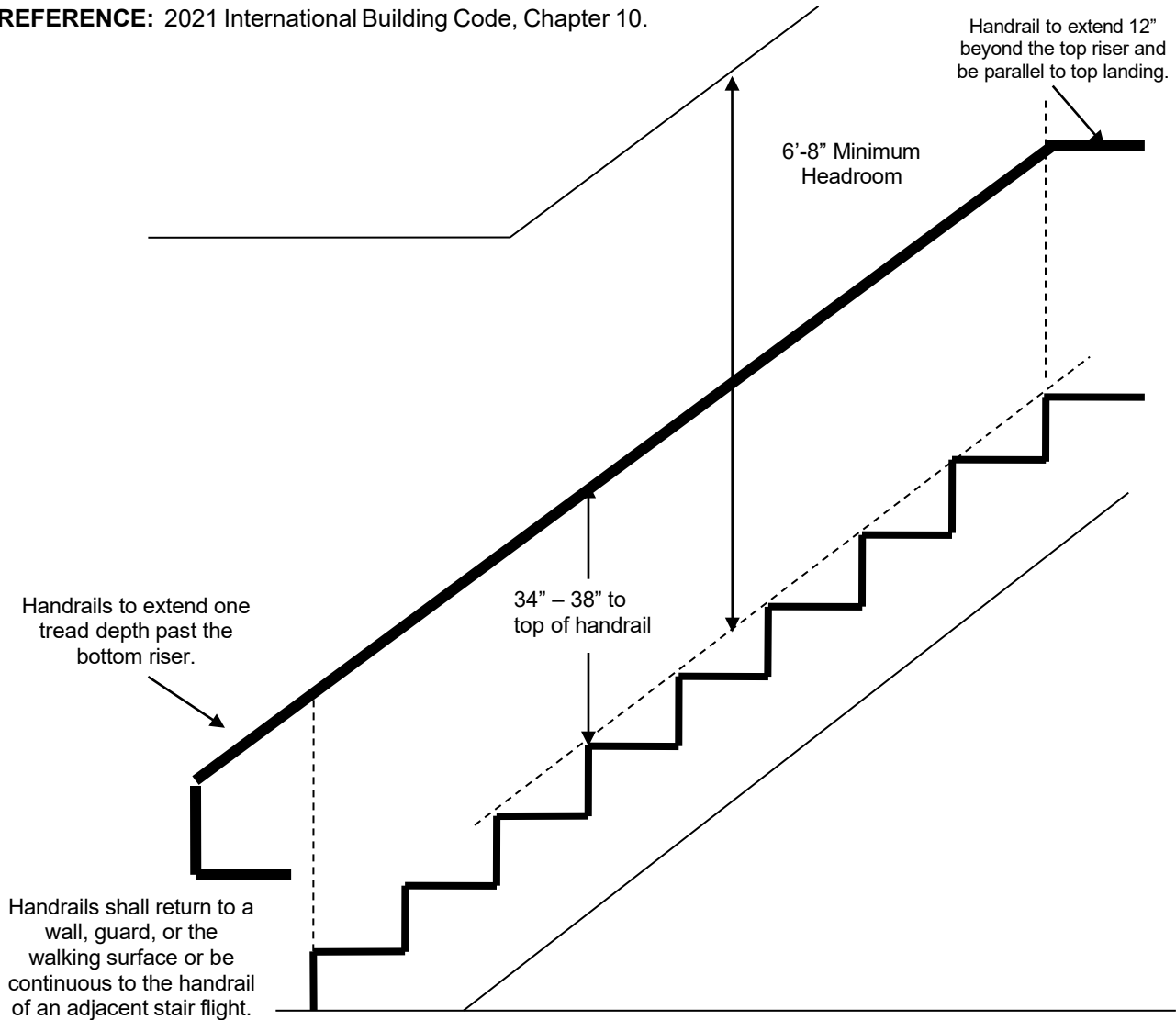


COMMERCIAL STAIRS, RAILINGS, & GUARDS

REFERENCE: 2021 International Building Code, Chapter 10.



STAIR WIDTH

- Minimum width of 44 inches. (Exception: If occupant load is under 50 persons, stair width can be reduced to 36".)

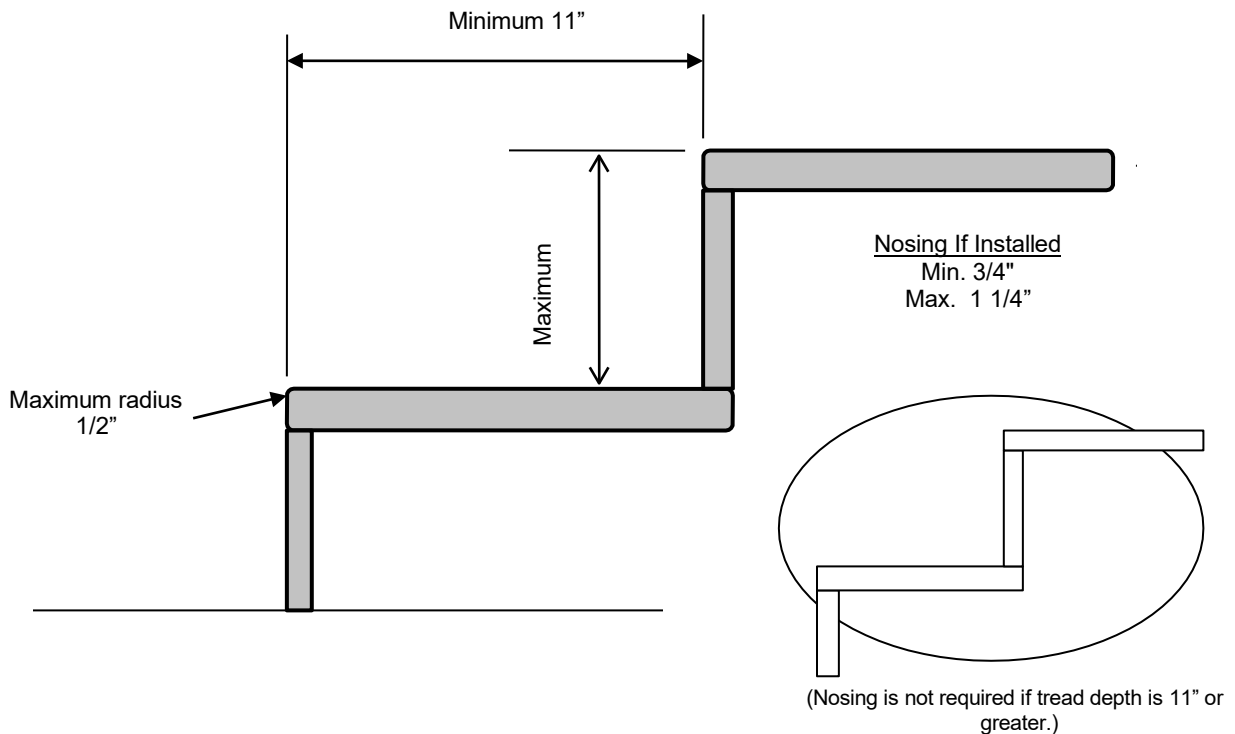
LANDINGS

- Landing width and depth must be at least equal to the width required for the stair.
- Maximum vertical rise of a stair run must not exceed 12 feet without a landing or intermediate platform. However, if a landing occurs in a straight "run" of steps the depth of the landing need not be greater than 4feet.

HEADROOM

- The minimum headroom in the stairway shall not be less than 6 feet, 8 inches measured vertically from the sloped plane of the tread nosing or from the floor surface of the landing or platform.

COMMERCIAL TREAD DETAIL



TREADS & RISERS

- Maximum riser heights shall be 7" maximum and 4" minimum.
- Tread depths shall be 11" minimum.
- The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8".

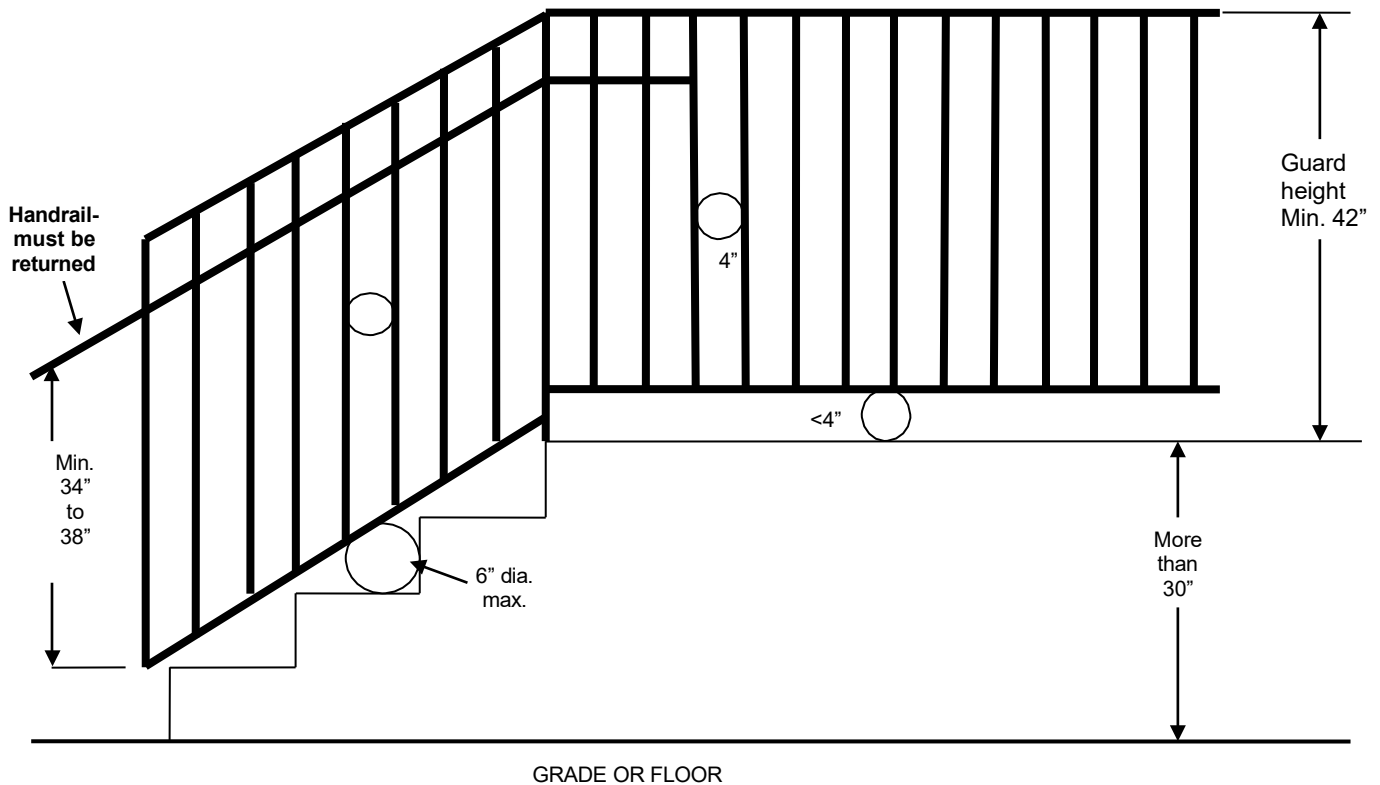
TREAD PROFILE

- The radius of curvature at the leading edge of the tread shall not be greater than 1/2".
- Beveling of nosings shall not exceed 1/2".
- Risers shall be solid and vertical or sloped from the underside of the leading edge of the tread not more than 30 degrees from vertical.
- The greatest nosing projection shall not exceed the smallest by more than 3/8".

COMMERCIAL GUARDS

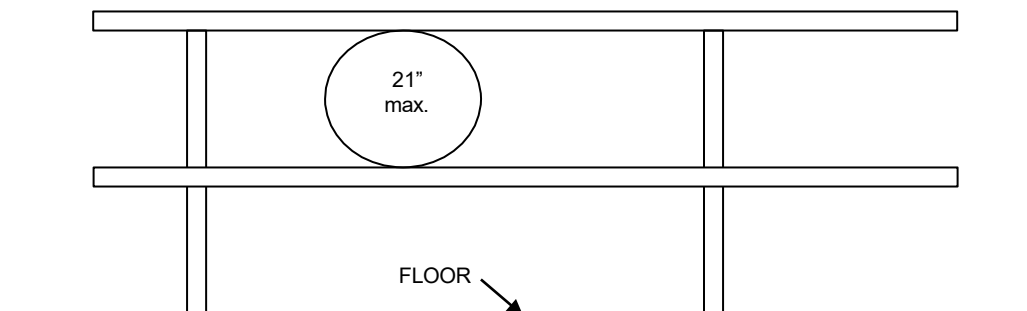
GUARDS REQUIRED

- Guards 42" in height are required at open-sided walking surfaces, mezzanines, industrial equipment platforms, stairs, ramps and landings which are located more than 30 inches above the floor or grade.
- Required guards shall have intermediate rails or ornamental closures that do not allow passage of a sphere 4 inches in diameter to a height of 36". From 36" to 42" above the adjacent walking surfaces, a sphere 4-3/8" in diameter shall not pass.
- 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.



Exception for guards in Groups I-3, F, H, or S

- In areas not open to the public with occupancies in Group I-3, F, H, or S, balusters, horizontal intermediate rails or other construction shall not permit a sphere with a diameter of 21" to pass through any opening.



COMMERCIAL HANDRAILS

HANDRAILS

- A handrail is required on **both** sides of stairway.
- Handrail height shall be between 34 and 38 inches measured from the nosing of the tread. The handgrip portion of handrails shall have a circular cross section of 1 ¼" minimum to 2" maximum. Other shapes that provide an equivalent grasping surface are permissible. Edges are to have a min. radius of 1/8".
- Handrails may encroach up to 4 ½" at or below the handrail height into the required width on each side.

HANDRAIL EXTENSIONS

- Extend 12" past the top riser and be parallel to the top landing.
- Extend beyond the bottom riser and continue its slope for a distance equal to the depth of one tread.
- Return to a wall, guard, or the walking surface or be continuous to the handrail of an adjacent stair flight.

HANDRAIL GRASPABILITY

- Handrails must be installed at least 1 ½" from adjacent walls.
- The diameter of circular handrails must be at least 1 ¼" but not more than 2".
- Non-circular handrails must have perimeter dimension of at least 4" but not greater than 6 ¼" with a maximum cross-section dimension of 2 ¼".

