



**E3937**

**Supported Scaffolding Safety in Construction  
Environments**

***Leader's Guide***

## WORKING SAFELY WITH SUPPORTED SCAFFOLDING

This easy-to-use Leader's Guide is provided to assist in conducting a successful presentation. Featured are:

**INTRODUCTION:** A brief description of the program and the subject that it addresses.

**PROGRAM OUTLINE:** Summarizes the program content. If the program outline is discussed before the video is presented, the entire program will be more meaningful and successful.

**PREPARING FOR AND CONDUCTING THE PRESENTATION:** These sections will help you set up the training environment, help you relate the program to site-specific incidents, and provide program objectives for focusing your presentation.

**REVIEW QUESTIONS AND ANSWERS:** Questions may be copied and given to participants to document how well they understood the information that was presented. Answers to the review questions are provided separately.

**ATTENDANCE RECORD:** Document the date of your presentation as well as identify the program participants. The attendance record may be copied as needed.

### INTRODUCTION

Even though ladders can be used to reach work that is high off the ground, only scaffolds offer large enough work areas to hold workers, supplies and equipment. While scaffolds make our jobs easier, we must know how to use them correctly to prevent serious accidents. In fact, an estimated 10,000 scaffold-related accidents occur each year. Employees who use scaffolding can prevent these accidents by using their required training and following safe work practices.

This video focuses on supported scaffolds and the safety and training regulations developed by OSHA for working with them. Topics include designated access areas, protection against falling objects, use of fall protection, scaffold construction procedures, installing scaffold platforms and overhead scaffold hazards.

### *PROGRAM OUTLINE*

#### INTRODUCTION

- Supported scaffolds are platforms that are held up by rigid supports, such as poles, legs, uprights, posts or frames. These supports are anchored to the ground for stability.
- OSHA requires workers who use supported scaffolds to be trained in the proper use and placement of them, assembly and disassembly, handling material safely while working on a scaffold and how to prevent falls.
- OSHA also requires a "scaffold expert" be onsite at all times when a scaffold is being erected or used. This person is responsible for designing each scaffold, supervising scaffold construction, enforcing safety regulations and resolving any problems related to scaffolds.

#### USING DESIGNATED AREAS OF ACCESS

- When climbing scaffolds, only use the designated areas of access such as ladders, ramps, walkways and stairway towers.
- Access ladders are one of the most common ways to get onto a scaffold. For maximum safety, they should be secured to the scaffold by a chain.
- Ladders should also extend three feet above the platform they are leaning against to provide support for workers getting on and off of the scaffold.

- Whenever you are on a ladder, you should use a three-point climbing position by keeping two hands and a foot or two feet and a hand on the ladder at all times.
- You may also use ramps or walkways to reach the work areas on a scaffold. Most scaffold ramps are required to have a slope of less than 20 degrees so the incline can be walked without much difficulty.
- If a steeper slope is required, cleats must be attached to the ramp. These are metal or wooden strips that provide extra traction.
- Ramps or walkways that are six feet or more above the ground must have guardrails installed to help prevent falls.
- Stairway towers are stair columns that connect to a scaffold's frame that make it easier to move between levels on a scaffold while you are carrying equipment.
- OSHA requires that safety rails be used on all stairway towers. The rails must be attached to each side of the stairs and have both a top and mid rail.
- The top rail should be used as a handrail, unless a separate handrail is installed. To provide enough space for a worker's gloved hand, handrails must be at least three inches away from any other object.

#### **INSPECTION, CORRECT USE & MAINTENANCE OF ACCESSES**

- No matter what type of accesses you use for your scaffold, you should inspect them on a daily basis.
- You need to make sure that all scaffold access areas remain free of damage and are in good working order. If you discover any defects, report them to your supervisor immediately.
- You must also use the correct means of access every time you use a scaffold. Don't take shortcuts to get where you are going such as using a cross-brace to access a scaffold.
- Their x-like shape does not provide safe support for your hands and feet. Climbing cross-braces also puts a strain on the scaffold, which can cause it to shake or even tip.
- To keep accesses as safe as possible, you must keep them free of debris and clutter. Pick up tools and remove your equipment as soon as you are finished.
- This housekeeping will make it easier to work and move around on the scaffold. It also reduces the potential for slips, trips and falls as well as other accidents.
- Never use piles of materials such as bricks or boxes as makeshift ladders or stools. They are often unstable and can easily tip over.

#### **PROTECTION AGAINST FALLING OBJECTS**

- Another hazard to watch out for is material falling off the edge of the scaffold platform. To guard against these types of situations, you can use preventative measures such as toe-boards, screens and debris nets.
- Toe-boards form a small wall around the edge of a scaffold. OSHA requires them to be at least four inches in height and the space between each toe-board cannot be larger than one inch.
- Gaps between toe-boards and the scaffold platform cannot exceed  $\frac{1}{4}$  of an inch. For further protection, the gap between the toe-board and the guardrail can be covered with a protective mesh screen.

- Debris nets are another way to prevent tools and materials from hitting the deck. They are hung under platforms and walkways to catch falling objects of moderate weight such as hand tools.
- When extremely heavy objects could fall from a scaffold, the area below should be roped off to keep people away.

### **FALL PROTECTION**

- OSHA stipulates that whenever people are working six feet above ground, they should be protected from falling. This fall protection involves the use of guardrails and personal fall arrests (PFA's).
- OSHA requires that guardrails be installed between 39 and 45 inches above all walking surfaces and on all open sides of a scaffold.
- In situations where more protection than a guardrail is needed, workers are also required to use personal fall arrests. PFA's protect workers by using a system of devices to slow and gradually stop falls.
- A personal fall arrest systems consists of an anchoring device, a body harness, a lifeline and a deceleration device.
- Lifelines attach to the structural members of a building, such as support beams, which are strong enough to hold the weight of a worker during a fall. The lifelines should be able to swing freely, without getting tangled in tools, debris or other objects, including people who are working on the scaffold.
- While lifelines can be essential, they can be more of a hazard than protection for workers who are assembling or disassembling a scaffold. The scaffold expert will determine whether or not it is safe for the erectors and dismantlers at the site to use PFA's.

### **BUILDING A SCAFFOLD**

- OSHA requires any surface that a scaffold is built upon to support both the scaffold and its "maximum intended load" without settling or displacement.
- The maximum intended load is the total weight of all workers, including their equipment, tools and materials. It also includes any force applied to the scaffold by items leaning against it, such as ladders.
- Once a scaffold expert determines that the surface will handle all of this weight, preparation work should begin by leveling the area. If the scaffold is being erected on the ground, this can include smoothing out any hills or gullies as well as filling and compacting surface holes.
- As the area is being prepared, any obstacles that could interfere with this placement of the scaffolds legs (such as machinery and construction supplies) must be removed.
- To further aid in leveling the scaffold, all of its legs should be connected to adjustable screw jacks. These jacks allow each leg to be raised and lowered independently.
- When initially setting up screw jacks, make sure they are not screwed down to the shortest setting. Allow at least an inch of space from the lowest setting so that you have room to adjust the jacks either up or down as needed.
- If the scaffold is being built on the ground, you should place mud sills underneath the screw jacks as you are installing them. These large, flat wood or metal plates form a barrier between the soil and the scaffold legs.
- Improvised mud sills such as cinder blocks or other construction materials should be avoided. They can slip or break, throwing the scaffold completely out of kilter or even causing to collapse.

- Once a solid base for the scaffold has been constructed, you can proceed to assemble the frames and cross braces. You should create as stable a structure as possible.
- Do not mix scaffold parts from different manufacturers unless your scaffold expert determines they are compatible.
- The pieces of the scaffold should fit together easily. Never use parts that must be forced together.
- You should also avoid combining parts of different metals such as aluminum and iron when building a scaffold. When connected together, hard metals often bend softer metals. This could create “fatigue points” and make the scaffold weak or shaky.

### **INSTALLING PLATFORMS**

- As the scaffold rises, you will need to install platforms where the workers will stand. OSHA doesn't require a scaffold to have its full set of platforms in place while it is being built; erectors can use a minimum number of platforms to get the job done.
- While the scaffold is under construction, no platforms should be moved up to the next level until all of that level's framework has been assembled. All platforms must be installed before workers other than erectors begin using the scaffold.
- Scaffold platforms must be designed specifically for that use. They can be made up of individual planks or wider, preformed sheets. The planks or sheets can be made from wood, metal or plastic.
- If the platform is made up of planks, the gaps between them should be as small as possible. This helps to guard against workers tripping or debris from falling through.
- In most cases, planks should be no more than one inch apart from each other or any uprights. In situations where the last plank cannot fill in most of the opening, a scaffold expert may allow a gap of up to 9½ inches between the plank and the upright as long as it doesn't create a safety hazard.
- The platform should also rest safely on the scaffold frame. Extending the planks six to 12 inches beyond the end support of the scaffold can most easily do this.
- The 12-inch extension limit should never be exceeded because workers may be tempted to step on these extensions to increase their reach. This could cause the overextended planks to tip and leave people scrambling for their balance.
- You should avoid extending your reach in any way when you are working on a scaffold. If you need to stretch in order to get something, build the scaffold up another level or get a ladder.
- Planks that are under-extended can be a problem as well. Planks that extend less than six inches can often be jarred loose.
- Vibrations from workers walking on the scaffold can also cause the planks to shift and eventually fall between the scaffold supports.
- In situations where you need to cover an especially long length of scaffold, planks should overlap each other by at least 12 inches. This overlapping helps to hold the planks in place, creating a firm surface for workers and their equipment.
- On scaffolds where planks are laid end to end (or abutted) without overlapping, each end must rest on its own support (known as a putlog).

- Planks should normally lay across the scaffold putlogs at right angles. Sometimes this can be difficult to do, especially when the scaffold needs to go around a corner.
- To help anchor any “non-right angle” planks, they should be laid first. This way both of their ends will be overlapped and secured by right angle planks from other parts of the scaffold.

### **INSPECTING & USING PLANKS**

- Always remember to inspect planks for damage as the scaffold is being built as well as at the beginning of each shift.
- Never use a platform or a plank that has been painted. Painted surfaces can hide damage such as cracks and splits. They may also become slick in cold or wet weather.
- Materials other than paint, such as preservatives, fire retardants and traction finishes, may be used on all parts of a platform as long as they do not interfere with your ability to evaluate the platform’s integrity.
- You also need to make sure a platform is wide enough to let workers do their jobs, permit people to pass by each other when necessary and hold the materials that are being used.
- In most cases, this means platforms should be at least 18 inches wide. Where space is limited, however, scaffold experts may allow 12-inch platforms to be used if they feel it can be done safely.

### **OTHER SCAFFOLDING HAZARDS**

- To reduce falling hazards, platforms should be positioned no more than 14 inches from the work surface they are built against unless workers are protected by inside guardrails or other forms of fall protection.
- For work that requires extra room, such as lathing or plastering, the distance between the scaffold and the work surface can be expanded to 18 inches if a scaffold expert feels this can be done safely.
- Most supported scaffolds are stationary. Once they are erected, they should not be moved for the duration of the job.

### **OVERHEAD OBSTACLES**

- When working with scaffolds, you must be aware of obstacles above you as well as those on the ground. Power lines are among the most dangerous of these hazards.
- Always know the location of nearby power lines and make sure that both people and scaffold extensions are a safe distance from them.
- If your scaffold is near a power line of less than 300 volts, you need to be at least three feet away to be safe.
- If the electrical source is between 300 volts and 50 kilovolts, you must be at least 10 feet away.
- If the power line contains more than 50 kilovolts, you need to be over 10 feet away. You should add four more inches of distance for every 10 kilovolts over 50.

## **PREPARE FOR THE SAFETY MEETING OR TRAINING SESSION**

Review each section of this Leader's Guide as well as the videotape. Here are a few suggestions for using the program:

Make everyone aware of the importance the company places on health and safety and how each person must be an active member of the safety team.

Introduce the videotape program. Play the videotape without interruption. Review the program content by presenting the information in the program outline.

Copy the review questions included in this Leader's Guide and ask each participant to complete them.

Copy the attendance record as needed and have each participant sign the form. Maintain the attendance record and each participant's test paper as written documentation of the training performed.

### **Here are some suggestions for preparing your videotape equipment and the room or area you use:**

Check the room or area for quietness, adequate ventilation and temperature, lighting and unobstructed access.

Check the seating arrangement and the audiovisual equipment to ensure that all participants will be able to see and hear the videotape program.

Place or secure extension cords to prevent them from becoming a tripping hazard.

## **CONDUCTING THE PRESENTATION**

Begin the meeting by welcoming the participants. Introduce yourself and give each person the opportunity to become acquainted if there are new people joining the training session.

Explain that the primary purpose of the program is to show viewers the primary causes of safety problems associated with supported scaffolds and how to use proper procedures to use scaffolds safely.

Introduce the videotape program. Play the videotape without interruption. Review the program content by presenting the information in the program outline.

Lead discussions about the specific uses of supported scaffolds at your facility and your company's procedures for constructing and using them safely. Use the review questions to check how well the participants understood the information.

After watching the videotape program, the viewer will be able to explain the following:

- The types of hazards associated with erecting and using supported scaffolds;
- The importance of safe scaffold construction, including building a firm foundation and determining a scaffold's maximum intended load;
- How to correctly select and use supports and planking;
- Recognize the dangers of power lines and other overhead hazards;
- How and when to use personal fall arrest (PFA) systems;
- How to guard against having tools and materials fall from scaffold platforms.

**WORKING SAFELY WITH SUPPORTED SCAFFOLDING**  
**REVIEW QUESTIONS**

Name \_\_\_\_\_ Date \_\_\_\_\_

*The following questions are provided to check how well you understand the information presented during this program.*

1. According to OSHA, how many scaffold-related injuries occur each year?
  - a. 10,000
  - b. 5,000
  - c. 1,000
  - d. 100
  
2. The only time a scaffold expert is required onsite is during the initial assembly of the scaffold.
  - a. true
  - b. false
  
3. What is the total weight of all workers, equipment, tools and materials that will occupy a scaffold known as?
  - a. optimal load distribution
  - b. distributed load limit
  - c. maximum intended load
  
4. When setting up screw jacks, they should be screwed down to the shortest setting to assure proper leveling.
  - a. true
  - b. false
  
5. What should you place between screw jacks and the ground to form barriers between the soil and scaffold legs?
  - a. mud sills
  - b. cinder blocks
  - c. bricks
  
6. Planks should never be extended more than 12 inches beyond the end support of a scaffold.
  - a. true
  - b. false
  
7. Under normal circumstances, platforms should be at least \_\_\_\_ inches wide.
  - a. 9
  - b. 12
  - c. 14
  - d. 18
  
8. Painted platforms should only be used in warm, dry weather where footing is not a problem.
  - a. true
  - b. false



*ANSWERS TO THE REVIEW QUESTIONS*

1. a

2. b

3. c

4. b

5. a

6. a

7. d

8. b