



# GUARDRAILS & HANDRAILS

## Guardrails

### Where Required

Guardrails shall be installed when there are any of the following circumstances:

- Open-sided walking surfaces, mezzanines, platforms, balconies or porches which are located more than 30" above the floor or grade below.
- Open and glazed sides of stairways;
- Roofs used for other than service of the building;
- Aisles, landings and ramps; and
- At the ends of aisles where they terminate at a fascia of boxes, balconies and galleries.

Guardrails do not need to be provided at the following locations:

- On the loading side of loading docks;
- On the auditorium side of a stage, raised platform or other raised floor areas such as runways, ramps and side stages used for entertainment or presentation;
- At vertical openings in the performance area of stages;
- Along the side of an elevated walking surface when used for the normal functioning of special lighting or for access and use of other special equipment.

### Height

The top of guardrails shall be at least 42" in height. Exceptions:

- The top of guardrails for single-family residential, Group U residential accessory buildings, and interior guardrails within individual dwelling units, congregate residences, or guestrooms may be a minimum of 36" in height.
- The top of guardrails on a balcony immediately in front of the first row of fixed seats in an auditorium that are not at the end of an aisle may be a minimum of 26" in height.
- The top of guardrails for residential stairways, exclusive of their landings, may have a height as specified for handrails (34" to 38" above the nosings).

### Openings

Open guardrails shall have intermediate rails, balusters or an ornamental pattern such that a sphere 4" in diameter cannot pass through.

Exceptions:

- At the sides of stair treads of a residential stairway, openings may be such size that a sphere 4 3/8 inches in diameter cannot pass through.
- Triangular openings formed by the riser, tread and bottom element of a guardrail at the open side of a stairway may be of such size that a sphere 6" in diameter cannot pass through.
- Openings located between 34" to 42" above the adjacent walking surface may be such that a sphere 8" in diameter cannot pass through.
- Openings between the intermediate rails or ornamental pattern of guardrails in areas of commercial and industrial-type occupancies that are not accessible to the public may be such that a sphere 21" in diameter cannot pass through.
- For additional guardrail requirements for grandstands, bleachers or other elevated seating facilities, see IBC Section 1012.



## Handrails

Stairways shall have handrails on each side, and every stairway required to be more than 60" in width shall have intermediate handrails such that all portions of the required egress width are within 30" of a handrail. Exceptions:

- Residential stairways may have handrails on one side only.
- Stairways three or less risers and serving one individual dwelling unit or a Group U Occupancy do not require handrails.

The top of handrails and handrail extensions shall be placed not less than 34" or more than 38" above landings and the nosing of treads.

Handrails shall be continuous the full length of the stairs and at least one handrail shall extend horizontally not less than 12" beyond the top riser, and shall continue to slope for the depth of one tread beyond the bottom riser.

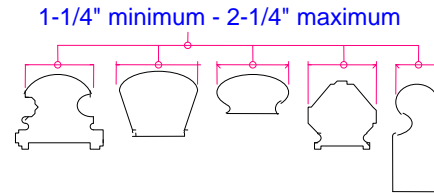
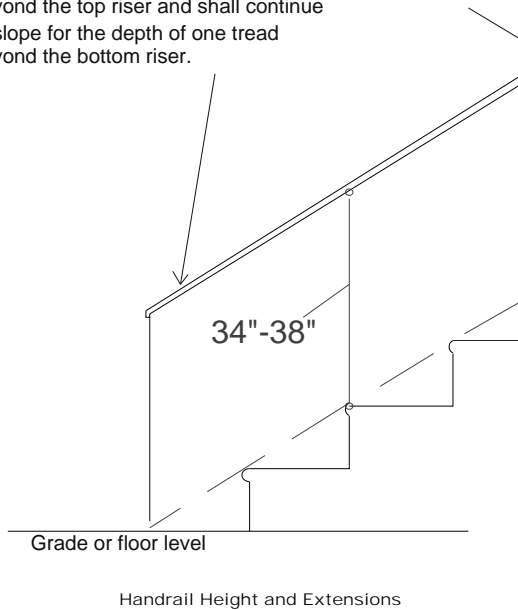
Handrail ends shall be returned to the wall or shall terminate in newel posts or safety terminals. Exceptions:

- Private stairways do not require handrail extensions.
- Private stairways without handrail extensions, within an individual dwelling unit may have starting newel posts within the first tread of stairways.

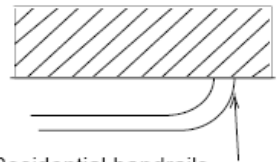
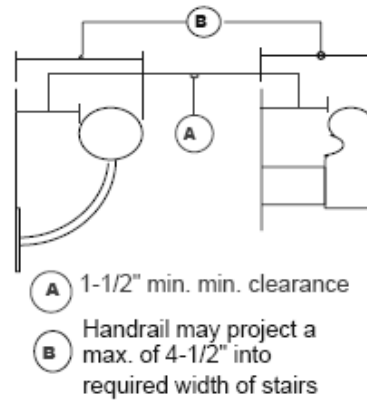
The handgrip portion of circular handrails shall not be less than 1.25" nor more than 2" in diameter. If the handrail is not circular, it shall have a perimeter dimension of at least 4" and not greater than 6 1/4" with a maximum cross-sectional dimension of 2 1/4". The shape shall provide an equivalent gripping surface, and shall be smooth with no sharp corners. Handrails projecting from a wall shall have a space of at least 1.50" between the wall and the handrail.

Ramps having a rise greater than 6" shall have handrails as required for stairways. At least one handrail shall extend in the direction of ramp run not less than 12" horizontally beyond the top and bottom of the ramp runs.

Handrail extensions are required on commercial and common areas of multi-family buildings. The extension length shall be at least 12" horizontally beyond the top riser and shall continue to slope for the depth of one tread beyond the bottom riser.



Typical Noncircular Handrail Shapes



Residential handrails must return to the wall or terminate in a balluster or post at each end.

