



Section 27: Floor, Roof and Wall Openings

1. Floor, Roof, and Wall Opening Procedures

- 1.1 Conditions must be controlled where there is a danger of employees or materials falling through floor, roof, or wall openings, or from floor or roof perimeters.
- 1.2 Remove guarding and covers only after other means of fall protection are in place. Employees installing or removing guarding and covers must be protected by alternative fall protection throughout the process. The contractor responsible for the removal of guarding and covers is responsible for their replacement.
- 1.3 Perimeter, floor, roof, and wall opening protection must be maintained throughout all phases of the work. Notification of a violation that is not corrected immediately will result in implementation of the disciplinary procedures outlined in Section 3 of this manual.
- 1.4 In accordance with OSHA standards, installation of a standard railing is required for floor perimeter and wall opening protection.
 - A. A standard railing consists of a top rail, a midrail, and toe boards.
 - B. Wire rope used as railing (as top and midrail) must be ½ inch in diameter with at least 3 J-type fist grip wire rope clamps at each connection and turn buckles every 100 feet. Thimbles must be used where the wire rope is connected.
- 1.5 For routine maintenance activities on low-sloped roofs (less than 4:12 pitch), no fall protection is required when safe access is provided and walking paths are marked and located at more than 10 feet from unprotected sides or edges. When the access, walking path, or maintenance area is less than 10 feet from an unprotected side or edge, one of the conventional methods of fall protection or a combination of these must be implemented. Maintenance activities would include routine maintenance such as inspection or minor repair of equipment or the roof.
- 1.6 For construction work performed on low sloped roofs (less than 4:12 pitch), a warning line system may be used as an alternative protection system where it can be reasonably anticipated that workers will be within 25 feet of an unprotected side or edge. Construction work would include roofing, equipment replacement, or major repairs.
 - A. In such cases, the warning line system must meet OSHA standards and must be established no less than 10 feet from the unprotected edge.
 - B. Where a warning line system is used, no materials are allowed outside the warning line zone.
 - C. Regardless of the type of work, the use of one of the conventional fall protection systems allowed by EQ or a combination of them is required whenever workers are within 10 feet of unprotected sides or edges.
- 1.7 Any deviation from the fall protection requirements of this manual requires a completed safety modification (QES-FM-091-ALL) that has been approved by the contractor's safety manager and the EQ EHS manager. Alternative fall protection methods must be as safe as those required by EQ and must comply with OSHA standards.

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2. Stair Railings

- 2.1 Stair railings must be constructed similar to a standard railing, but the vertical height must be 34 to 36 inches from the top rail to the surface tread in line with the face of the riser, at the forward edge of the riser.
- 2.2 Provide a minimum clearance of 3 inches between the handrail and other surfaces or objects.

3. Floor Opening Covers

- 3.1 Floor opening covers must be used for openings greater than 2 inches and must be capable of supporting the maximum intended load and installed to prevent accidental displacement.
- 3.2 Protect floor openings by a cover and standard railing and protect from movement. Clearly mark and anchor covers.

4. Stairs

- 4.1 During construction, provide temporary stairs on structures that are 2 or more floors or more than 20 feet high until permanent stairways are in place.
- 4.2 Keep stairways free of hazardous objects. Do not allow debris and loose material to accumulate on stairways. Storage of combustibles under stairways is NOT allowed.
- 4.3 Permanent steel stairways having hollow pan-type treads and landings that are to be used prior to concrete placement must have pans filled with solid material to the level of the nosing.
- 4.4 Temporary stairs must have a landing not less than 30 inches wide in the direction of travel for every 12 feet of vertical rise. Use full-width wooden treads for temporary service.
- 4.5 Provide uniform riser height and tread width throughout the flights of stairs.

5. Runways and Openings

- 5.1 Install standard guarding at wall openings from which there is a drop of more than 3 feet.
- 5.2 Guard runways using a standard railing, or the equivalent, on open sides above the floor or ground level. When tools, machine parts, or materials are likely to be used on the runway, provide a toe board on each exposed side.
- 5.3 Regardless of height, open-side floors, walkways, platforms, or runways above or adjacent to dangerous equipment and similar hazards must be guarded with a standard railing.