

UCSB Scaffolding Safety Program

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Introduction

Scaffolding has a variety of applications. It is used in new construction, routine maintenance, renovation, painting, repairing, removal, and performing arts activities. Scaffolding offers a safer and more comfortable work arrangement compared to leaning over edges, stretching overhead, and working from ladders. Scaffolding provides employees safe access to work locations, level and stable working platforms, and temporary storage for tools and materials for performing immediate tasks. Scaffolding accidents mainly involve personnel falls and falling materials caused by equipment failure, incorrect operating procedures, and environmental conditions. Additionally, scaffolding overloading is a frequent single cause of major scaffold failure.

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Scaffolding Safety Written Program
University of California Santa Barbara

Policy

Scaffolds shall be erected, moved, dismantled, or altered only under the supervision of a competent person and will have guardrails and toe-boards installed. When scaffolding hazards exist that cannot be eliminated, then engineering practices, administrative practices, safe work practices, Personal Protective Equipment (PPE), and proper training regarding Scaffolds will be implemented. These measures will be implemented to minimize those hazards to ensure the safety of employees and the public.

Purpose

Roughly 4,500 workers are injured each year in scaffold-related incidents, and as many as 50 actually die. Scaffolding makes its way onto OSHA's annual Top Ten Violations list almost every year. Many injured workers point to planking or support giving way, or to slipping, or being struck by falling objects. Others note the environments that scaffolds work in are filled with potential dangers, such as falling materials, big holes in the ground, electrical hazards and traffic obstacles.

Individuals exposed to scaffolding hazards include scaffold erectors and dismantlers, personnel working on or under scaffolds, and employees and the general public near scaffolding. Scaffold erectors and dismantlers are at particular risk, since they work on scaffolds before ladders, guardrails, platforms, and planks are completely installed.

EH&S/General Safety staff developed this written program to establish safety guidelines designed to protect all faculty, staff, and students whom either work on scaffolding, or are exposed to scaffolding hazards. This includes safe work practices for the erection, inspection, use of, and dismantling of scaffolds; hazard identification, training requirements, and regulatory compliance.

Applicability/Scope

This program applies to any department on campus, at field stations, remote research locations, or on leased property where any type of scaffolding use or activity could result in injury. Program guidelines apply equally to UCSB faculty, staff, contract employees or students who are either required/request to use scaffolding equipment, or must supervise persons erecting, dismantling or working on and around scaffolding.

Roles and Responsibilities

It is the responsibility of each manager/unit head, supervisor, and employee to ensure implementation of UCSB's safety policy and procedure on Scaffolds. It is also the responsibility of each UCSB employee to report immediately any unsafe act or condition to his or her supervisor. Specific responsibilities are found in Section 6.3.

Owner/User Department

The “Owner/User Department” is responsible to

University departments who require employees to use scaffolds must designate a “*competent person*” to oversee erecting, securing, and dismantling of scaffolds. The competent person must understand the rules, and regulations as they pertain to the scaffold he/she oversees, as well as conduct scaffold inspections and manage daily activities involving scaffold use.

Department Chair/Director/Manager

Managers/Unit Heads will ensure adequate funds are available and budgeted for the purchase of scaffolds in their areas. They will also identify the employees affected by this safety policy and procedure. Managers/Unit Heads will obtain and coordinate the required training for the affected employees. Managers/Unit Heads will also ensure compliance with this safety policy and procedure through their auditing process.

Superintendents/Supervisors

Supervisors will not allow any employee who has not received the required training to perform any of the tasks or activities related to scaffold erection and/or dismantling.

Supervisors will communicate appropriate needs to managers/unit heads and/or supervisors.

Supervisors will ensure that employees are provided with PPE as necessary for their job.

Supervisors will ensure that a competent person is in charge of scaffold erection according to the manufacturer's specifications.

Competent Person

The competent person will oversee the scaffold selection, erection, use, movement, alteration, dismantling, maintenance, and inspection. The competent person will be knowledgeable about proper selection, care, and use of the fall protection equipment. Additionally, the competent person shall assess hazards.

The competent person must have had specific training in and be knowledgeable about the structural integrity of scaffolds and the degree of maintenance needed to maintain them. The competent person must also be able to evaluate the effects of occurrences such as a dropped load, or a truck backing into a support leg that could damage a scaffold. In addition, the competent person must be knowledgeable about the requirements of this standard. A competent person must have training or knowledge in these areas in order to identify and correct hazards encountered in scaffold work.

Scaffolding Users

Scaffolding users shall comply with all applicable guidelines contained in this safety policy and procedure. Scaffolding users will report damaged scaffolds, accessories, and missing or lost components. Scaffolding users will assist with inspections as requested and will not work on a platform until it has been inspected by a competent person before every use.

EH&S General Safety

Safety and Loss Control will provide prompt assistance to managers/unit heads, supervisors, or others as necessary on any matter concerning this safety policy and procedure. Safety and Loss Control will assist in developing or securing required training. Safety and Loss Control will also work with Purchasing and Central Equipment Unit to ensure that all newly purchased scaffolds comply with current safety regulations and this safety policy and procedure. Safety Engineers will provide consultative and audit assistance to ensure effective implementation of this safety policy and procedure.

Purchasing Department

Purchasing Department is responsible for ensuring that purchased scaffolds and related material and equipment meet or exceed current safety regulations.

Definitions

Cal/OSHA defines scaffolds as, “Any temporary elevated platform and its necessary vertical, diagonal, and horizontal members used to support workers and materials (also known as a scaffold tower).”

Brace: A tie that holds one scaffold member in a fixed position with respect to another member. Brace also means a rigid type of connection holding a scaffold to a building or structure.

Competent Person: one who through a combination of knowledge, experience and training 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 the authority to take prompt corrective measures to *eliminate* those hazards.

Coupler: A device for locking together the component tubes of a tube and coupler scaffold.

Harness: A design of straps which is secured about the employee in a manner to distribute the arresting forces over at least the thighs, shoulders, and pelvis, with provisions for attaching a lanyard, lifeline, or deceleration device.

Hoist: A mechanical device to raise or lower a suspended scaffold. It can be mechanically powered or manually operated.

Maximum Intended Load: The total load of all employee, equipment, tool, materials, transmitted, wind, and other loads reasonably anticipated to be applied to a scaffold or scaffold component at any one time.

Mechanically Powered Hoist: A hoist which is powered by other than human energy.

Outriggers: The structural member of a supported scaffold used to increase the base width of a scaffold in order to provide greater stability for the scaffold.

Platform: The horizontal working surface of a scaffold.

Qualified Person: A person who by possession of a recognized degree, certificate or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the project.

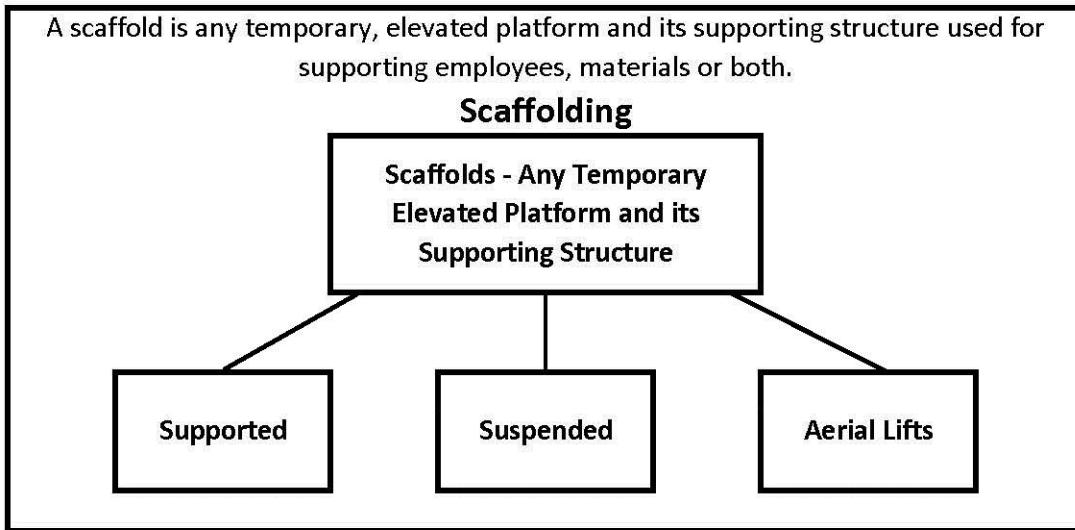
Safety Belt: A strap with means for securing about the waist or body and for attaching to a lanyard, lifeline, or deceleration device.

Scaffold: Any temporary elevated or suspended platform and its supporting structure used for supporting employees or materials or both, except this term does not include crane or derrick suspended personnel platforms.

Safe Scaffold Erection and Use

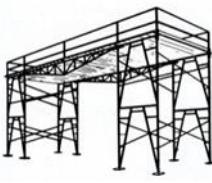
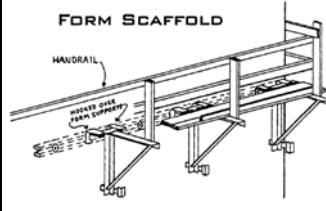
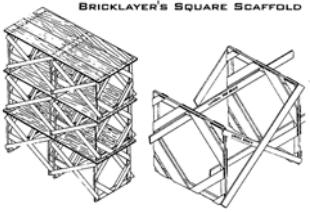
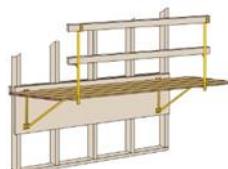
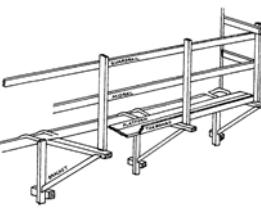
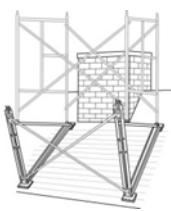
Safe scaffold erection and use is important in minimizing and controlling the hazards associated with their use. Scaffold work practices and rules should be based on:

- Sound design
- Selecting the right scaffold for the job
- Assigning personnel
- Fall protection
- Guidelines for proper erection
- Guidelines for use
- Guidelines for alteration and dismantling
- Inspections
- Maintenance and storage

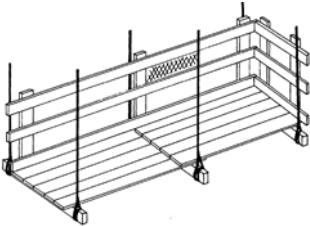
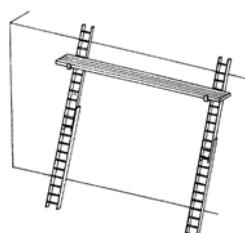
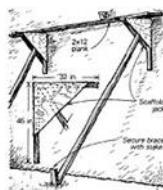
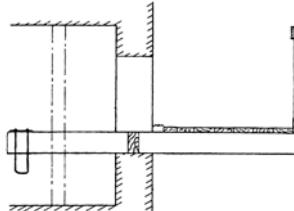
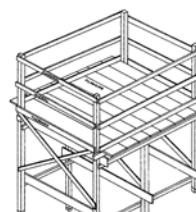
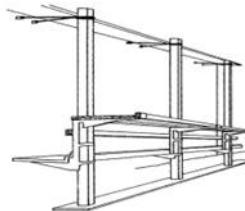


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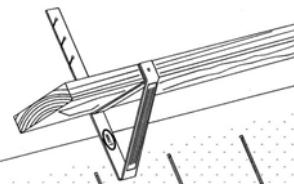
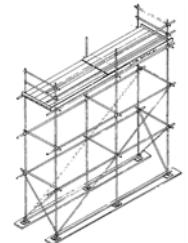
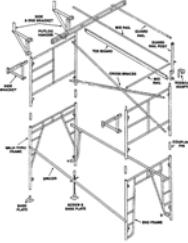
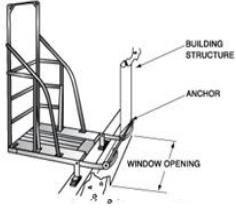
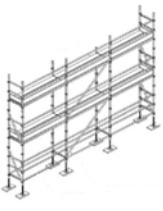
Types of Scaffold

<u>Supported Scaffolding</u>		Crawling Boards (Chicken ladders)
Adjustable Scaffold		
Angel's Wing		
Bricklayer's Square		
Carpenters Bracket Scaffold		
Chimney Bracket		

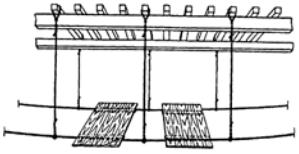
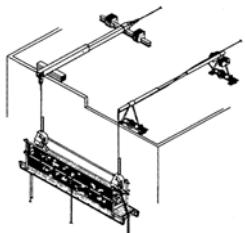
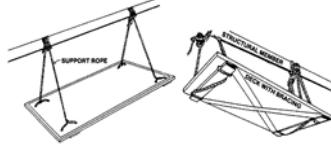
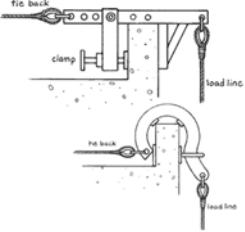
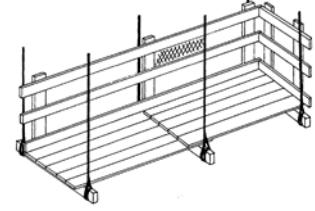
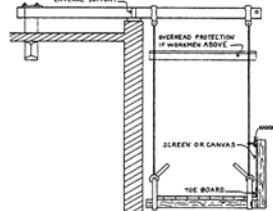
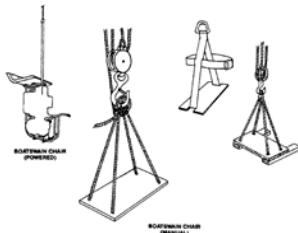
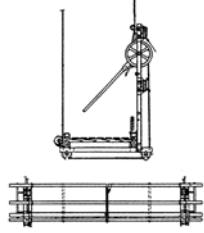
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Interior Hung Scaffold		Mobile Work Stand	
Ladder Jack Scaffold		Modular Scaffold	
Lean-To Scaffold		Outrigger Scaffold	
Mason T-Jacks		Plasterers Decorators Scaffold	
Metal Carpenter Bracket		Prefabricated mobile Tower Unit	
Mobile Scaffold (Manually Propelled)		Pump Jack Scaffold	

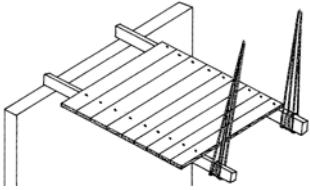
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Roof Bracket Scaffold		Trestle Ladder Scaffold	
Scaffold Jacks		Tube and Coupler Scaffold (uses Swivel Clamp and Rigid Clamp joint connections)	
Shore Scaffold		Tubular Welded Frame Scaffold	
Step Ladder Scaffold		Window Jack Scaffold	
Stilts		Wood Pole Scaffold	
Systems Scaffold (uses various industry joint connections)			

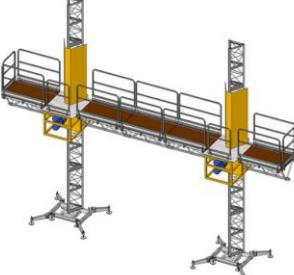
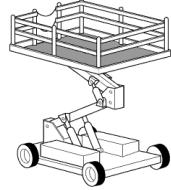
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<u>Suspended Scaffolding</u>		Catenary Scaffold	
Two Point Suspended Scaffold (Can be mounted with Parapet Clamp, Roof Hook, Rolling Outrigger or Frame System)		Float Scaffold	
Parapet clamp or roof hook		Interior Hung Scaffold	
Parapet Clamp		Stonesetters/Mason's Multi Point	
Roof Hook		Multi-Level Suspended Scaffold	
Boatswain's Chair (manual and powered)		Multi-Point Suspended Scaffold	

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Needle Beam Scaffold	
Swinging Scaffold	

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<u>Aerial Lifts</u>		Boom Supported Elevating Work Platforms	
Vehicle Mounted Boom Lift		Scissors Lift (Self Propelled Elevating Work Platform)	
Vehicle Mounted Aerial Platform with telescoping and Rotating Boom		Airline Ground Support Vehicle-mounted Vertical Lift Devices	
Vehicle Mounted Aerial Platform (Scissor Type)		Mast-Climbing work platforms	
Manually Propelled Elevating Aerial Platforms			

Program Requirements and Procedures

Administrative Requirements

The department is required to provide training to all employees who may use scaffolding. Employees must receive instruction on the particular types of scaffolds which they are to use. Training should focus on proper erection, handling, use, inspection, and care of the scaffolds. Training must also include the installation of fall protection, guardrails, and the proper use and care of fall arrest equipment.

This training should be done upon initial job assignment. Retraining shall be done when job conditions change. Periodic refresher training shall be done at the discretion of the supervisor.

The designated “competent person(s)” must receive additional training regarding the selection of scaffolds, recognition of site conditions, recognition of scaffold hazards, protection of exposed personnel and public, repair and replacement options, and requirements of standards.

Improper use of scaffolding is considered unsafe. Information involving unsafe use may be used by the department heads within employee evaluations. If necessary disciplinary corrective action may be taken; including revoking the privilege of further use of scaffolding.

Operator Safe Work Practice

- The footing or anchorage for scaffolds shall be sound, rigid, and capable of carrying the maximum intended load without settling or displacement. Unstable objects such as barrels, boxes, loose brick, or concrete blocks shall not be used to support scaffolds or planks.
- No scaffold shall be erected, moved, dismantled, or altered except under the supervision of competent persons or as requested for corrective reasons by Safety and Loss Control Personnel.
- Guardrails and toe-boards shall be installed on all open sides and ends of platforms more than 10 feet above the ground or floor, except needle beam scaffolds and floats. Scaffolds 4 feet to 10 feet in height having a minimum horizontal dimension in either direction of less than 45 inches shall have standard guardrails installed on all open sides and ends of the platform.
- Guardrails must be 2 X 4 inches, or the equivalent, not less than 36 inches or more than approximately 42 inches high, with a mid-rail, when required, of 1 X 4 inch lumber, or the equivalent. Supports must be at intervals not to exceed 8 feet. Toe-board and the guardrail shall extend along the entire opening.
- Scaffolds and their components must be capable of supporting without failure at least 4 times the maximum intended load.
- Any scaffold, including accessories such as braces, brackets, trusses, screw legs, ladders, couplers, etc., damaged or weakened from any cause must be repaired or replaced immediately, and shall not be used until repairs have been completed.

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- All load-carrying timber members of scaffold framing shall be a minimum of 1,500 fiber (Stress Grade) construction grade lumber.
- All planking must be Scaffold Grades, or equivalent, as recognized by approved grading rules for the species of wood used. The maximum permissible span for 2 X 9 inch or wider planks is shown in the following:
 - The maximum permissible span for 1-1/4 X 9 inch or wider plank of full thickness shall be 4 feet with medium duty loading of 50 p.s.i.
 - All planking or platforms must be overlapped (minimum 12 inches) or secured from movement.
 - An access ladder or equivalent safe access must be provided.
 - Scaffold plank must extend over their end supports not less than 6 inches or more than 18 inches.
 - The poles, legs, or uprights of scaffolds must be plumb and securely and rigidly braced to prevent swaying and displacement.
 - Overhead protection must be provided for men on a scaffold exposed to overhead hazards.
 - Slippery conditions on scaffolds shall be eliminated immediately after they occur.
- No welding, burning, riveting, or open flame work shall be performed on any staging suspended by means or fiber of synthetic rope. Only treated or protected fiber or synthetic ropes shall be used for or near any work involving the use of corrosive substances or chemicals.
- Wire, synthetic, or fiber rope used for scaffold suspension shall be capable of supporting at least 6 times the intended load.
- Scaffolds shall be provided with a screen between the toe-board and guardrail, extending along the entire opening, consisting of No. 18 gauge U.S. Standard wire one-half inch mesh or the equivalent, when personnel are required to work or pass underneath the scaffolds.
- A safe distance from energized power lines shall be maintained.
- Tag lines shall be used to hoist materials to prevent contact.
- Suspension ropes shall be protected from contact with heat sources (welding, cutting, etc.) and from acids or other corrosive substances.
- Scaffolds shall not be used during high wind and storms.
- Ladders and other devices shall not be used to increase working heights on scaffold platforms.

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- Scaffolds shall not be moved while employees are on them.
- Loose materials, debris, and/or tools shall not be accumulated to cause a hazard.
- Employees working on suspended scaffolds shall employ a fall-arrest system.
- Scaffold components shall not be mixed or forced to fit which may reduce design strength.
- Scaffolds and components shall be inspected at the erection location. Scaffolds shall be inspected before each work shift, after changing weather conditions, or after prolonged work interruptions.
- Casters and wheel stems shall be pinned or otherwise secured in scaffold legs. Casters and wheels must be positively locked if in a stationary position.
- Tube and coupler scaffolds shall be tied to and securely braced against the building at intervals not to exceed 30 feet horizontally and 26 feet vertically.

Hazard Evaluation and Control

Scaffolds and Scaffold components shall be inspected for visible defects by a competent person before each work shift and after any occurrence which could affect a scaffold's structural integrity. -OSHA 29 CFR 1926.451(f)(3)

Employees will be monitored for safe work practice by their supervisors and EH&S while using scaffolding.

Training

Affected employees will receive instruction on the particular types of scaffolds which they are to use. Training should focus on proper erection, handling, use, inspection, and care of the scaffolds. Training must also include the installation of fall protection, guardrails, and the proper use and care of fall arrest equipment.

This training should be done upon initial job assignment. Retraining shall be done when job conditions change. Periodic refresher training shall be done at the discretion of the supervisor.

Company designated "competent person(s)" will receive additional training regarding the selection of scaffolds, recognition of site conditions, recognition of scaffold hazards, protection of exposed personnel and public, repair and replacement options, and requirements of standards.

Training Requirements for Scaffold Users

This training is to be conducted by a qualified person who:

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- Is qualified in the subject matter
- Can recognize hazards;
- Understands the procedures to control or minimize the hazards.

Training shall include:

1. The nature of any:
 - Electrical Hazards;
 - Fall Hazards; and
 - Falling object hazards.
2. The correct procedures for:
 - Dealing with electrical hazards;
 - Erecting, maintaining, and disassembling fall protection systems;
 - Erecting, maintaining, and disassembling falling object protection systems;
3. The proper:
 - Use of the scaffold;
 - Handling of materials on the scaffold
4. The maximum intended load and the load carrying capacity of the scaffold.
5. Any other pertinent parts of OSHA 29 CFR 1926 Subpart L.

Training Requirements for the Following Employees:

Scaffold Erectors, Scaffold Disassemblers, Scaffold Movers, Scaffold Operators, Scaffold Repairers, Scaffold maintainers, Scaffold Inspectors;

Training shall include the following topics as applicable:

1. The nature of scaffold hazards.
2. The correct procedures for:
 - Scaffold erecting;
 - Scaffold disassembling;
 - Scaffold moving;
 - Scaffold operating;
 - Scaffold repairing;
 - Scaffold maintaining.
3. The design criteria, maximum intended capacity and the intended use of the scaffold.
4. Any other pertinent requirements of OSHA 29 CFR 1926 Subpart L, and 29 CFR 1910.28.

Retraining Requirements:

Retraining of an employee is required when the employee lacks the skill or understanding needed for:

- The safe erection of scaffold;
- The safe disassembly of scaffolding;
- The safe use of scaffolding.

Training will be provided to the employee so the skills are regained.

Retraining is also required in at least the following situations:

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- Where worksite changes present a hazard about which the employee has not been trained; or
- Where changes in the equipment, conditions, or process present a hazard about which the employee has not been trained; or
- Where the employee's actions indicate he/she has forgotten what he/she has learned.

Recordkeeping Requirements

Owner Departments must keep records concerning scaffolding inspections, inventories and training. The Scaffolding Program administrator will be designated by the Owner Department. Please talk with the department management for the current designee. All records must be kept for a minimum of 3 years within the department. The records must be made available to regulatory agencies such as Cal/OSHA and EH&S upon request.

Inspection Requirements

Scaffolds and Scaffold components shall be inspected for visible defects by a competent person before each work shift and after any occurrence which could affect a scaffold's structural integrity.

OSHA 29 CFR 1926.451(f)(3)

Under this program, departments must complete written inspections for all scaffolding at least bi-annually, for the purposes of injury reduction, documentation and inventory upkeep.

EH&S Primary Contact Information

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Issued By the UC Santa Barbara Environmental Health and Safety Department on 3/2016.

Reference

This safety policy and procedure is established in accordance with Occupational Safety and Health Standards for General Industry (29 CFR 1910.28) and Occupational Safety and Health Standards for Construction Industry (29 CFR 1926 Subpart L).

Attachments

Additional Information

The OSHA website: www.osha.gov has excellent eTools such as over 75 slides of scaffolds with OSHA interruption of violations, etc.

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Self-Inspection Checklist

Please follow the link provided for a Scaffolding Self-Inspection Checklist provided by the Occupational Safety and Health Administration (OSHA) and the Centers for Disease Control and Prevention (CDC):
<http://www.cdc.gov/niosh/docs/2004-101/chklists/r1n74a~1.htm>

Scaffold manufacturers have booklets on how erect and use their scaffolds safely. If you do not have a copy of their booklets, get them from the manufacturer.

Frequently Asked Questions (FAQ)

OSHA Frequently Asked Questions: [CLICK HERE](#)

Scaffolding Program Frequently Asked Questions: [CLICK HERE](#)