

CHEBOYGAN COUNTY DEPARTMENT OF BUILDING SAFETY

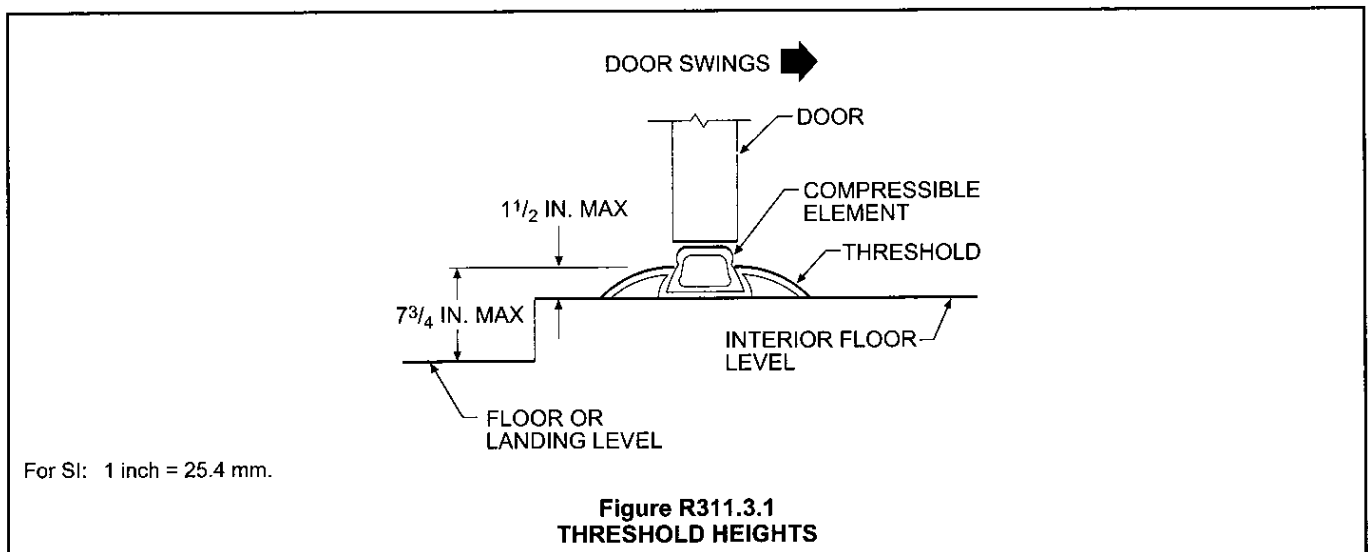
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RESIDENTIAL BUILDING CODE HANDOUT FOR LANDINGS, STAIRWAYS, HANDRAILS & GUARDS

REFERENCE: 2009 Michigan Residential Code

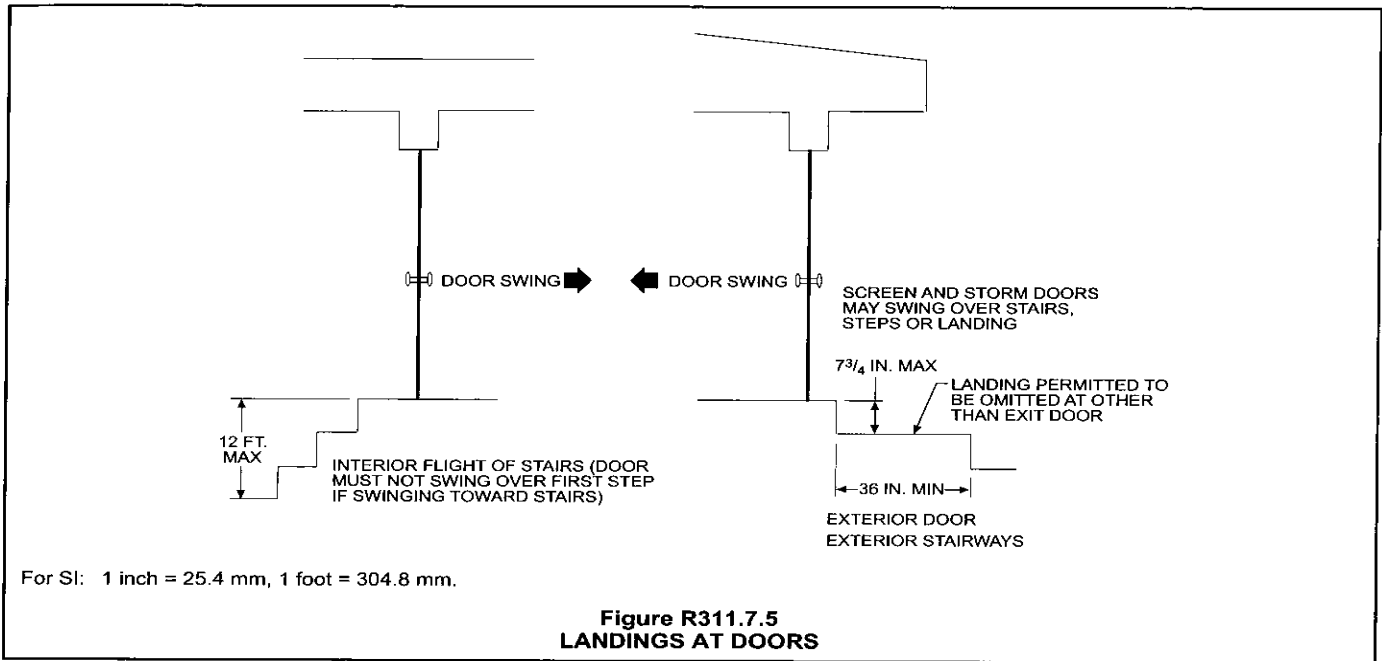
SECTION R311 – LANDINGS:

- ◆ **R311.1 General:** All dwellings shall be provided with a means of egress as provided in this section.
- ◆ **R311.4.1 Egress Door:** At least one egress door shall be provided for each dwelling unit. The egress door shall be side-hinged, and shall provide a minimum clear width of 32 inches when measured between the face of the door and the stop, with the door open 90 degrees. The minimum clear height of the door opening shall not be less than 78 inches in height measured from the top of the threshold to the bottom of the stop. Other doors shall not be required to comply with these minimum dimensions. Egress doors shall be readily openable from inside the dwelling without the use of a key or special knowledge or effort.
- ◆ **R311.3 – Floors and Landings at Exterior Doors:** There shall be a landing or floor on each side of each exterior door. The width of each landing shall not be less than the door served. Every landing shall have a minimum dimension of 36 inches measured in the direction of travel. Exterior landings shall be permitted to have a slope not to exceed $\frac{1}{4}$ units vertical in 12 units horizontal.
 - **Exception:** Exterior balconies less than 60 square feet and only accessible from a door are permitted to have a landing less than 36 inches measured in the direction of travel.



- ◆ **R311.7.5 - Landings for stairways:** There shall be a floor or landing at the top and bottom of each stairway. A flight of stairs shall not have a vertical rise larger than 12 feet between floor levels or landings.
 - **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.

- ◆ **R311.7.5 – Size:** The width of each landing shall not be less than the width of the stairway served. Every landing shall have a minimum dimension of 36 inches (914 mm) measured in the direction of travel.

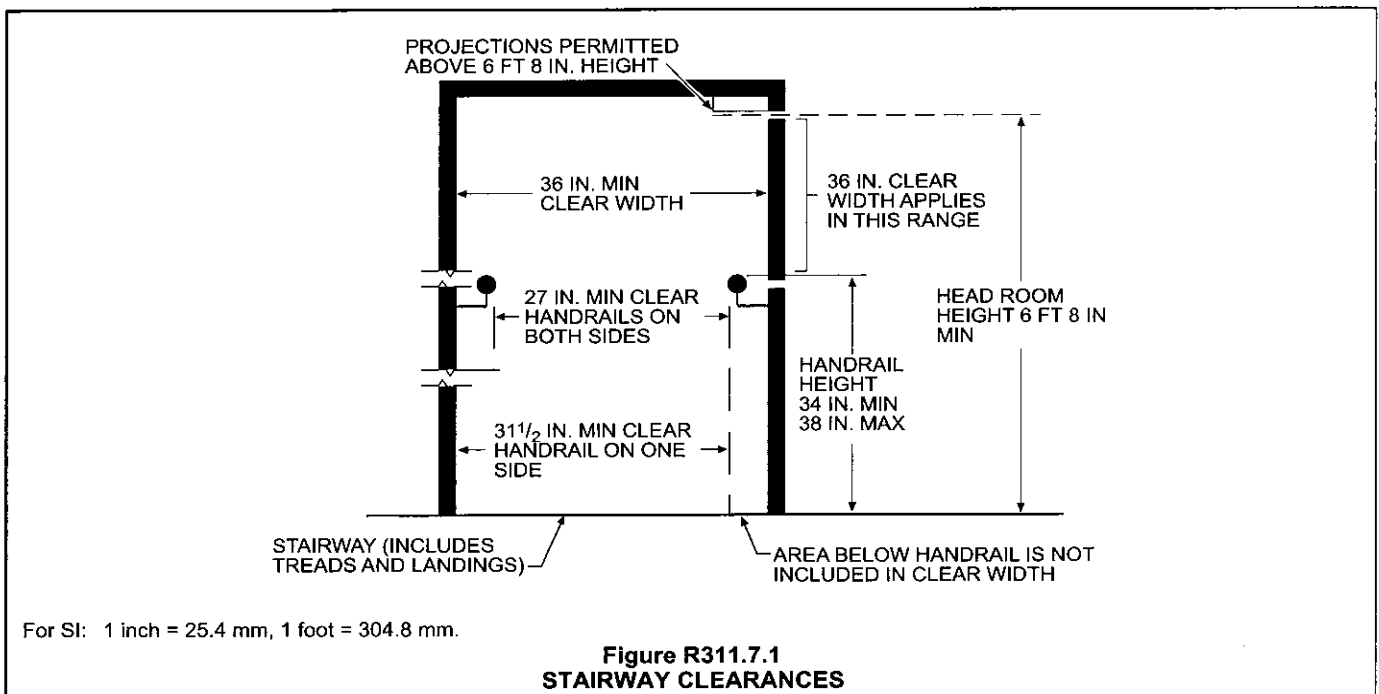


SECTION R311 – STAIRWAYS:

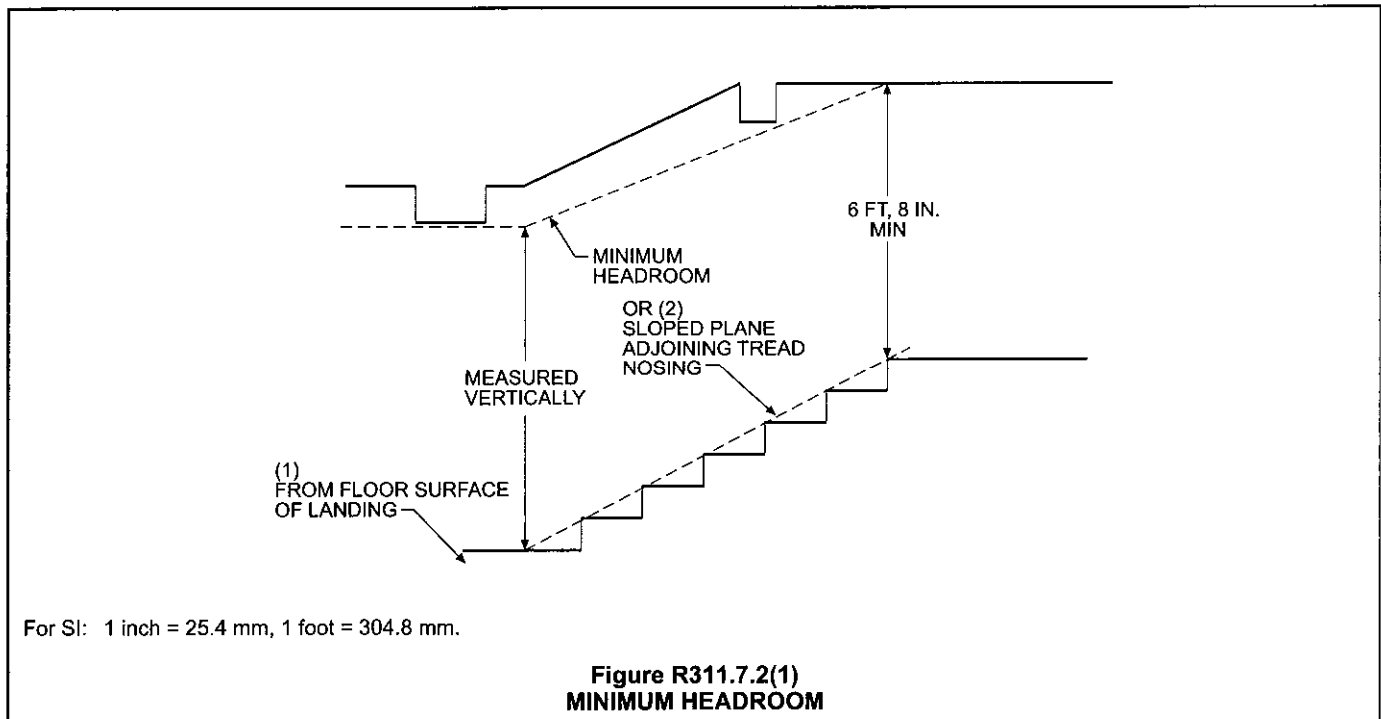
** **Riser:** The vertical surface between two (2) treads.

- ◆ **R311.7.1 Width:** Stairways shall not be less than 36 inches in clear width at all points above the permitted handrail height and below the required headroom height. Handrails shall not project more than 4.5 inches on either side of the stairway 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 where a handrail is installed on one side and 27 inches where handrails are provided on both sides.

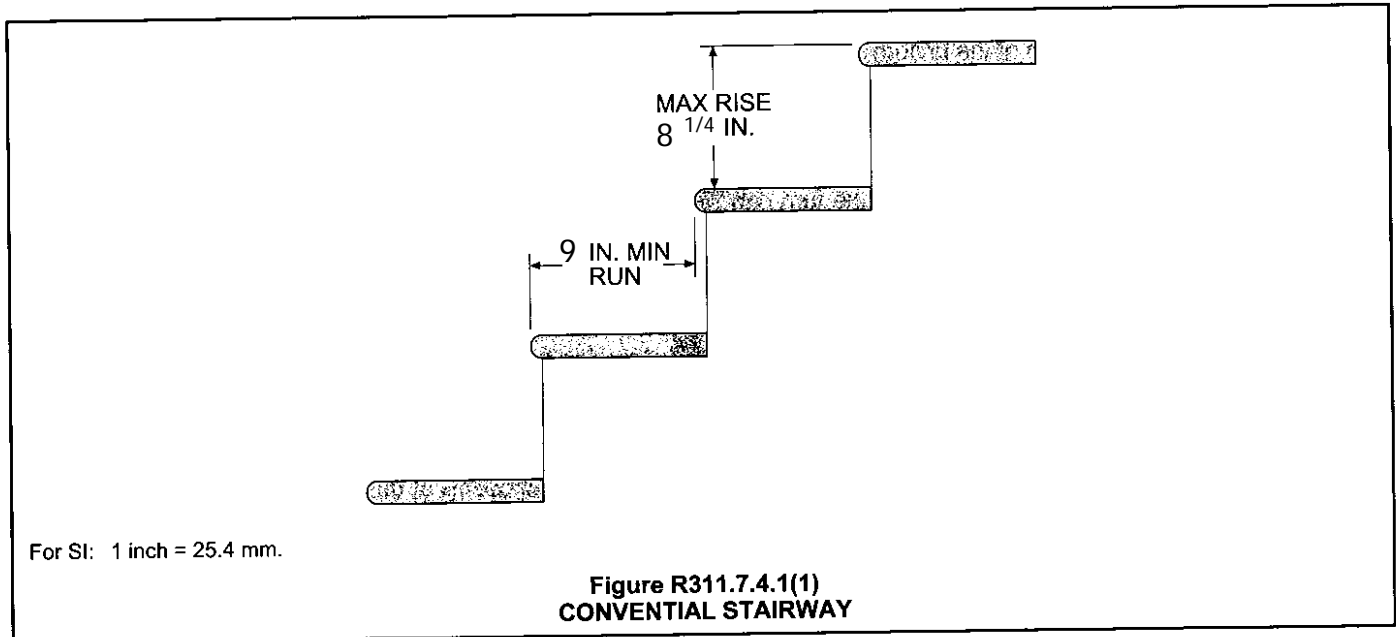
- ◆ **Exception:** The width of spiral stairways shall be in accordance with Section R311.7.9.1.



- ◆ **R311.7.2 Headroom:** The minimum headroom in all parts of the stairway shall not be less than 6 feet 8 inches measured vertically from the sloped line adjoining the tread nosing or from the floor surface of the landing or platform on that portion of the stairway.



- ◆ **R311.7.4.1 Riser height:** The maximum riser height shall be 8-1/4 inches. The riser shall be measured vertically between leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch.
 - ◆ **R311.7.4.2 Tread depth:** The minimum tread depth shall be 9 inches. 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. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch. Winder treads shall have a minimum tread depth of 10 inches measured as above at a point 12 inches from the side where the treads are narrower. Winder treads shall have a minimum tread depth of 6 inches at any point. Within any flight of stairs, the greatest winder tread depth at the 12-inch walk line shall not exceed the smallest by more than 3/8 inch.
 - **R311.7.4.3 - Profile:** The radius of curvature at the nosing shall be no greater than 9/16 inch. A nosing not less than 3/4 inch but not more than 1-1/4 inch shall be provided on stairways with solid risers. The greatest nosing projection shall not exceed the smallest nosing projection by more than 3/8 inch between two stories, including the nosing at the level of floors and landings. Beveling of nosings shall not exceed 1/2 inch. Risers shall be vertical or sloped under the tread from the underside of the nosing above at an angle not more than 30 degrees (0.51 rad) from the vertical. Open risers are permitted, provided that the opening between treads does not permit the passage of a 4-inch diameter sphere.
- 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.



- ◆ **R311.7.6 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).

SECTION R311 – HANDRAILS:

- ◆ **R311.7.7 Handrails:** Handrails shall be provided on at least one side of each continuous run of treads or flight with four or more risers.
 - **R311.7.7.1 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).

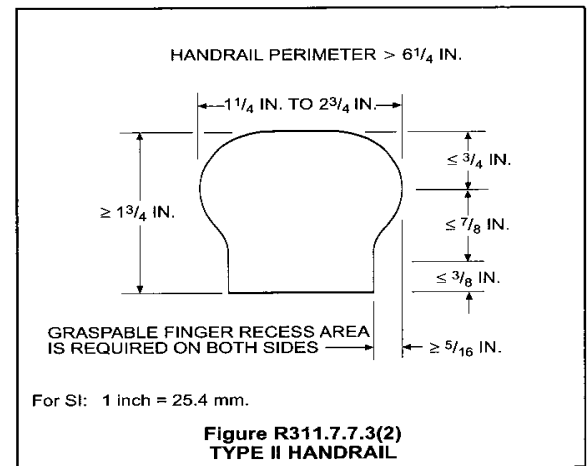
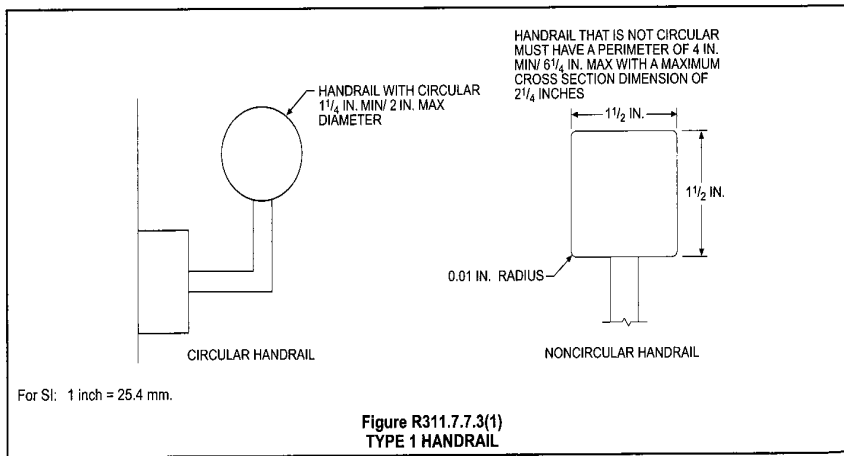
Exceptions:

 - 1.) The use of a volute, turnout or starting easing shall be allowed over the lowest tread;
 - 2.) When handrail fittings or bendings are used to provide continuous transition between flights, the transition from handrail to guardrail, or used at the start of a flight, the handrail height at the fittings or bendings shall be permitted to exceed the maximum height.
 - **R311.7.7.2 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. 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 1-1/2 inch (388 mm) between the wall and the handrails.

Exceptions:

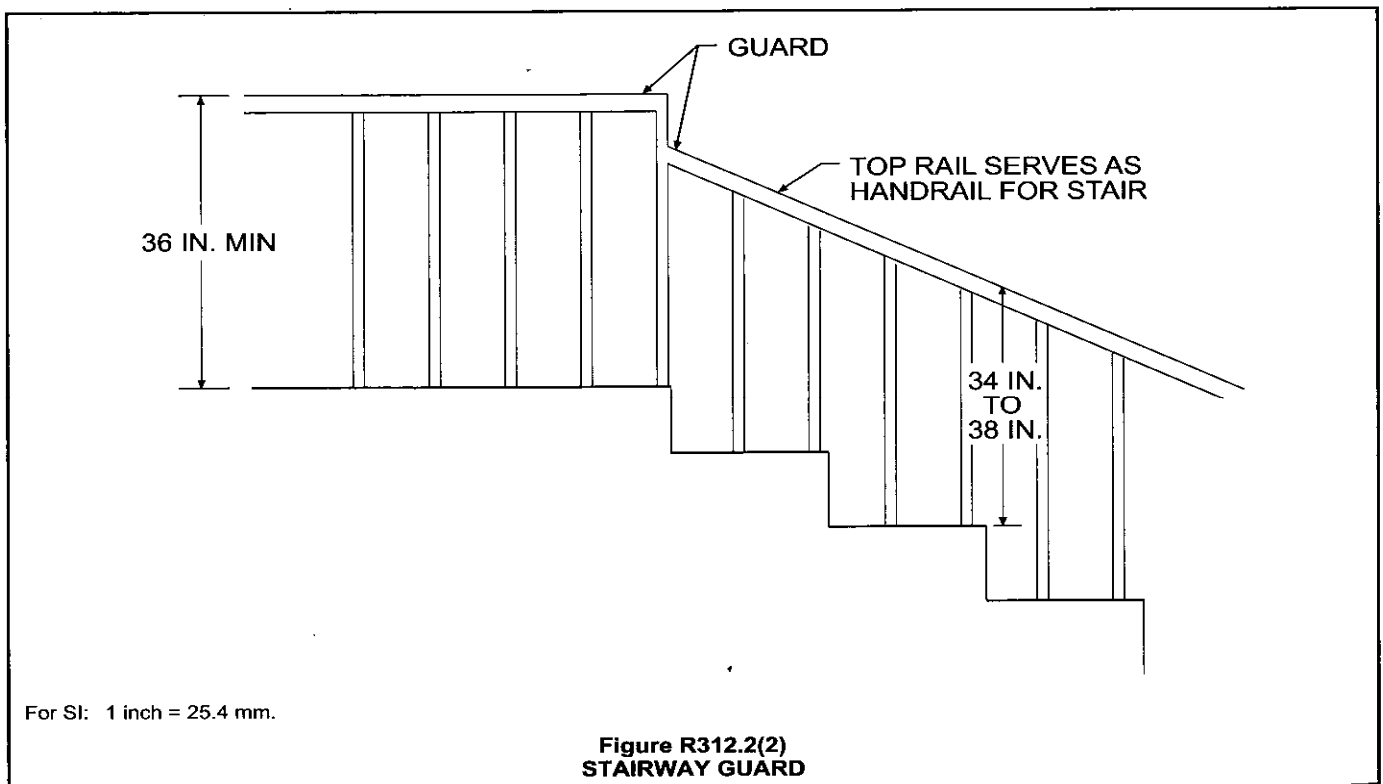
 - 1.) Handrails shall be permitted to be interrupted by a newel post at the turn.
 - 2.) The use of a volute, turnout, starting easing or starting newel shall be allowed over the lowest tread.
- ◆ **R311.7.7.3 Handrail grip size:** All required handrails shall be of one of the following types or provide equivalent graspability.
 - 1.) Type I: Handrails with a circular cross section shall have an outside diameter of at least 1-1/4 inches and not greater than 2 inches. If the handrail is not circular it shall have a perimeter dimension of at least 4 inches and not greater than 6-1/4 inches with a maximum cross section of dimension of 2-1/4 inches. Edges shall have a minimum radius of 0.01 inch.
 - 2.) Type II: Handrails with a perimeter greater than 6-1/4 inches (160 mm) shall provide a graspable finger recess area on both sides of the profile. The fingers recess shall begin within a distance of 3/4

inches (19 mm) measured vertically from the tallest portion of the profile and achieve a depth of at least 5/16 inch (8 mm) within 7/8 inches (22 mm) below the widest portion of the profile. This required depth shall continue for at least 3/8 inch (10 mm) to a level that is not less than 1-3/4 inches (45 mm) below the tallest portion of the profile. The minimum width of the handrail above the recess shall be 1-1/4 inches (32 mm) to a maximum of 2-3/4 inches (70 mm). Edges shall have a minimum radius of 0.01 inches (0.25 mm).



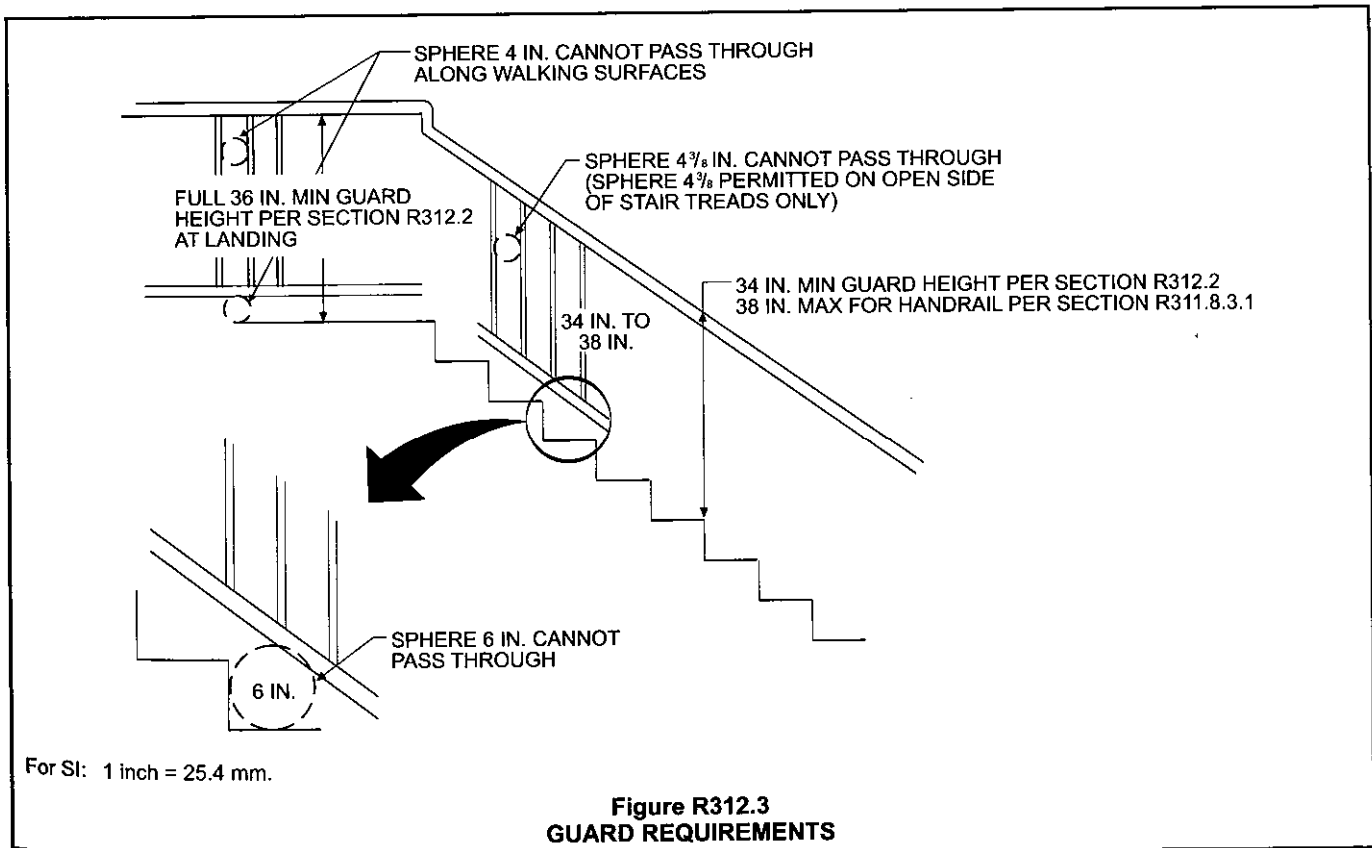
SECTION R312 – GUARDS:

- ◆ **R312.1 Guards required:** Guards shall be located along open-sided walking surfaces, including stairs, ramps and landings, that are located more than 30 inches measured vertically to the floor or grade below at any point within 36 inches horizontally to the edge of the open side. Insect screening shall not be considered as a guard.



- ◆ **R312.2 Height:** Required guards at open-sided walking surfaces, including stairs, porches, balconies or landings, shall be not less than 36 inches high measured vertically above the adjacent walking surface, adjacent fixed seating or the line connecting the leading edges of the treads.
 - **Exceptions:**
 - 1.) Guards on the open sides of stairs have a height not less than 34 inches measured vertically from a line connecting the leading edges of the treads.
 - 2.) Where the top of the guard also serves as a handrail on the open sides of stairs, the top of the guard shall not be less than 34 inches and not more than 38 inches measured vertically from a line connecting the leading edges of the treads.

- ◆ **R312.3 Guards opening limitations:** Required guards shall not have openings from the walkway surface to the required guard height which allow passage of a sphere 4 inches in diameter. Exceptions: 1) The triangular openings at the open side of a stair, formed by the riser, tread and bottom rail of a guard shall not allow passage of a sphere 6 inches in diameter. 2) Guards on the open sides of stairs shall not have openings which allow passage of a sphere 4-3/8 in diameter.
 - **Exceptions:**
 - 1.) The triangular openings at the open side of a stair, formed by the riser, tread and bottom rail of a guard shall not allow passage of a sphere 6 inches in diameter.
 - 2.) Guards on the open sides of stairs shall not have openings which allow passage of a sphere 4-3/8 in diameter.



**INSPECTIONS MUST BE CALLED INTO THE OFFICE 24 HOURS IN ADVANCE
(231) 627-8813**