

Scaffolds and Work Platforms



Scaffolds and work platforms are frequently involved in serious injuries of construction and maintenance workers. For concrete and masonry construction, one out of five severe injuries involves a scaffold or work platform.

You can prevent most of these injuries by taking a few practical prevention measures.

To be effective, these measures require:

- Planning before erecting a scaffold or work platform
- Supervision while erecting the scaffold or work platform
- Periodic inspection while using the scaffold or work platform
- Training the users
- Allowing only authorized personnel to perform maintenance and repairs

Before Erecting Scaffolds and Work Platforms

Inspect scaffold and work platform frames, planks, winches and other materials for damage or defects when received at the jobsite. Return unsafe materials immediately to the shop or

supplier; do not allow them to be used. Consult the manufacturer's catalog or a competent engineer if there is any question about a scaffold or work platform's ability to support the intended load safely.

Preplan how the scaffold or work platform will be erected and taken down, as well as how workers will get on and off the scaffold or work platform. These items are critical to preventing scaffold and work platform related injuries.

Railings

Erecting railings is the most important step in controlling falls from scaffolds. Fall protection is required on all scaffold platforms when an employee could fall more than 10 feet to the next lower level. Railings are the most reliable method of fall protection, although a personal fall arrest system may also be used.

The standards for railings are:

General

Rails must be installed on open sides and ends of platforms by the erection crew prior to the scaffold being used by any other trade. Guardrails should be constructed to prevent puncture or laceration injuries and snagging of clothing. Steel or plastic banding is prohibited as a top rail or midrail.

Top rail

Top rail height should be 38 to 45 inches and able to withstand 200 pounds applied outward or downward without deflecting below 38 inches. Cross bracing may be used as top rail if crossing point is 38 to 48 inches above platform and the end points on the upright are no more than 48 inches apart.

Mid rail

Horizontal member should be placed midway between platform and top rail; or solid panel, screen, or mesh extending from platform to top rail; or intermediate vertical members spaced no more than 19 inches apart. Whichever method is used must be capable of supporting 150 pounds. Cross bracing may be used as midrail if crossing point is 20 to 30 inches above platform and the end points on the upright are no more than 48 inches apart.

Toeboard

Toeboard should be at least 3½ inches high, with not more than a ¼ inch gap between toeboard and platform, and capable of withstanding 50 pounds applied in any downward or outward direction. Solid panel, screen or mesh may be used in lieu of a toeboard. Screen or mesh opening size should not be over one inch in greatest dimension.

Rolling Stages

1. Use stages only on a level surface free from holes and obstructions.
2. Keep the maximum height (floor to decking) less than four times the minimum base dimension.
3. Make decking full width and secure against displacement.
4. Install guardrails, midrails and toeboards.
5. Lock all casters except when the stage is being moved.
6. Do not allow anyone on the stage while it is being moved.

Bracket Scaffolds

1. Space the brackets no more than 8 feet apart.
2. Minimum platform width of 18 inches with no more than one inch gap between planks.
3. Overhang planks by no less than 6 inches and no more than 12 inches.
4. Equip the scaffold with railings and toeboard along back and at each end.
5. A ladder may be needed to provide access.

Floats

1. Provide fall protection for employees on floats with a harness and lanyard tied to an independent lifeline.

2. Construct platform from ¾ inch plywood, grade B-B, Group I, exterior or equivalent.
3. The suspension lines must be 1 inch diameter manila rope or equivalent.
4. Equip the scaffold with ¾ x 1½-inch edging to prevent tools from rolling off.
5. Use 2 x 4-inch or 1 x 10-inch rough “selected” lumber as bearers.
6. Construction dimensions based on maximum intended load or 750 pounds.

Two-Point Swing Stages

1. Each worker must wear a harness and lanyard attached to a lifeline anchored independent of the swing stage’s suspension.
2. Permit no more than two workers on 500 lb. rated scaffold, and no more than three workers on 750 lb. rated scaffold.
3. Install mesh or screening between the platform and top rail if people or vehicles will be passing below the scaffold.
4. Lash scaffold to prevent sway.
5. Install end railings.

Workers should not have to jump onto the scaffold or climb off of it. They should be tied off prior to stepping onto the scaffold and remain so until safely inside the structure, unless mounting the scaffold at ground level.

Tubular Welded Frame Platforms

1. Tie scaffolds to and brace against the structure at each end and at intervals not to exceed 30 feet horizontally, and vertically at 4x least dimension of frame and every 26 feet thereafter.
2. Install guardrails, midrails, and toeboards.
3. Use screw jacks to level platform.
4. Cross braces must automatically square and align vertical members. All brace connections shall be secured.
5. Frames should sit on base plates, resting on a firm foundation such as a mudsill, to prevent settlement.
6. Overlap the planks by no less than 12 inches and no more than 18 inches.
7. Clean off ice or snow before using the platform.

Also, provide a safe means of access. Climbing cross bracing is hazardous and should not be permitted.

Elevating Work Platforms

1. Use only on a level surface free from holes and obstructions.
2. Lock wheels and extend outriggers (if equipped) except when moving platform.
3. Check frame, cables, hoses, motor, and controls (if applicable) for proper operation.
4. Fall protection must be provided with either guardrails or personal fall arrest equipment. Consult manufacturer's literature for details on use and anchorages.
5. Do not exceed height and weight capacities.
6. Maintain adequate distance from power lines and live electrical equipment. Unattended platforms should be fully lowered and locked.
7. Comply with the manufacturer's literature for inspection and safe use of this equipment.

There are many regulations and standards that apply to scaffold and work platforms erection and use. Among those you should check and follow are the applicable federal standard, ANSI standards, manufacturer's instructions, and local codes.

References

- 29 CFR 1910 Occupational Safety and Health Standards for General Industry
- 29 CFR 1926 Occupational Safety and Health Standards for the Construction Industry
- ANSI A10.8 Construction and Demolition Operations Scaffolding Safety Requirements
- ANSI/SIA A92.2 Vehicle Mounted Elevating and Rotating Aerial Devices
- ANSI/SIA A92.3 Manually Propelled Elevating Work Platform
- ANSI/SIA A92.5 Boom-Supported Elevating Work Platforms
- ANSI/SIA A92.6 Self-Propelled Elevating Work Platforms
- ANSI Z359.1 Safety Requirements for Personal Fall Arrest Systems, Subsystems, and Components