



# COMMERCIAL STAIRS, RAILINGS, & GUARDS

## COMMERCIAL, STAIRS RAILINGS AND GUARDS

REFERENCE: 2006 IBC

Stair riser height  
7" maximum  
4" minimum  
Stair tread depth  
11" minimum

6' 8" minimum headroom

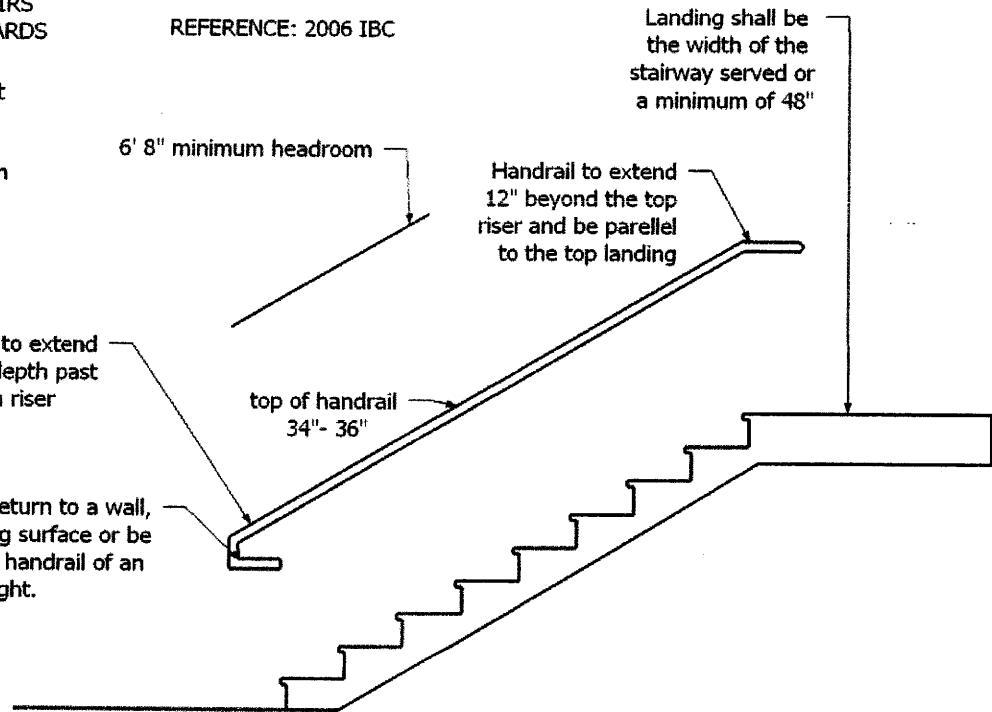
Landing shall be  
the width of the  
stairway served or  
a minimum of 48"

Handrail to extend  
12" beyond the top  
riser and be parallel  
to the top landing

Handrails to extend  
one tread depth past  
the bottom riser

top of handrail  
34" - 36"

Handrails shall return to a wall,  
guard or walking surface or be  
continuous to a handrail of an  
adjacent stair flight.



## 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 by 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 4 feet.

## 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 platform.

# COMMERCIAL HANDRAILS

## HANDRAILS

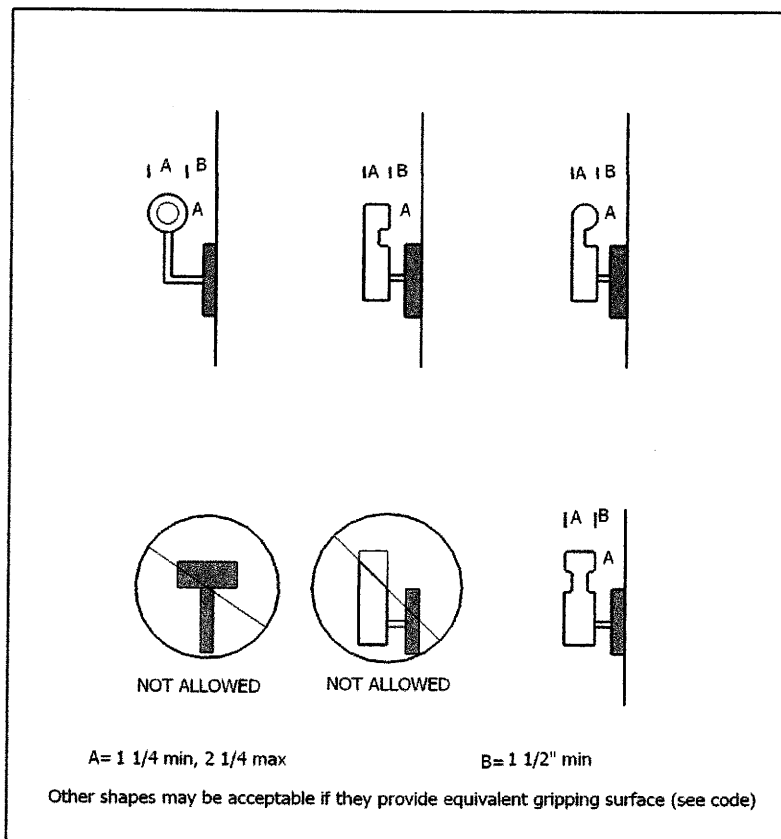
- A handrail is required on both sides of the stairway.
- Handrail height shall be between 34 and 38 inches measured from the nosing of the tread. The handgrip portion of handrails shall have a circular cross section of 1 ¼" minimum to 2" maximum. Other shapes that provide an equivalent grasping surface 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 the adjacent stair flight.

## HANDRAIL GRASPABILITY

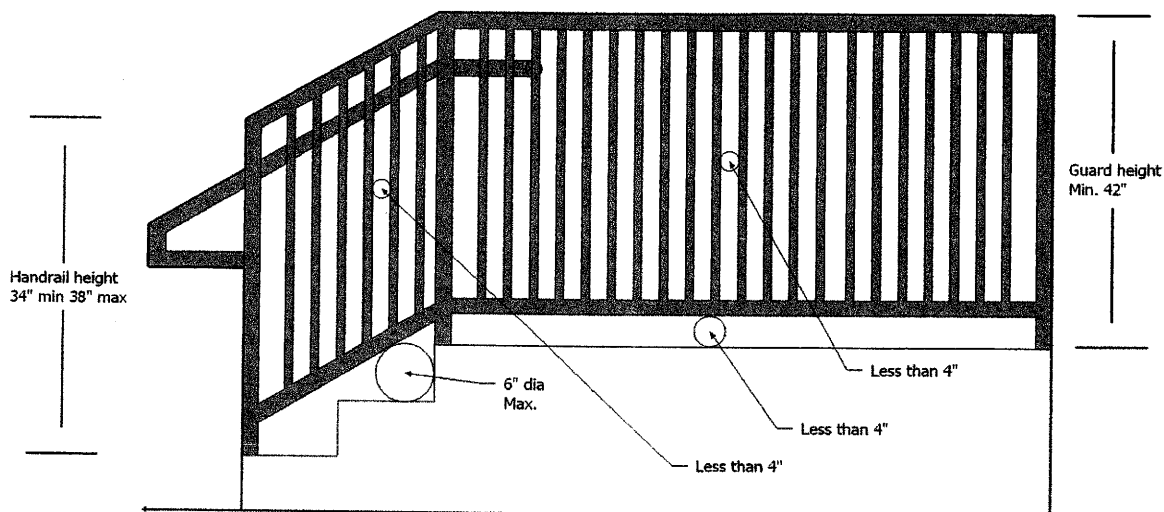
- Handrails must be installed at least 1 ½" from adjacent walls.
- The diameter of circular handrails must be at least 1 ¼" but not more than 2".
- Non circular handrails must have perimeter dimension of at least 4" but not greater than 6 ¼" with a maximum cross section dimension of 2 ¼".



# COMMERCIAL GUARDS

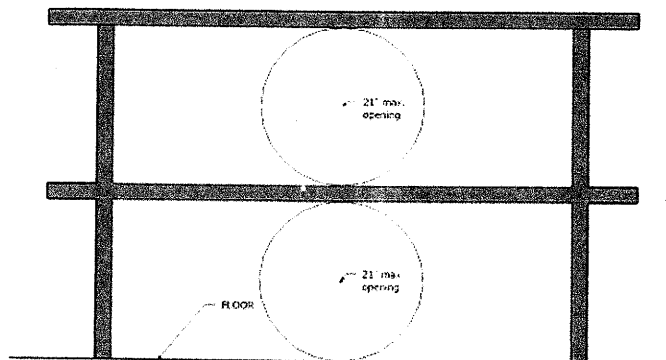
## GUARDS REQUIRED

- Guards a minimum of 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 minimum height of 34". Above 34" an 8" sphere shall not pass.
- The triangular openings formed by the riser, tread, and bottom rail of a guard at the open side of 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 TREAD DETAIL

## TREADS AND RISERS

- Maximum riser heights shall be 7" 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.
- The greatest nosing projection shall not exceed the smallest by more than 3/8".

