



## City of Urbandale

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## Single Family Dwelling - Stairways

### Landings, Guards and Handrails

#### Stair Width

Stairways should be a minimum clear width of 36in. wide above the handrail measured to the finished wall. Minimum clear width below the handrail of 31.5 in. (R311.7.1)

#### Headroom

The minimum headroom is 6ft. 8in. measured from a plane at the nose of the stairs to the finished ceiling or any projection. (R311.7.2)

#### Vertical Rise

A flight of stairs must not have a vertical rise larger than 12ft.7in. between floors levels or landings. (R311.7.3)

#### Risers and Treads

The maximum riser (vertical) height is 7 ¾ in. All the risers should be the same height with a tolerance of 3/8in. between the tallest to the shortest. (R311.7.5)

The minimum tread (horizontal) depth is 10in. The depth is measured from nosing to nosing. All the treads should be the same depth with a maximum tolerance of 3/8in. between the largest tread to the smallest. (R311.7.5.2)

The tread nosing (exposed edge) should stick out a minimum of ¾ in. but not more than 1 ¼ in. Beveling of nosing should not exceed ½ in. (R311.7.5.3)

#### Winder Treads

A tread with non-parallel edges is called a winder tread and these are permitted to be used in conjunction with traditional treads. The narrowest point of the winder tread should not be less than 6 in. The minimum depth of a winder tread is 10in. measured 12in. away from the narrowest point. (R311.7.5.2.1)

#### Stringers

A positive connection to the landing must be made. End grain nailing or toe-nailing into the stringers is not permissible. A mechanic connection can provide the direct bearing of the stringer to the landing. Follow manufacturer's instructions when installing.

#### Landings

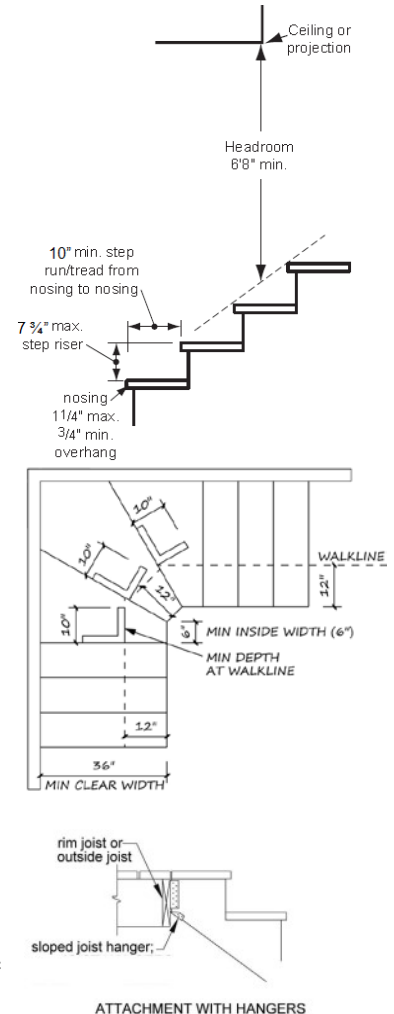
There should be a landing or floor on each side of each exterior door. The width of the landing should be not less than the width of the door and the depth should be not less than 36in. The floor level on the inside of the doorway should be not more than 1 ½ in. lower than the top of the threshold. The landing on the exterior side can be a maximum of 7 ¾ in. lower than the top of the threshold if the door does not swing over the threshold. A landing is not required for non-egress exterior doors that do not have more than 2 risers and the doors swings does not swing over the stairs. (R 311.3)

There should be a landing or floor at the top and bottom of each interior stairway. A floor or landing is not required for interior stairs, including stairs in an enclosed garage, provided a door does not swing over the stairs. (R311.7.6)

#### Illumination

Interior stairways should be provided with a means to illuminate (1 foot candle) the stairs and landings. A switch should be provided at each floor level if there are more than five risers. (R303.7)

Exterior stairs should be provided with a light fixture located at the top landing. Stairways leading to a basement should be provided with a light fixture at the bottom. The illumination of exterior stairways must be controlled from inside the dwelling unit. (R303.7 & R303.8)



**Handrails – Provide a graspable surface along the stairs.**

If a stairway contains four (4) or more risers, handrails must be provided on at least one side of each continuous run of treads or flight. (R311.7.8)

Handrail height should be 34in. to 38in. measured vertically from a plane at the nose of the treads. (R311.7.8.1)

A minimum 1 ½ in. gap is required between the wall and handrail. The handrail cannot project more than 4 ½ in. into the stairway. (R311.7.8.2 & 311.7.8.3)

Continuous for full length of the flight and return to the wall, terminate at a newel post, or end with a safety terminal.

**Exception-** handrail continuity may be interrupted only at landing or a turn in a flight. (R.311.7.8.4 & Muni Code Sec. 150.03 [B] (20)

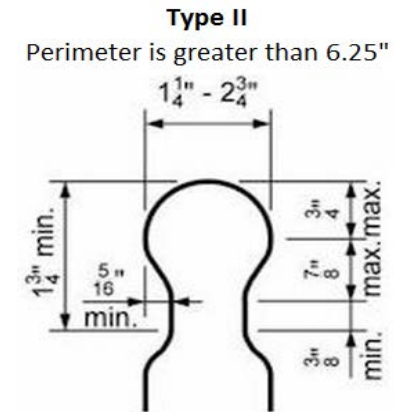
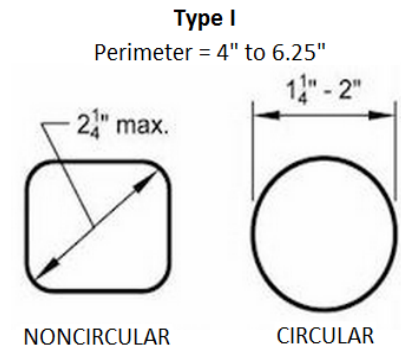
The handrail should be securely fastened in place and must resist a force of 200#. (Table R301.5)

**Type I Handrail**

- A round handrail should be 1 ¼ in. to 2in. in diameter.
- If the handrail is not round it should have a perimeter dimension of at least 4 in. but less than 6 ¼ in. The maximum cross section diameter should be 2 ¼ in. (R311.7.8.5)

**Type II Handrail**

- Handrails with a perimeter greater than 6 ¼ in., such as a vertical 2X4 or 2X6, require a graspable finger recess on both sides. A stock 2X4 or 2X6 will not meet the handrail requirements. (R311.7.8.5)



**Guards – Fall Protection from an elevated walking surface**

A guard should be installed along walking surfaces such as stairs, landings, ramps, and decks that are located more than 30in. measured vertically above the floor or grade, measured 36in. horizontally to the edge of the open side. (R312.1.1)

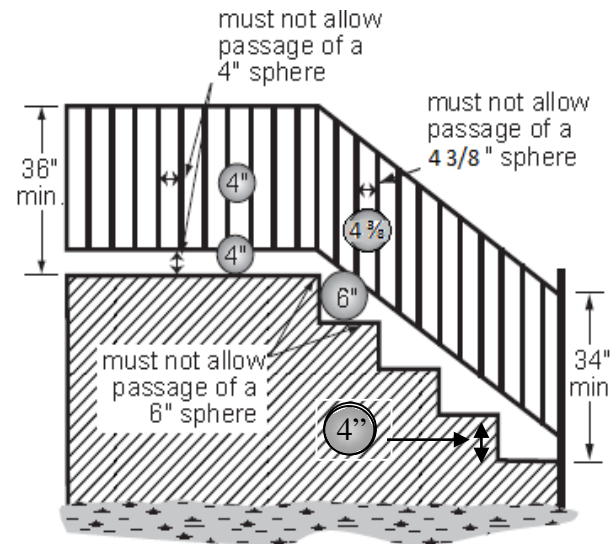
Guards must not have openings, which allow the passage of a 4 in. sphere. Guards on the open side of stairs must not allow passage of a 4 3/8 in. sphere. (R312.1.3)

The triangle formed by a tread, riser and bottom of guard must not allow passage of a 6 in. sphere. (R312.1.3)

Guards must be a minimum of 36 in. high except at stairs where they can be 34in. high measured vertically from the nosing. (R312.1)

Guards should be securely fastened in place and resist a force of 200# at the top. The infill components should resist a load of 50#. Insect screen is not considered a guard. (R301.5 & 312.1.1)

The riser opening should be blocked off to prevent the passage of a 4in. sphere.



**Safety Glazing (Glass) is required** R308.4

- When glazing is used in guards and railings
- Where the bottom edge of the glazing is less than 36in. above the plane of the adjacent walking surface of stairways, landings, or ramps.
- When glazing is adjacent to the landing at the bottom of the stairs and is less than 36in. above the landing and within 60in. horizontally of the bottom tread.