

§ 1917.113

openings or waterside edges, including bridges or gangway-like structures leading to pilings or vessel mooring or berthing installations, which present a hazard of falling more than 4 feet (1.22 m) or into the water, except as specified in paragraph (b)(2) of this section.

(2) Guardrails are not required:

- (i) At loading platforms and docks;
- (ii) At waterside edges used for cargo handling;
- (iii) On the working sides of work platforms, skids or similar workplaces; or
- (iv) On railroad rolling stock, highway vehicles, intermodal containers or similar equipment.

(3) Where guardrails are impracticable due to machinery requirements or work processes, an alternate means of protecting employees from falling, such as nets, shall be used.

(c) *Criteria for guardrails.* Guardrails shall meet the following criteria:

(1) They shall be capable of withstanding a force of at least 200 pounds (890 N) applied in any direction at mid-span of the top rail (when used), or at the uppermost point if there is no top rail.

(2) If not of solid baluster, grillwork, slatted or similar construction, guardrails shall consist of top rails and midrails. Midrails, when used, shall be positioned at approximately half the height of the top rail.

(3) The top surface of guardrails installed before October 3, 1983, shall be at least 36 inches (0.91 m) high. Those installed after October 3, 1983, shall be 42 inches (1.07 m), plus or minus 2 inches (5.1 cm), high.

(4) Any non-rigid railing such as chain or wire rope shall have a maximum sag limit at the mid-point between posts of not more than 6 inches (15.24 cm).

(5) Top rails shall be free of puncture and laceration hazards.

(6) Rail ends shall not overhang to constitute a hazard, but this does not prohibit scrollwork, boxed ends or similar non-hazardous projections.

(d) *Toeboards.* Toeboards shall be provided when employees below could be exposed to falling objects such as tools. Toeboards shall be at least 3½ inches (8.9 cm) in height from top edge to floor level, and be capable of with-

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standing a force of 50 pounds (222 N) applied in any direction. Drainage clearance under toeboards is permitted.

(e) *Stair railings.* Stair railings shall be capable of withstanding a force of at least 200 pounds (890 N) applied in any direction, and shall not be more than 36 inches (0.91 m) nor less than 32 inches (0.81 m) in height from the upper top rail surface to the tread surface in line with the leading edge of the tread. Railings and midrails shall be provided at any stairway having four or more risers, as follows:

(1) For stairways less than 44 inches (1.12 m) wide, at least one railing; and

(2) For stairways more than 44 inches (1.12 m) but less than 88 inches (2.24 m) wide, a stair rail or handrail on each side, and if 88 or more inches wide, an additional intermediate handrail.

(f) *Condition.* Railings shall be maintained free of sharp edges and in good repair.

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§ 1917.113 Clearance heights.

Clearance heights shall be prominently posted where the height is insufficient for vehicles and equipment.

§ 1917.114 Cargo doors.

(a) *Mechanically operated.* (1) Cargo door counterweights shall be guarded.

(2) Lift trucks and cranes shall not be used to move mechanically operated doors except when necessary during repair on the doors, in which case ropes or other guarding shall be provided to prevent entry into the area where the door may fall or slide.

(3) Vertically operated doors partially opened for work or ventilation shall be secured to prevent accidental closing.

(b) *Tackle operated.* (1) The door shall be connected to its lifting tackle with shackles or equally secure means.

(2) Lifting bridles and tackles shall have a safety factor of five, based upon maximum anticipated static loading conditions.

(3) Devices shall be provided to hold overhead doors in the open position and to secure them when closed.

(4) Lifting gear and hardware shall be maintained in safe condition.