

Scaffolds

1. Purpose

This policy establishes the basic safety requirements and safe work practices for the erection, use, inspection, movement, and dismantling of scaffolding.

2. Scope

This policy applies to all employees and contractors performing work at or on behalf of BP Pipelines & Logistics. Scaffolding types covered in this procedure include:

- Mason's or Supported Scaffold
- Mobile Scaffold
- Suspended Scaffold

Note: This policy summarizes OSHA Scaffolds regulations. Scaffolds that meet OSHA regulations but vary from one of the policy summarized statements are still deemed to be in compliance with this policy.

3. Minimum Requirements

| | Minimum Requirements | Supporting Documentation |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 1. | Scaffolds shall be erected, loaded, and used in accordance with the manufacturer's specifications. | Section 6 |
| 2. | When supported scaffold platforms are more than two feet above or below a point of access, an attached ladder or other approved ladder/stair system shall be used by scaffold users to reach the platform. | Section 7 |
| 3. | Scaffolds shall be inspected for visible defects by a Scaffold Competent Person prior to initial use and after any occurrence which could affect a scaffold's structural integrity | Section 8 |
| 4. | Each worker on a scaffold, including scaffold erectors/dismantlers, more than 6 feet above a lower level shall be protected from falling | Section 9 |
| 5. | Employees shall be provided with protection from falling hand tools, materials, debris and other small objects through the installation of toeboards, screens, or guardrail systems. | Section 10 |

4. Definitions

| | |
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| Guardrail | A vertical barrier, consisting of, but not limited to, toprails, midrails, and posts, erected to prevent employees from falling off a scaffold platform or walkway to lower levels. |
| Lanyard | A flexible line of rope, wire rope or strap which is used to secure the body belt or body harness to a deceleration device, lifeline or anchorage. |
| Lifeline | A component consisting of a flexible line that connects to an anchorage at one end to hang vertically (vertical lifeline), which serves as a means for connecting other components of a personal fall arrest system to the anchorage. |
| Maximum | The total load of all persons, equipment, tools materials, transmitted loads, and other loads |

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| Intended Load | reasonably anticipated to be applied to a scaffold or scaffold component at any one time. |
| Mobile Scaffold | A powered or unpowered, portable, caster or wheel-mounted supported scaffold. |
| Personal fall arrest system | A system used to arrest an employee's fall. It consists of an anchorage, connectors, a body belt or body harness and may include a lanyard, deceleration device, lifeline, or combinations of these. |
| Qualified Person | One who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and demonstrated his/her ability to solve or resolve problems related to the subject matter, the work or the 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. |
| Scaffold 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 in order to eliminate the hazard. |
| Supported or Mason's Scaffold | A scaffold with platforms supported by legs, outrigger beams, brackets, poles, uprights, posts, frames, or similar rigid support. |
| Suspended Scaffolds | Scaffold with one or more platforms, suspended by ropes or other non-rigid means from an overhead structure. Examples include: Single-Point, Two-Point, and Multi-Point Adjustable Suspension Scaffolds; Interior Hung Scaffolds; Float (ship) Scaffolds; Cantenary Scaffolds. |
| Three Points of Contact | Term used for a method of safe ladder climbing where between a climber's two hands and two feet, at least three of them are in contact with the ladder rungs/rails at all times while ascending or descending the ladder. |

5. Roles and Responsibilities

5.1. Project or Facility Manager

- A. Shall ensure that a scaffold competent person oversees:
 - 1. Scaffold construction
 - 2. Scaffold movement
 - 3. Scaffold modification

5.2. Scaffold Competent Person

- A. Shall have completed training and received their employer's designation as a Competent Person for scaffolding operations.
- B. Shall provide direct supervision for the construction, and subsequent modification and/or movement of the scaffold.
- C. Shall ensure they or another designated Competent Person performs initial inspections on completed scaffolds:
 - 1. prior to use, or
 - 2. after any occurrence which may affect a scaffold's structural integrity.

6. General Requirements

- A. Scaffolds shall be erected, loaded, and used in accordance with the manufacturer's specifications.
- B. A scaffold shall be capable of supporting, without failure, its own weight and at least four (4) times the maximum intended load.
- C. All scaffold work platforms should have complete guardrails and toe boards installed unless prevented by the assembly configuration (e.g. the nature or configuration of the scaffold area, masonry work, piping configuration(s), etc); an approved fall protection system must be used where incomplete assembly is necessary.
- D. All scaffold work platforms shall be completely decked between uprights and/or guardrail supports.
- E. Scaffold platforms shall be a minimum of 18 inches wide.
- F. All scaffold decking shall be made of manufactured system components designed specifically for that purpose or scaffold grade lumber.
- G. Scaffold platforms shall not be more than 14 inches from the face of the work, unless guardrails or other personal fall protection is used.
- H. The footing or anchorage for all scaffolds shall be level, sound, rigid, and capable of supporting the loaded scaffold without settling or displacement.
- I. The poles, legs, or uprights of scaffolds shall be plumb and securely and rigidly braced to prevent swaying and displacement.
- J. Supported scaffolds with a height-to-base width ratio of more than four-to-one shall be restrained from tipping by guying, tying, bracing, or equivalent means.
- K. All suspension scaffold support devices shall rest on surfaces capable of supporting at least 4 times the load imposed on them.
- L. When winding drum hoists are used on a suspension scaffold, they shall contain not less than four wraps of the suspension rope at the lowest point of scaffold travel.
- M. Ropes used on suspension scaffolds shall be inspected for defects by a competent person prior to each work shift and after every occurrence which could affect a rope's integrity.
- N. Gears and brakes of power-operated hoists used on suspension scaffolds shall be enclosed.

7. Access to Scaffold Platforms

- A. When supported scaffold platforms are more than two feet above or below a point of access, an attached ladder or other approved ladder/stair system shall be used by scaffold users to reach the platform.
- B. Hook-on and attachable ladders shall be specifically designed for use with the type of scaffold being used.
- C. Hook-on and attachable ladders shall be positioned so that their bottom rung is not more than 24 inches above the scaffold supporting level .
- D. Scaffold bracing shall not be used for access or climbing. Integral prefabricated scaffold access frames must be specifically designed and constructed for use as ladder rungs may be used for access to platforms.
- E. Hook-on and attachable ladder rungs shall be at least 11 ½ inches long (left to right) with a maximum interval between rungs of 16 ¾ inches.
- F. Integral prefabricated scaffold access frames shall have a rung length of at least 8 inches.

- G. Direct access into and egress from the suspended scaffold to or from another surface shall be not more than 14 inches horizontally and not more than 24 inches vertically from the other surface.
- H. Access ladders to suspended scaffolds shall not be used unless both the platform and the ladder are secured from moving in all directions.
- I. Employees shall not climb any ladder with anything in their hands. Tools and materials shall be hoisted up or down by rope or other devices.

8. Scaffold Use

- A. Scaffolds shall be inspected for visible defects by a Scaffold Competent Person prior to initial use and after any occurrence which could affect a scaffold's structural integrity.
- B. Scaffolds shall not be loaded in excess of their maximum intended loads or rated capacities.
- C. Debris shall not be allowed to accumulate on platforms.
- D. Makeshift devices, such as boxes and barrels shall not be used on top of scaffold platforms to increase the working level height of employees.
- E. Where swinging loads are being hoisted onto or near scaffolds such that the loads might contact the scaffold, tag lines or equivalent measures to control the loads shall be used.
- F. Scaffolds shall never be moved while they are in use or occupied unless the specific scaffold type is designed for mobile operation, i.e. adjustable suspended scaffolds.
- G. Scaffolds shall not be moved or dismantled without first removing all loose tools, materials, and equipment resting on the scaffold deck.
- H. Scaffolds shall not be used or occupied during weather conditions such as rain, lightening storms or high winds (in excess of 25 mph).
- I. Employee shall not work on scaffolds that are covered with ice, snow or mud. All ice, snow and/or mud shall be removed prior to work in order to prevent slipping.
- J. Scaffolds shall not be erected, used, dismantled, altered, or moved such that they or any conductive material handled on them might get closer to exposed and energized lines than as follows:

| Insulated Line Voltage | Minimum Distance |
|------------------------|--------------------------------------------------|
| Less than 300 volts | 3 feet |
| 300 volts to 50 kv | 10 feet |
| More than 50 kv | 10 feet plus 0.4 inches for each 1 kv over 50 kv |

| Uninsulated Line Voltage | Minimum Distance |
|--------------------------|--------------------------------------------------|
| Less than 50 kv | 10 feet |
| More than 50 kv | 10 feet plus 0.4 inches for each 1 kv over 50 kv |

9. Fall Protection

9.1. General

- A. Each worker on a scaffold, including scaffold erectors/dismantlers, more than 6 feet above a lower level shall be protected from falling by:
 - 1. a complete guardrail system, or

2. approved personal fall protection if the guardrail system is incomplete, moved to allow work access, or missing sections due to obstructions.

Note: A Cold Work - Working at Heights permit is required if a personal fall arrest system or safety net system is used for fall protection. The permit is not required for guardrail systems or fall restraint systems.

- B. Personal fall protection is not required while using a designed ladder or access system, provided “three points of contact” are maintained when ascending or descending a scaffold ladder.

9.2. Guardrail System

- A. Guardrail systems shall be installed along all open sides and ends of platforms.
- B. Guardrail systems shall be completely installed before the scaffold is released for use by employees other than erection and dismantling crews.
- C. The height of top rails shall be installed between 38 and 45 inches above the platform surface.
- D. Each top rail shall be capable of withstanding, without failure, a force applied in any downward or outward direction of at least 200 pounds.
- E. Midrails shall be installed at a height approximately midway between the top edge of the guardrail system and the platform surface.

9.3. Personal Fall Arrest System

- A. Personal fall arrest systems used on scaffolds shall include a full body harness and be attached by a lanyard to a vertical lifeline, horizontal lifeline or approved scaffold structural member.
- B. For suspended scaffolds, the vertical lifelines, independent support lines and suspension ropes shall not be attached to each other or to the same anchorage point. The lifeline shall not be attached to the scaffold.
- C. For suspended scaffolds when more than one worker is working from the scaffold, each worker fall arrest system shall have a lifeline independent of the scaffold and scaffold support wire rope/cable unless the scaffold has more than one independent means of support.

10. Falling Object Protection

- A. Employees shall be provided with protection from falling hand tools, materials, debris and other small objects through the installation of toeboards, screens, or guardrail systems, or through the erection of debris nets, or catch platforms, or canopy structures that contain or deflect the falling objects.
- B. Where there is a danger of tools, materials, or equipment falling from a scaffold and striking workers below, the following provisions apply:
 1. The area below the scaffold to which objects can fall shall be barricaded, and workers shall not be permitted to enter the hazard area; or
 2. A toeboard shall be erected for a distance to protect employees below;
 3. Where tools and materials are stacked above the height of the toeboard, screening extending from the toeboard or platform to the guardrail shall be erected for a distance sufficient to protect employees below: or
 4. A guardrail system shall be installed with opening small enough to prevent passage of potential falling objects: or
 5. A canopy structure, debris net, or catch platform strong enough to withstand the impact forces shall be erected over the employees below.

- C. When used, toeboards shall be:
 - 1. Capable of withstanding a force of 50 pounds applied in any downward or horizontal direction,
 - 2. At least 3 ½ inches high,
 - 3. At the outer most edge and no more than ¼ inch above the platform.

11. Training

The worker's employer is responsible for providing training. Training which meets OSHA requirements is compliant with this policy. Training is divided into two worker categories:

11.1. Scaffold Users

- A. These requirements are applicable to each worker who performs work while on a scaffold.
- B. The training shall include the following topics as applicable:
 - 1. The nature of any electrical hazards, fall hazards, and falling object hazards;
 - 2. The procedure for dealing with electrical hazard and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used;
 - 3. The proper use of the scaffold, and the proper handling of material on the scaffold;
 - 4. The maximum intended load and the load-carrying capacities of the scaffolds used; and
 - 5. Other pertinent requirements of the OSHA Scaffolds regulations.

11.2. Scaffold Erectors

- A. These requirements are applicable to each worker who is involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold.
- B. The training shall include the following topics at a minimum:
 - 1. The nature of scaffold hazards;
 - 2. The correct procedures for erecting, altering, disassembling, moving, repairing, and inspecting the type(s) of scaffold intended to be utilized;
 - 3. The design requirements, as well as the maximum intended load-carrying capacity and intended use of the scaffold; and
 - 4. Other pertinent requirements of the OSHA Scaffolds regulations.

11.3. Retraining

- A. Retraining for both Scaffold Users and Scaffold Erectors is required when:
 - a) There are changes in the types of scaffolds, fall protection, falling object protection or other equipment or procedures related to the hazards associated with site scaffolding; or
 - b) Changes in the worksite present new hazards to which the employee has not been previously trained; or
 - c) An employee demonstrates a lack of skill or understanding or when an inadequacy in an affected employees work involving scaffolds indicates that the employee has not retained proficiency.

12. References

1. OSHA, Department of Labor, 29 CFR 1926, Subpart L, Scaffolds (1926.450 - 454)
2. OSHA, Department of Labor, 29 CFR 1910.28, Safety Requirements for Scaffolding
3. OSHA, Department of Labor, 29 CFR 1910.22, General Requirements for Work Surfaces