

1910.29(b)

Guardrail systems. The employer must ensure guardrail systems meet the following requirements:

1910.29(b)(1)

The top edge height of top rails, or equivalent guardrail system members, are 42 inches (107 cm), plus or minus 3 inches (8 cm), above the walking-working surface. The top edge height may exceed 45 inches (114 cm), provided the guardrail system meets all other criteria of paragraph (b) of this section (see Figure D-11 of this section).

1910.29(b)(2)

Midrails, screens, mesh, intermediate vertical members, solid panels, or equivalent intermediate members are installed between the walking-working surface and the top edge of the guardrail system as follows when there is not a wall or parapet that is at least 21 inches (53 cm) high:

1910.29(b)(2)(i)

Midrails are installed at a height midway between the top edge of the guardrail system and the walking-working surface;

1910.29(b)(2)(ii)

Screens and mesh extend from the walking-working surface to the top rail and along the entire opening between top rail supports;

1910.29(b)(2)(iii)

Intermediate vertical members (such as balusters) are installed no more than 19 inches (48 cm) apart; and

1910.29(b)(2)(iv)

Other equivalent intermediate members (such as additional midrails and architectural panels) are installed so that the openings are not more than 19 inches (48 cm) wide.

1910.29(b)(3)

Guardrail systems are capable of withstanding, without failure, a force of at least 200 pounds (890 N) applied in a downward or outward direction within 2 inches (5 cm) of the top edge, at any point along the top rail.

1910.29(b)(4)

When the 200-pound (890-N) test load is applied in a downward direction, the top rail of the guardrail system must not deflect to a height of less than 39 inches (99 cm) above the walking-working surface.

1910.29(b)(5)

Midrails, screens, mesh, intermediate vertical members, solid panels, and other equivalent intermediate members are capable of withstanding, without failure, a force of at least 150 pounds (667 N) applied in any downward or outward direction at any point along the intermediate member.

1910.29(b)(6)

Guardrail systems are smooth-surfaced to protect employees from injury, such as punctures or lacerations, and to prevent catching or snagging of clothing.

1910.29(b)(7)

The ends of top rails and midrails do not overhang the terminal posts, except where the overhang does not pose a projection hazard for employees.

1910.29(b)(8)

Steel banding and plastic banding are not used for top rails or midrails.

1910.29(b)(9)

Top rails and midrails are at least 0.25-inches (0.6 cm) in diameter or in thickness.

1910.29(b)(10)

When guardrail systems are used at hoist areas, a removable guardrail section, consisting of a top rail and midrail, are placed across the access opening between guardrail sections when employees are not performing hoisting

operations. The employer may use chains or gates instead of a removable guardrail section at hoist areas if the employer demonstrates the chains or gates provide a level of safety equivalent to guardrails.

1910.29(b)(11)

When guardrail systems are used around holes, they are installed on all unprotected sides or edges of the hole.

1910.29(b)(12)

For guardrail systems used around holes through which materials may be passed:

1910.29(b)(12)(i)

When materials are being passed through the hole, not more than two sides of the guardrail system are removed; and

1910.29(b)(12)(ii)

When materials are not being passed through the hole, the hole must be guarded by a guardrail system along all unprotected sides or edges or closed over with a cover.

1910.29(b)(13)

When guardrail systems are used around holes that serve as points of access (such as ladderways), the guardrail system opening:

1910.29(b)(13)(i)

Has a self-closing gate that slides or swings away from the hole, and is equipped with a top rail and midrail or equivalent intermediate member that meets the requirements in paragraph (b) of this section; or

1910.29(b)(13)(ii)

Is offset to prevent an employee from walking or falling into the hole;

1910.29(b)(14)

Guardrail systems on ramps and runways are installed along each unprotected side or edge.

1910.29(b)(15)

Manila or synthetic rope used for top rails or midrails are inspected as necessary to ensure that the rope continues to meet the strength requirements in paragraphs (b)(3) and (5) of this section.

Note to paragraph (b) of this section: The criteria and practices requirements for guardrail systems on scaffolds are contained in 29 CFR part 1926, subpart L.

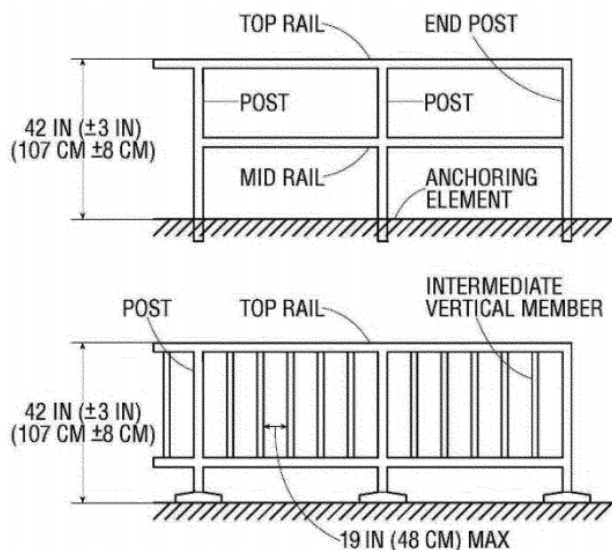


Figure D-11 Guardrail Systems

Figure D-11 -- Guard Rail Systems.