

Purpose

This document is intended to serve as a reminder of safe work practices and is not a complete presentation of this topic. It should be used by individuals trained and competent in this subject. It is not intended to replace or supersede company procedures, industry standards and/or applicable governmental laws and regulations.

Scope

This guideline describes the minimum rules and requirements for the use of scaffolding. For scaffold types not covered by this guideline, refer to OSHA 1926.450 - 454, Scaffolds.

Application

All employees whose work will involve the use of scaffolding should be trained in proper safety procedures in the use of scaffolds.

Definitions

Competent Person: one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Qualified: one who by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated their ability to solve or resolve problems related to the subject matter (scaffolding), work, or project.

Scaffold: any temporary elevated platform (supported or suspended) and its supporting structure (including points of anchorage) used for supporting employees or materials or both.

Platform: a work surface elevated above lower levels, made up of planks, fabricated decks or fabricated platforms.

Hazards

Falling objects or materials	Footing(s) and anchorage(s)
Improper bracing	Keeping scaffold plumb
Fall Protection Issues	Overloading
Buckling	

Guidelines

Capacity

- Scaffolds must be capable of supporting their own weight and at least four times the maximum intended load.
- Direct scaffold connections to other structures shall be capable of resisting at least 4 times the tipping force imposed by the scaffold when at full load (plus anticipated wind forces).
- Scaffolds are to be designed by a qualified person and built according to those designs.

Scaffold Construction

- Scaffolds are to be erected, moved, altered and dismantled by competent and experienced personnel or personnel under the supervision of a competent person.

Scaffold Construction (Continued)

- Do not mix scaffolding materials from different manufacturers, unless they fit together without force and maintain the structural integrity of the scaffold.
- Each platform on all levels shall be fully planked or decked between the front uprights and the guardrail supports. The maximum allowable space between planks is 1 inch, except to fit around uprights. (This space shall not exceed 9.5 inches). This requirement is waived during scaffold erection or dismantling.
- Each scaffold platform shall be at least 18 inches wide, unless the working space is less. In this case, guardrails shall be installed or employees will wear personal fall protection.
- The front edge of the scaffold shall not be less than 14 inches from the face of the work, unless guardrails are installed on the front edge, or personal fall protection is used.
- Each end of platform planking less than 10 feet in length shall not extend over its support more than 12 inches unless the platform is designed so the end extending past the support is able to support employees or material without tipping or has guardrails to prevent access.
- Each end of platform planking greater than 10 feet in length shall not extend over its support more than 18 inches unless the platform is designed so the end extending past the support is able to support employees or material without tipping or has guardrails to prevent access.
- On scaffolds where planking is overlapped to create a long platform (or turn a corner), the overlap shall not be less than 12 inches, and shall occur only over supports unless the planks are secured (nailed or screwed in place) to prevent movement.
- All planking shall be scaffold grade or equivalent and shall not be used for any other purpose. Wood planking shall not be covered with paint (except at the edges for weatherproofing or to mark for identification).
- When scaffold heights exceed three times the smallest base dimension (or 26 feet), it must be secured to the building or structure at the second lift and every other lift thereafter. Running scaffold is to be anchored every 30 feet horizontally at the height established in the preceding sentence. "Outriggers" or guys may be used where it is impractical to secure scaffold to the building or structure.
- The footing or anchorage for scaffolds shall be sound, rigid and capable of carrying four times the maximum intended load without settling or displacement. Mud sills (12" x 12") and base plates are recommended. When using leveling jacks, three quarters of its length must remain inside the scaffold leg.
- The uprights of scaffolds shall be plumb and securely and rigidly braced to prevent swaying and displacement.

Access

- When platforms are more than 2 feet above or below a point of access, portable, hook-on or attachable ladders, or stairs, stands or ramps will be installed. Crossbraces shall not be used for access.
- The portable, hook-on or attachable ladders may be used for access. Ladders will be installed where they will not tip the scaffold over or where the ladder itself will not tip over. The first step will not exceed 24 inches in height above the platform, working surface or planking.

Access (Continued)

- Stairs or ramps (between 40 and 60 degrees from horizontal) may be installed with appropriate steps and handrails with midrails. The stairs and ramps will be constructed to meet the requirements of CFR 1926.451(e).
- Safe access shall be provided for employees erecting or dismantling scaffolding, where the provision for safe access is feasible and does not create a greater hazard. A competent person shall determine whether it is feasible or would pose a greater hazard to provide. This determination shall be based on site conditions and the type of scaffold being erected or dismantled.

Use

- Scaffolds and scaffold components shall not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.
- Prior to each work shift or after any occurrence which could affect the structural integrity, a competent person shall inspect scaffolds and scaffold components for visible defects. Any damaged or weakened component shall be repaired, replaced or braced so that it will meet the initial structural requirements of the scaffold design.
- No one can ride on scaffolding when being moved horizontally.
- The clearance between scaffolds and power lines shall be as follows - (Scaffolds shall not be erected, used, dismantled, altered, or moved if they or any conductive material being handled on them can come in contact with exposed and energized power lines):

Insulated Line Voltages	Minimum Clearance	Alternatives
Less than 300 volts	3 feet (0.9M)	(No Alternatives)
300 V to 50 kV	10 feet (3.1M)	(No Alternatives)
More than 50 kV	10 feet (3.1M) plus 0.4 inches	(10cm) for each kV over 50

kV.
2 times the length of the line insulator, but never less than 10 feet (3.1M)

- Use tag lines when handling materials around scaffolds.
- Do not work on scaffolds during high winds unless a competent person has determined that it is safe to be on the scaffold and a personal fall arrest system or windscreen protects employees on the scaffold. Windscreens shall not be used unless the scaffold is secured against the anticipated wind forces imposed.
- Keep working and walking surfaces on the scaffold clean and free of debris.

- No employees shall climb on any object (other than a ladder) to increase their working height.
- Ladders shall not be used on scaffolds, except where the following conditions are met:
 - 1) If a ladder top is placed against a solid structure, with the ladder base on the scaffold, the scaffold shall be secured, to protect against the sideward thrust caused by the ladder.
 - 2) Secure the ladder section(s) to the scaffold platform to prevent their movement and the legs from slipping or being pushed off the platform.
 - 3) All ladder legs shall be on the same scaffold platform, to prevent the scaffold sections from separating and ensure the ladder legs are on the same level.

Use (Continued)

- Employees shall be prohibited from working on scaffolds covered with snow, ice, or other slippery material, except as necessary for removal of such materials.
- Do not allow stacks of materials to exceed 24 inches in height on scaffold platforms.

Scaffold Fall Protection

- Personnel on scaffolding over 10 feet above a lower level shall be protected from falling. If a platform or scaffold cannot be equipped with standard handrails or completely decked, a personal fall arrest system shall be used. This personal fall arrest system shall be tied off to a permanent structure other than the scaffold. (Except during erection or dismantling)
- Guardrails shall be, smooth, 2 x 4-inch wood or the equivalent, with minimum 200 pound top-rail capacity, approximately 42 inches high, with supports not more than 8 feet in interval, and with a mid-rail, mesh, cross-bracing or panel capable of withstanding 150 lbs.
- If rope or approved netting is used as guardrails or midrails, it shall be inspected frequently by a competent person to ensure the continuity of strength required.
- Steel or plastic bands and small gauge wire are not acceptable handrail material for scaffolds or elevated platforms.

Protection from Falling Objects

- Protection from falling objects shall be provided by the installation of toeboards, screens or guardrail systems or through the erection of debris nets, catch platforms, or canopy structures to catch or deflect falling objects.
- Overhead protection shall be provided for personnel on a scaffold exposed to overhead hazards.
- The area below the scaffold shall be barricaded and “*Men Working Overhead*” signs posted in all approach directions.
- Toeboards, capable of withstanding 50 pounds, a minimum of 4 inches in height, shall be installed within ¼ inch of the planking. If material is stacked higher than the edge of the toeboard, netting or paneling shall be installed sufficient to protect employees.

Inspection

- A competent person shall inspect all scaffold components: 1. Prior to erecting, 2. Before each work shift, 3. After any occurrence which could affect the scaffold's structural integrity, and 4. During dismantling. Those components found with defects will be discarded immediately.
- Handrails, midrails, cross bracing, and steel tubing shall be inspected for nicks, especially near center span, and for any indications where arc welding has contacted the metal.
- Scaffold components shall be straight and free of kinks, dents and severe rusting.
- Scaffold frame weld zones shall be inspected for cracks and the ends of tubing inspected for splits or cracks.
- Manufactured decking shall be inspected for loose bolts or rivet connections, bent, kinked or dented frames. Plywood surfaces shall be checked for softening due to rot or wear and peeling of laminated layers at edges. Safety planks should be checked for rot, cracks and other damage. Also, inspect the rod or bolt and cleat for tightness and correct installation.
- Each quick connecting device should be inspected to see that it operates smoothly.

Inspection (Continued)

- Casters on mobile, rolling scaffolds should be inspected for smooth operation, free turning, free acting swivel, and to ensure that the locking mechanism is in good working order.

Training

- Each employee *who performs work* on a scaffold shall be trained by a person qualified in scaffold subject matter to recognize the hazards associated with the type of scaffold being used and understand the procedures to control or minimize those hazards. The training shall include the following areas:
 - 1) Nature of any electrical hazards, fall hazards, and falling object hazards.
 - 2) Correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems used.
 - 3) Proper use of the scaffold and proper materials handling on the scaffold.
 - 4) The maximum intended load and load-carrying capacities of the scaffold used.
 - 5) Any other pertinent requirements to ensure safe work on the project.
- Each employee *who is involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting* a scaffold shall be trained, and retrained as necessary, in the following topics:
 - 1) The nature of scaffold hazards.
 - 2) The correct procedures for erecting, disassembling, moving, operating, repairing, maintaining, or inspecting the scaffold used.
 - 3) Any other pertinent requirements to ensure safe work on the project.
- When an employer has reason to believe that an employee(s) *lack the knowledge or skill needed for safe work involving scaffolding*, the employee(s) shall be retrained.

Retraining is required when any of the following conditions exist:

- 1) When changes at the worksite present a hazard about which they are not trained.
- 2) When changes in scaffolding, electrical hazards, fall hazards, and falling object hazards or other equipment present hazards about which the employee(s) are not trained.
- 3) Where inadequacies in the employee(s) work involving scaffolds indicate they do not have proficient skills.

Special Instructions

- Any scaffold 25 feet or higher should have access ladders turned inside the frame, on alternating sides, with 18" x 18" landings at the foot of each ladder.
- If welding is performed from any suspended platform, precautions must be taken to insulate wire rope attachment points to prevent arcing that would weaken those points.
- Design drawings must be made prior to erection, and kept on site, for any scaffold over 125 feet high. (Designs must be certified by a qualified Professional Engineer, competent in this field).

References

OSHA 29CFR1926.450 - 454, Subpart L, Scaffolds

There are several ANSI standards for specific scaffolds:

ANSI/SIA A92.2 - 1990 Vehicle-Mounted Elevating and Rotating Aerial Devices

ANSI/SIA A92.3 - 1990 Manually Propelled Elevating Aerial Platforms

ANSI/SIA A92.5 - 1990 Boom Supported Elevating Work Platforms

ANSI/SIA A92.6 - 1990 Self-Propelled Elevating Work Platforms

ANSI/SIA A92.7 - 1990 Airline Ground Support Vehicle-Mounted Vertical Lift Devices

ANSI/SIA A92.8 - 1993 Vehicle-Mounted Bridge Inspection and Maintenance Devices

ANSI/SIA A92.9 - 1993 Mast-Climbing Work Platforms