



**Pre-Plan Added Safety into
Your Next Scaffolding Project**

Scaffold Safety

More than 2.3 million construction workers, or approximately 65% of the industry, regularly work on scaffolds. Perhaps a similar number of workers in industry also use scaffolds periodically. The U.S. Department of Labor estimates that scaffold-related accidents result in approximately 4,500 injuries, 50 deaths, and \$90 million in lost workdays every year. Because scaffolding is a temporary structure of many interdependent parts, any shortcut in erection can cause failure of the entire system and lead to injury or death. For humane as well as business reasons, a thorough understanding of safety issues is vital to everyone using scaffolding equipment in their daily construction projects. Following are just some of the highlights of the general safety guidelines on the proper use of scaffolding. These highlights can help you and your crew complete your projects safely and cost-effectively.

Planning Your Scaffold

Before you erect and use scaffolding at the jobsite, start with a plan to determine your needs. Your scaffold layout may be a simple sketch or a detailed engineering drawing when complex configurations are required. This process allows you to determine the correct equipment for the job and ensures the equipment is delivered in a single load to the jobsite for maximum efficiency.

For your plan, you will need to know the type of work to be performed, the elevation you must reach, how high you need to stand, the length of "run," the number of lineal feet, and where and how the scaffolding should be secured to the structure. You will also need to determine the ground conditions—whether the terrain is sloped, flat, firm, soft, or frozen.

In addition to scaffold height, you need to decide how many levels you wish to work on. Your first task should be to calculate the loads your scaffold will carry, taking into account the people, tools, and materials, and how these variables affect the number of work levels. Manufacturers design scaffolds to hold specific loads that need to be considered in the scaffold design. The weight of the plank decking needs to be incorporated into the load the scaffold will carry. Moving planking or decking from level to level rather than planking all levels will reduce weight and decrease overall costs.

Observe your worksite closely and keep overhead obstructions, power lines, doorways, stairs, balconies, pedestrian

traffic, and nearby buildings in mind as you plan your scaffold layout. If you must set up scaffolding close to power lines, consult the local power company before you start. Always maintain a safe clearance from electrical lines and apparatus as defined by OSHA. Sometimes, live power lines or other overhead obstructions rule out the use of scaffolding.

Proper scaffolding requires you to consider access and egress methods. Although workers can climb inside or outside the tower, the preferred method is to climb inside the tower. When determining how your crew will get to and from the work platform, you may select from a variety of stair units, ladder frames, gates or hatch platforms, and extension ladders. If your platform is more than 14" horizontally or more than 24" vertically from the point of access, you need to add a stairway, ladder, ramp, or other connecting structure between them. Locate ladder access at the end of the run and preferably on the outboard side of the scaffold. Vertically align the climbing rungs of frames, steps, or stairways with each other between the rest areas. Rest areas are required every 35 vertical feet.

Because wind and weather exerts severe loading on scaffolding, the use of tarps, poly, or weather enclosures may have a profound effect on your structure. Use wind screens only when the scaffold is secured against the anticipated wind forces imposed. Use more than the minimum number of additional wall ties to prevent the scaffolding from tipping over, and consult your engineer or scaffold qualified person for advice regarding correct wall tie applications.

Base Plate, Planking, and Decking Considerations

OSHA requires the use of base plates for stationary scaffolds, either plain, adjustable bases or adjustable legs with base plates. Supported scaffold poles, legs, posts, frames, and uprights shall bear on base plates, mud sills, or other adequate firm foundations capable of supporting the loaded scaffold without settling or displacement. In some cases it may be necessary to compact the soil before setting up the scaffold. Do not attempt to support scaffolding with makeshift items such as barrels, bricks, or spare lumber pieces which can tip, move, break, or compress.

OSHA requires full-width planking on every work area at a minimum of 18" wide. This may be accomplished by using either prefabricated platform decks of an appropriate width laid side-by-side (with a maximum gap of 1"), or scaffold-grade planks, as many as will fit width-wise, laid tightly side-by-side. On continuous runs, make sure that planking extends 6" to 12" beyond the end of the scaffold (center the overlap a minimum of 6" on each side of the head bar).

Prefabricated decks facilitate faster setup, and may be used to cover the full width of a frame. These decks also feature hooks that attach to the frame.

A Word About Guard Rails and Toe Boards

OSHA 1926.451 (g)(4) requires the installation of guard rails, midrails, and toe boards on all open sides and ends of scaffold on platforms above 10' in height. Common sense is the best guide when placing guard rails on platforms below 10'. Guard rails are installed at between 38" and 45" in height from the platform, while mid rails are placed at 21" or midway between the platform and guard rails.

Toe boards are placed along the edge of platforms that are more than 10' above the lower level, and they are used for added worker safety to help prevent falls and objects from being kicked off the platform. Secure toe boards, at least 3.5" high, in place at the outermost edge of the platform. Leave no more than 1/4" gap between the bottom of the toe board and the platform.

Training Competent Persons

OSHA requires that scaffolds be erected, moved, dismantled, or altered under the supervision and direction of a Scaffold Competent Person. These activities can only be performed by an experienced and trained employee selected for this work by the Competent Person. OSHA defines the "Competent Person" as "one who is capable of identifying existing and predictable hazards in the surrounding area or working conditions which are unsanitary, hazardous or dangerous to employees and who has authorization to take prompt corrective action to eliminate them," (reference OSHA

1926.450 [b]). With enactment of the OSHA 29CFR1926 scaffold regulation on November 29, 1996, the law now requires training for anyone who uses scaffolding, and equipment inspection prior to each shift. Providers of rental scaffolding equipment, such as NES Rentals, offer a full range of services from turnkey installation and dismantling, to on-site scaffolding safety seminars and Competent Person training programs. With the right training and attention to details, you can pre-plan added safety into your next scaffolding project.

Safety Standards

The Occupational Safety and Health Act (OSHA) sets the minimum national requirements with respect to use of scaffolding in business, construction, and industry. However, many states have enacted their own

regulations. The more demanding state codes supersede the national OSHA standard within their respective states. In all cases the most stringent regulations prevail.



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