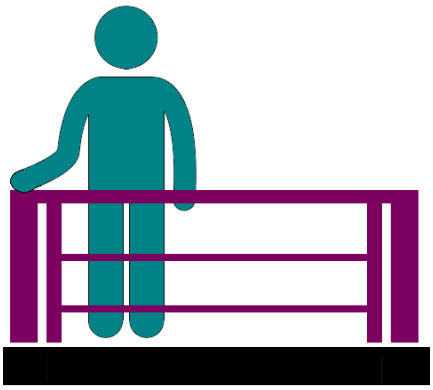
Guardrails

Safety Meeting Packet

Guardrails are an integral part of a fall protection plan when unprotected holes or edges are present on the worksite. A guardrail system can provide leading edge fall protection in a variety of circumstances, including areas like rooftops, balconies, stairs, access platforms, gangways, and loading docks. When a guardrail system is necessary, it is important to be aware of the structural elements, appropriate materials, and installation requirements.

Structural Requirements



To be compliant with OSHA requirements and to ensure worker safety, guardrail systems must meet several different requirements. The top edge of the rail of a guardrail system must be 42 inches above the walking/working level, give or take three inches. The top rail may exceed 45 inches if the conditions require it and the rail meets the other requirements. For example, if stilts are used, the top rail height must be increased by the height of the stilts.

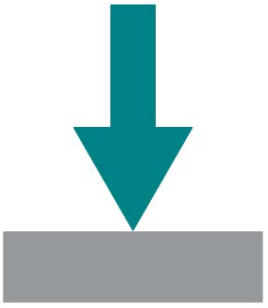
Additional Members

If there is no wall or parapet wall at least 21 inches high, the guardrail must include midrails, screens, mesh, intermediate, or other structural members. The other members used must also meet specific requirements.

- Midrails must be located halfway between the top edge and the working/walking level.
- Screens and mesh must extend between the walking/working surface and the top rail along the entire opening between top rail supports.
- Intermediate members between posts must be no more than 19 inches apart.
- Other members, such as additional midrails and architectural panels, shall ensure that there is no opening over 19 inches wide.
- If the guardrail is used as falling object protection, the openings shall be small enough to prevent possible falling objects.
- Toeboards, if used, shall be at least 3 ½ inches high and no more than ¼ inch from the working/walking surface. The toeboard shall be solid or have openings of less than 1 inch in greatest dimension.

Strength Requirements

A guardrail system must withstand a force of at least 200 lbs. within 2 inches of the top edge and at any point along the top edge, in any outward or downward direction. If the force is applied downward, the rail shall not deflect to a level less than 39 inches above the walking/working level.



The additional members used must be able to withstand a force of at least 150 lbs. in a downward or outward direction at any point along the member.

If a toeboard is in place for falling object protection, the toeboard must withstand a force of at least 50 lbs. applied in a downward or outward direction.

Material Requirements

The OSHA standard provides several requirements for the finish and material of guardrails to aid in preventing injury.

The surface of the guardrail must prevent injury from punctures or lacerations and will prevent snagging of clothing. Additionally, the ends of rails must not overhang terminal posts, unless the overhang does not create a projection hazard.

The top rail or midrails must not be made from steel or plastic banding. The top rail and midrails must be at least ¼ inch in diameter or thickness to prevent cuts. If a wire rope is used for the top rail, it must be flagged no more than every six feet with high-visibility material.

If manila, plastic, or synthetic rope is used for the top rail or midrails, it must be inspected as frequently as necessary to ensure that it continues to meet the force requirements.

Construction Recommendations

Although 29 CFR 1926, Subpart M, Appendix B is not mandatory, guardrail systems built following its guidance will be considered to meet the force threshold. Appendix B provides the following recommendations:

- Wood: Made from at least 1500 lb-ft/in^2 fiber (stress grade) construction grade lumber. The posts must be at least 2-inch x 4-inch and spaced no more than eight feet apart on center. The top rail shall be at least 2-inch x 4-inch and other rails shall be at least 1-inch x 6-inch.
- Pipe: Posts and railings shall be at least 1½-inches in diameter (schedule 40) with posts no more than eight feet apart on center.
- Structural Steel: Posts and railings must be at least 2-inch x 2-inch x $^3/_8$-inch angles with posts no more than eight feet apart on center.

Installation Requirements

The OSHA standard provides additional guardrail requirements when guardrails are installed in certain areas.

When guardrails are used around holes, the rails shall be constructed on all unprotected sides of the hole. If the hole is used for passing materials, the hole shall not have more than two sides with removable sections to pass the materials. When not being used, the hole shall be closed with a cover or surrounded by guardrail systems on all unprotected sides. If the hole is a point of access, the guardrail system shall have a gate or be offset so someone cannot walk directly into the opening.

If a guardrail is used around a ramp or runway, it shall be installed along each unprotected side or edge.

If a guardrail is used around a hoisting area, a chain, gate, or removable guardrail section shall be placed across the opening when there is no hoisting taking place.

When bricklaying or leading edge work needs to be done, only remove the section of guardrail needed to complete the day's work.

Worker Training

It is recommended that employers educate their workers about guardrail construction and use requirements.

- Identify basic guardrail requirements, including height, and spacing of midrails and other intermediate members.
- Review minimum material requirements for constructing guardrails and materials that may not be used.
- Discuss the recommended construction requirements and force thresholds.
- Review work situations that would require a guardrail as part of the fall safety program.
- Identify specific worksite hazards that require guardrails.

For additional information, please review the OSHA Fall Protection Systems Criteria and Practices standard 29 CFR 1926.502.

Guardrails

Safety Meeting Attendance Acknowledgement

Company Name _____

Department / Division _____

Meeting Date & Time _____ _____ ☐ AM ☐ PM

Meeting Location _____

Name & Title of Individual Conducting Meeting _____

Key Meeting Discussion Points / Important Reminders:

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Internal Procedures Reviewed:

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By signing this document, you confirm your attendance at the meeting and acknowledge the issues addressed above!

Employees in Attendance		
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Employees not present: _____

Suggestions/Recommendations to improve workplace safety and health: _____

Actions Taken: _____

Manager/Supervisor: _____ Date: _____

Disclaimer:

The information provided above was assembled using multiple resources. However, these materials do not contain ALL the information available regarding the required safety standards under local, provincial, state, or federal law for your industry.