clear space between the handrail and any adjoining wall shall be at least 1½ inches.
- (5)** Landings. A level landing shall be provided at the top, at the foot and at any change in direction of the ramp. The landing shall be at least as wide as the ramp and shall measure at least 3 feet in the direction of travel.

History: Cr. Register, January, 1989, No. 397, eff. 2-1-89; am. (3) (intro.), Register, March, 1992, No. 435, eff. 4-1-92; am. (3) (c), Register, November, 1995, No. 479, eff. 12-1-95; am. (3) (b), Register, January, 1999, No. 517, eff. 2-1-99; CR 03-097: am. (3) (c) Register November 2004 No. 587, eff. 1-1-05; CR 08-043: renum. (intro.) and (1) to (4) to be (1) to (5) and am. (1) Register March 2009 No. 639, eff. 4-1-09; CR 15-041: renum. (4) (c) to (4) (c) 1. and am., cr. (4) (c) 2. Register December 2015 No. 720, eff. 1-1-16.