

Required Permits

A **Building Permit** is required when installing or replacing a set of stairs. The following are general code requirements for stairs.

Width, Headroom, & Landing

Stairs shall have a minimum clear width of 36" above the handrail, and 31-½" at and below the handrail. With handrails on both sides, the minimum width at and below the handrails is 27". The minimum headroom in new construction is 6'-8" (80"). For alterations to *existing stairways*, the minimum headroom is 6'-4" (76"). A landing at least the same width of the stairs is required at

the top and bottom of stairs, and shall extend at least 36" in the direction of travel. **Exception:** A landing is not required at the top of interior stairs or in an enclosed garage if a door does not swing over the stairs.

Treads and Risers

Maximum riser height is 7¾". Minimum tread depth is 10". Treads shall support a 40-pound live load or a 300-pound point load over 4 square inches. Open risers are only permitted if the total height is less than 30" above floor or grade. For stairs over 30" the opening between treads shall not exceed 4". The walking surface of treads (and landings) shall not exceed a slope of ¼" (2%) per foot.

Dimensional Tolerances

Riser heights, tread depths, and nosing projections shall not differ more than 3/8" on any run. A nosing ¾ inch to 1-¼ inch is required on stairs with solid risers. **Exception:** A nosing is not required with a minimum 11-inch tread depth.

Illumination

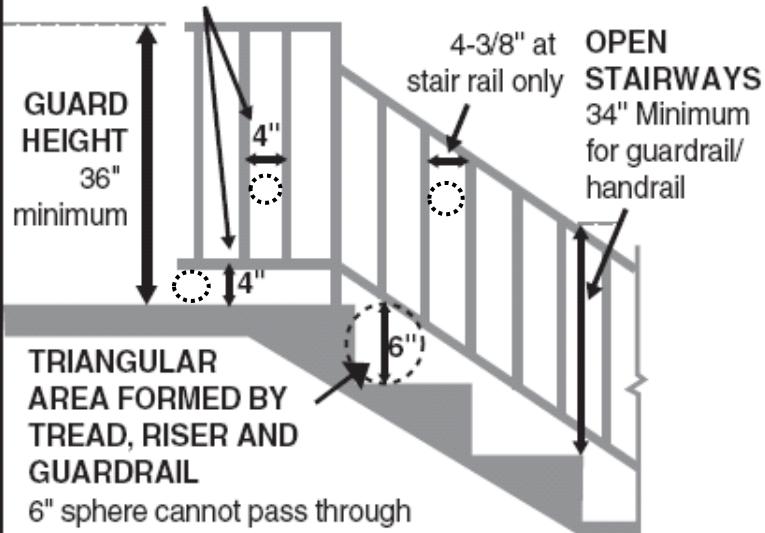
All stairs require an artificial light source. Light for exterior stairs shall be controlled from inside the dwelling, automatically controlled, or continuous.

Guards

Open sides of stairs more than 30" high require guards at least 34" high with maximum 4-3/8" railing openings. Guards are measured vertically from tread nosing to top of guard. Stairway guards and handrails must support a 200 pound load at any point along the top. Triangular openings formed by riser, tread and bottom guard rail must be less than 6". Guards at landings and elsewhere shall be 36" high minimum, and maximum 4" rail openings.

Guard opening limitations

INTERMEDIATE RAIL SPACING OR PATTERN
4" sphere cannot pass through



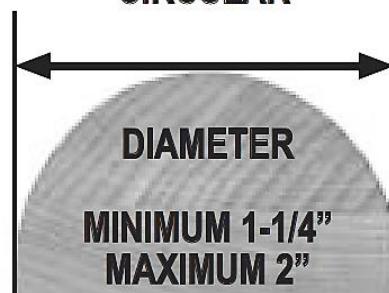
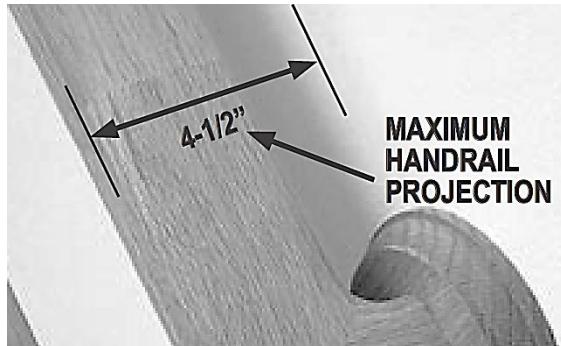
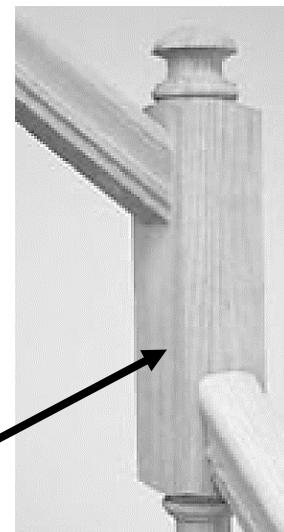
Handrails

Stairs with four or more risers require a continuous handrail for the full length of the stairs from a point directly above the top riser, to a point directly above or past the lowest riser.

Exceptions:

1. Handrails may be interrupted by a newel post at a turn.
2. A volute, turnout or newel post is allowed over the lowest tread.

The handrail must be graspable, located on at least one side, with no open ends or sharp edges, and located 34" - 38" above the tread nosing. The ends shall be returned or terminated in a newel post or safety terminal. Handrail(s) shall not project more than 4-1/2" into clear width of stairway, and require a minimum 1-1/2" space between the railing and the surface it is mounted to. Handrail must support a 200 pound force applied at any point along the top. The hand grip portion shall be Type I, Type II, or other equivalent graspable type.

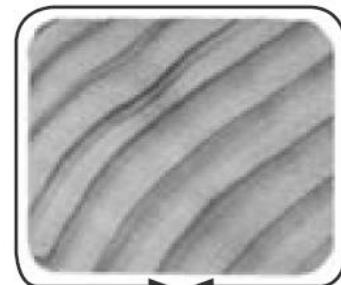
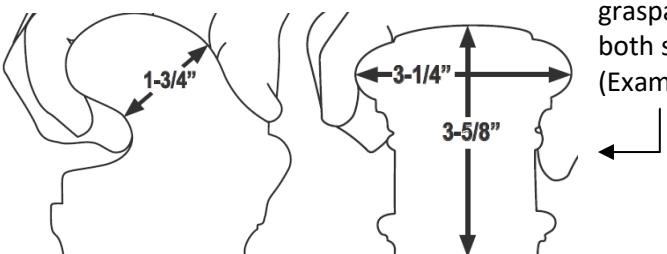


Handrails must be graspable per 2015 MN Residential Code R311.7.8.

Type I Handrails. The outside diameter of a circular hand rail may be no less than 1-1/4" and no greater than 2". If the handrail is not circular it shall have a perimeter dimension of at least 4" and not greater than 6-1/4" with a maximum cross section dimension of 2-1/4" .

Type II handrails. Handrails with a perimeter greater than 6-1/4" shall provide a

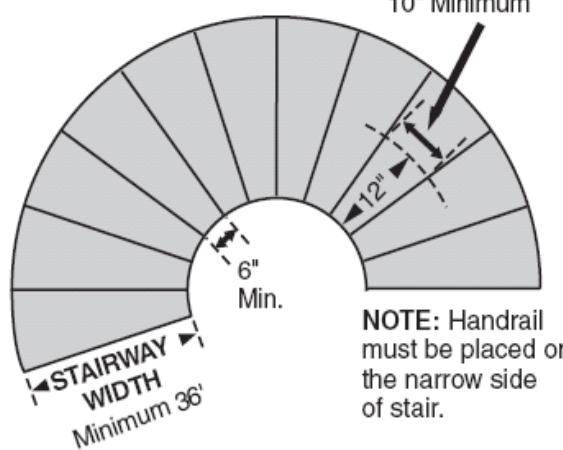
graspable finger recess area on both sides of the profile.
(Examples)



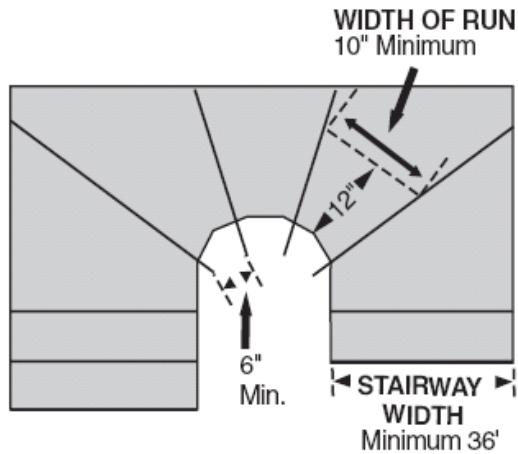
PERIMETER
MINIMUM 4"
MAXIMUM 6-1/4"

NOTE: REQUIRED HANDRAILS ARE NOT SHOWN

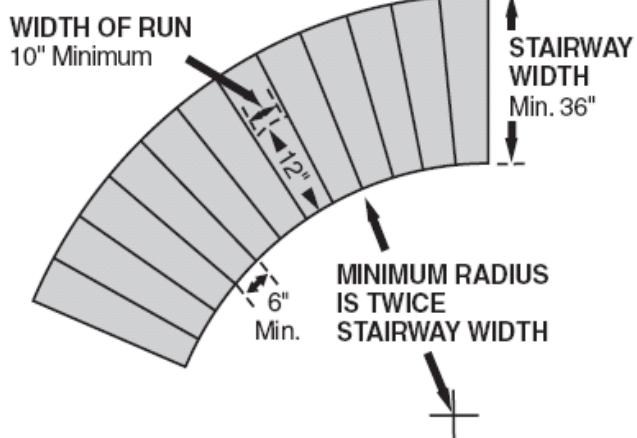
Winding stairway



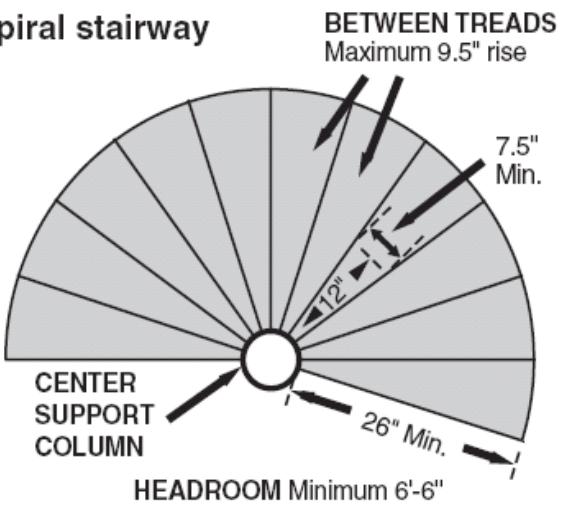
Alternative use of winders



Circular stairway

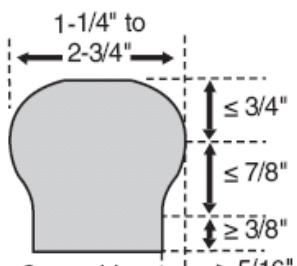


Spiral stairway



Handrail

Perimeter greater than (\leq) 6-1/4"



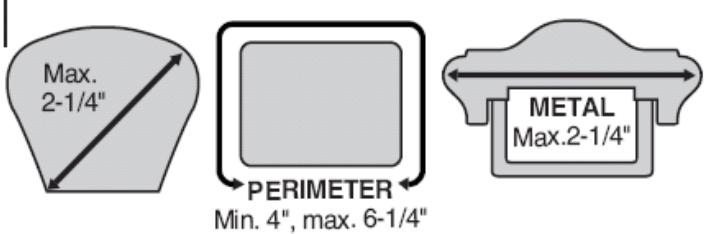
Handrail details

Other shapes may be acceptable if they provide equivalent gripping service. Contact Building and Inspection.

CIRCULAR



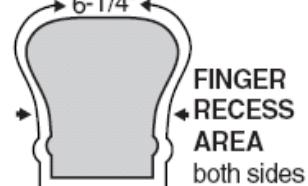
NON-CIRCULAR



Handrail samples

PERIMETER

greater than



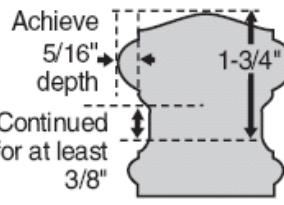
Achieve

5/16" depth

Continued

for at least

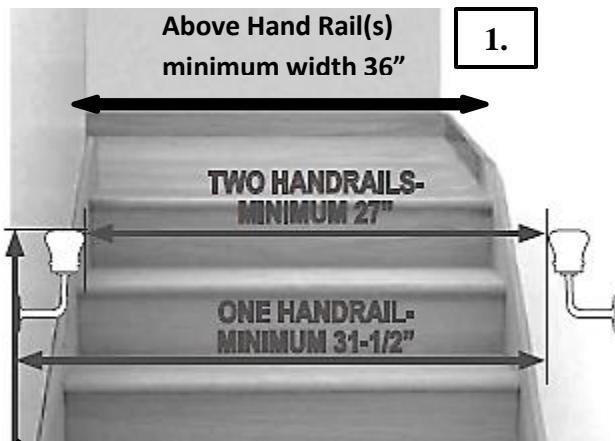
3/8"



Within 3/4" FINGER RECESS begins

Within 7/8" of widest portion, achieve 5/16" depth

Visual Examples



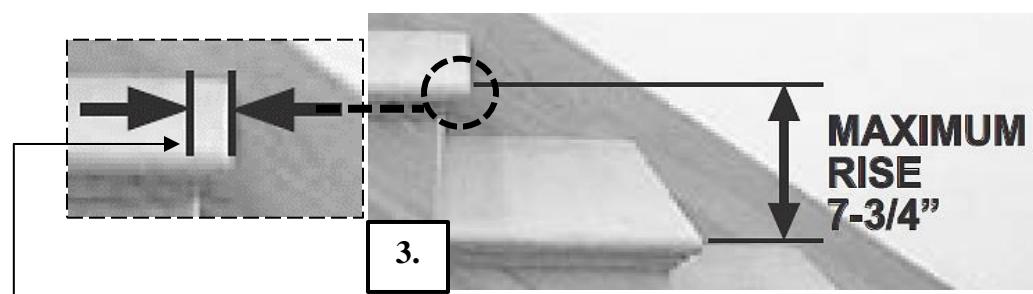
1.

Pictures 1 & 2

1. 36" minimum width above handrail
2. 31½" minimum width at and below 1 handrail
3. 27" minimum width at and below handrails *on both sides*
4. 6'-8" (80") minimum headroom in all new construction; 6'-4" (76") minimum headroom for *existing* stairways
5. A landing at least the same width is required at the top and bottom of stairs, and extend at least 36" in the direction of travel. **Exception:** *A landing is not required at the top of interior stairs or in an enclosed garage if a door does not swing over the stairs.*



2.



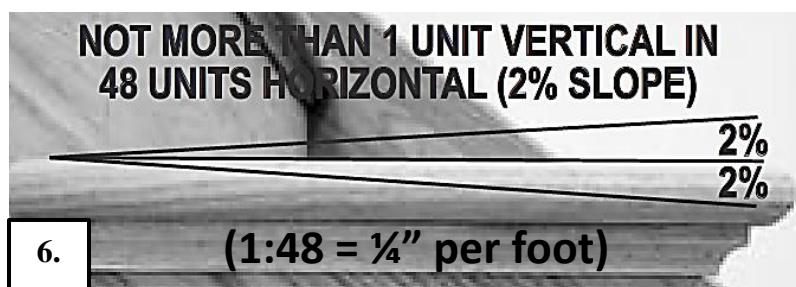
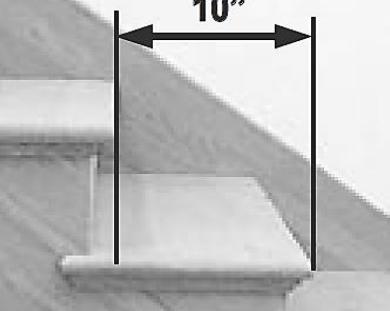
3.

Pictures 3, 4 & 5

1. Minimum tread depth is 10 inches
2. Maximum riser height is 7¾ inches
3. Nosing projection shall be a minimum ¾" and max. 1-¼"
4. Maximum opening size between treads is 4" if steps (total) are over 30" high

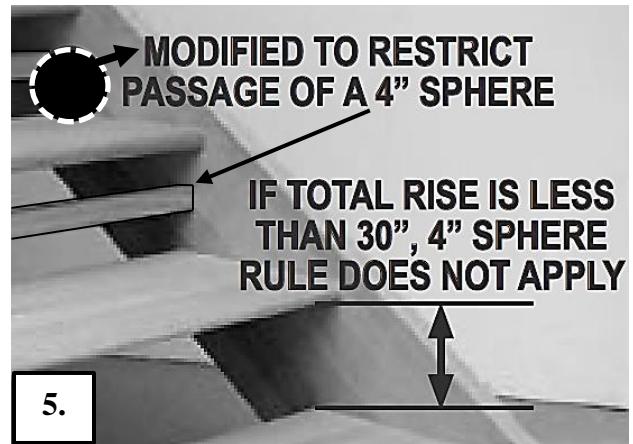
4.

MINIMUM DEPTH 10"

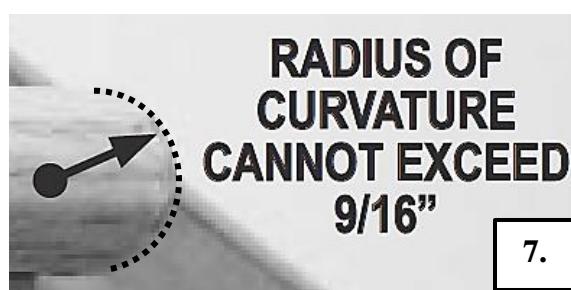


6.

(1:48 = ¼" per foot)



5.



7.

Pictures 6 & 7

1. Maximum tread slope is 2%
2. Maximum nosing radius is 9/16"