



# Coffee Break Training - Fire Protection Series

## Means of Egress: Handrails

No. FP-2014-49 December 9, 2014

**Learning Objective:** The student will be able to explain the requirements for handrails accompanying stairs.

Every year, thousands of people are injured or killed in stairway-related accidents.

The model building and fire codes provide requirements for handrails along most stairs to give people traversing them a stable and continuous surface to grip. In all but a few cases outlined in the codes, stairways are required to have handrails on each side.

Here are some of the general handrail requirements outlined in the codes:

- Handrails must be sufficiently strong and stable to support the loads applied by humans using them; handrails must be designed to resist a linear load of 50 pounds per linear foot (0.73 kilonewton meter).
- Handrail height, measured above stair tread nosings or finish surface of ramp slope, should be uniform; it should not be less than 34 inches (864 millimeters (mm)) and not be more than 38 inches (965 mm).
- Handrails must meet standards for grasping. In most cases, this means that handrails with a circular cross section should have an outside diameter of at least 1 1/4 inches (32 mm) and not greater than 2 inches (51 mm). If the handrail is not circular, it should have a perimeter dimension of at least 4 inches (102 mm) and not greater than 6 1/4 inches (160 mm) with a maximum cross-section dimension of 2 1/4 inches (57 mm). Edges should have a minimum radius of 0.01 inch (0.25 mm).
- Handrail gripping surfaces should be continuous, without interruption by newel posts or other obstructions.
- Handrails should not rotate within their fittings.
- Handrails should return to a wall, guard or the walking surface, or they should be continuous to the handrail of an adjacent stair flight. Where handrails are not continuous between flights, the handrails should extend horizontally at least 12 inches (305 mm) beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser. The extensions of handrails should be in the same direction of the stair flights.
- Clear space between a handrail and a wall or other surface should be a minimum of 1 1/2 inches (38 mm). A handrail and a wall or other surface adjacent to the handrail should be free of any sharp or abrasive elements.
- Stairways should have intermediate handrails located so that all portions of the stairway width required for egress capacity are within 30 inches (762 mm) of a handrail.



This stair enclosure is provided with a continuous tubular metal handrail to help occupants navigate the stairs safely.

For more information, consider enrolling in the National Fire Academy course “Fire Inspection Principles” (R/N0220). Information and applications can be obtained at <http://apps.usfa.fema.gov/nfacourses/catalog/details/47>.



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