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RESIDENTIAL STAIR DETAILS

The following information provides the building code requirements for residential stair construction. This information is taken from the 2015 Michigan Residential Code, Sections R302 & R311 - R312. The code requirements listed below are for typical, straight stair runs, and do not include the requirements for spiral and circular stairways. Please contact your local Building Dept. for further information regarding spiral and circular stairs, or with any other stair questions that you may have.

R302.7 Under Stair Protection: Enclosed accessible space under stairs shall have walls, under stair surface and any soffits protected on the enclosed side with minimum $\frac{1}{2}$ inch gypsum board.

R311.3 Floors and Landings at Doors: There shall be a floor or landing on each side of each exterior door. The floor or landing at the required exit door shall not be more than $1\frac{1}{2}$ inches lower than the top of the threshold.

Exceptions: 1. Where a stairway of two or fewer risers is located on the exterior side of a door, other than the required exit door.
2. The landing at an exterior doorway shall not be more than $7\frac{3}{4}$ inches below the top of the threshold, provided that the door, other than an exterior storm or screen door, does not swing over the landing.

Landing Size: The width of each landing shall not be less than the stairway or door served. Every landing shall have a minimum dimension of 36 inches measured in the direction of travel.

R311.7.1 Width: Stairways shall not be less than 36" in clear width at all points above the permitted handrail height and below the required headroom height. Handrails shall not project more than $4\frac{1}{2}$ 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 $31\frac{1}{2}$ inches where a handrail is installed on one side and 27 inches where handrails are provided on both sides.

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 plane adjoining the tread nosing or from the floor surface of a landing or platform.

R311.7.4 Treads & Risers: The maximum riser height shall be $8\frac{1}{4}$ inches and the minimum tread depth shall be 9 inches. The riser height shall be measured vertically between leading edges of the adjacent treads. 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 treads leading edge. The greatest riser height within any flight of stairs shall not exceed the smallest by more than $\frac{3}{8}$ of an inch. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than $\frac{3}{8}$ of an inch.

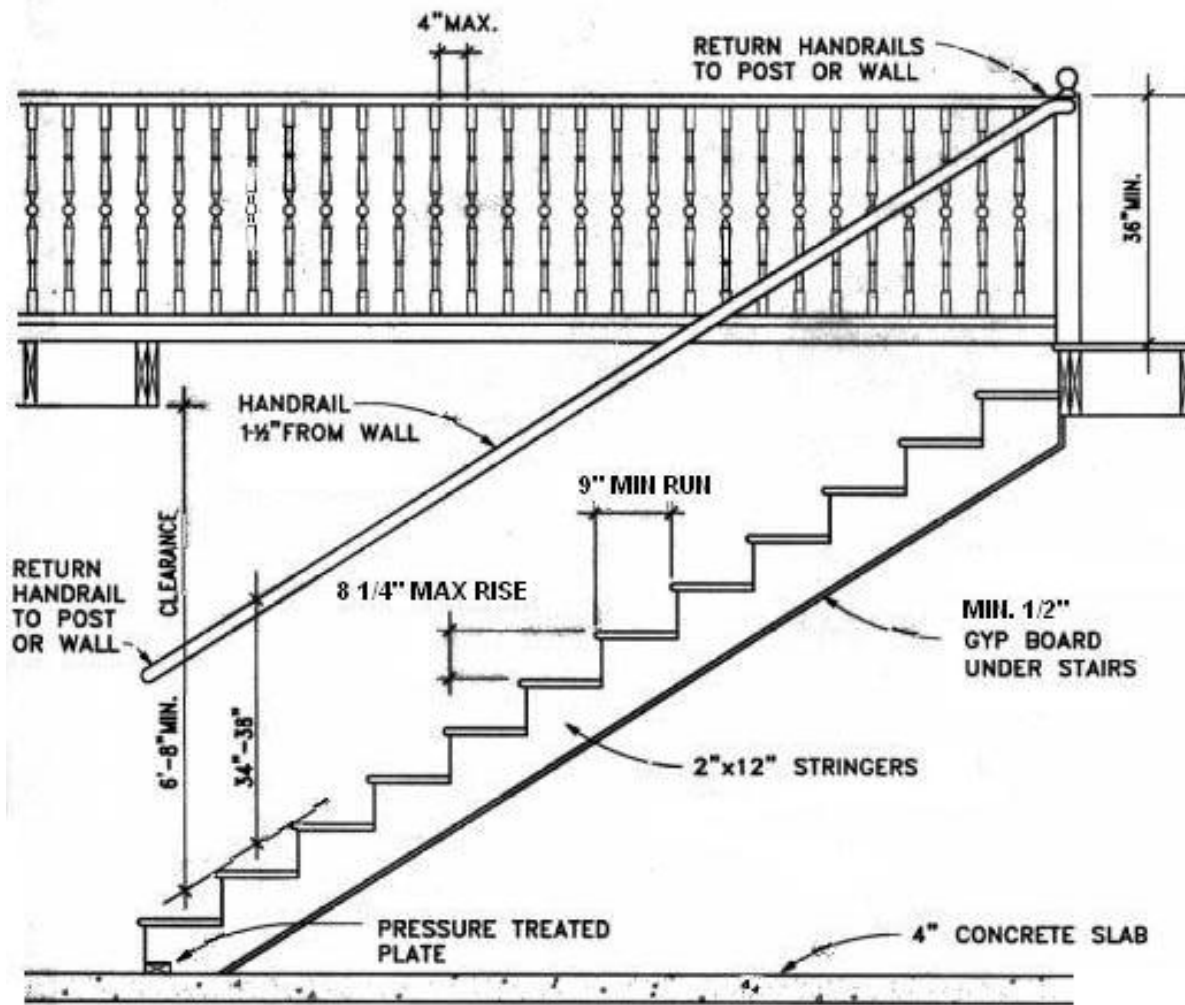
R311.7.4.2 Winders: Winders are permitted, provided that the width of the tread at a point not more than 12 inches from the side where the treads are narrower is not less than 10 inches and the minimum width of any tread is not less than 6 inches.

R311.7.5.3 Nosings: A nosing not less than $\frac{3}{4}$ inch but not more than $1\frac{1}{4}$ inches shall be provided on stairways with solid risers.

Exception: 1. A nosing is not required where the tread depth is a minimum of 11 inches.

R311.7.6 Landings For Stairways: There shall be a floor or landing at the top and bottom of each stairway

Exception: At the top of an interior flight of stairs, including stairs in an enclosed garage, if a door does not swing over the stairs.



TYPICAL STAIR DETAIL

R311.7.8 Handrails: Handrails that have minimum and maximum heights of 34 inches and 38 inches respectively, measured vertically from the nosing of the treads, shall be provided on at least one side of stairways. All required handrails shall be continuous the full length of the stairs with 4 or more risers from a point directly above the top riser of a flight to a point directly above the lowest riser of the flight. Ends shall be returned or shall terminate to walls, newel posts or safety terminals. Handrails adjacent to a wall shall have a space of not less than 1 1/2 inches between the wall and the handrail.

R311.7.8.3 Handrail Grip Size: The handgrip portion of round handrails shall have a circular cross section of 1 1/4 inches minimum to 2 inches maximum. Other handrail shapes that provide an equivalent grasping surface are permissible. See Handrail & Guardrail handout for further information on approved handrail designs.

R312.1 Guards Required: Porches, balconies or raised floor surfaces located more than 30 inches above the floor or grade below shall have guards not less than 36 inches in height. Open sides of stairs with a total rise of more than 30 inches above the floor or grade below shall have guards not less than 34 inches in height measured vertically from the nosing of the treads. Insect screening shall not be considered as a guard.

312.1.3 Guard Opening Limitations: Required guards on open sides of stairways, raised floor areas, open stair risers, balconies and porches shall have intermediate rails or ornamental enclosures that do not allow the passage of a sphere 4 inches in diameter.

Exception:

1. The triangular openings formed by the riser, tread and bottom rail of a guard at the open side of a stairway are permitted to be of such a size that a sphere 6 inches in diameter cannot pass through.
2. Guardrails on open sided stair treads may have openings that do not allow the passage of a 4 3/8 inch diameter sphere.