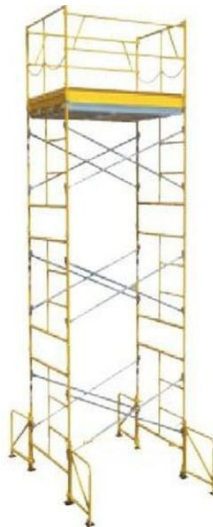


Scaffold and Ladder Safety Training

Participant Workbook

Participant Name: _____

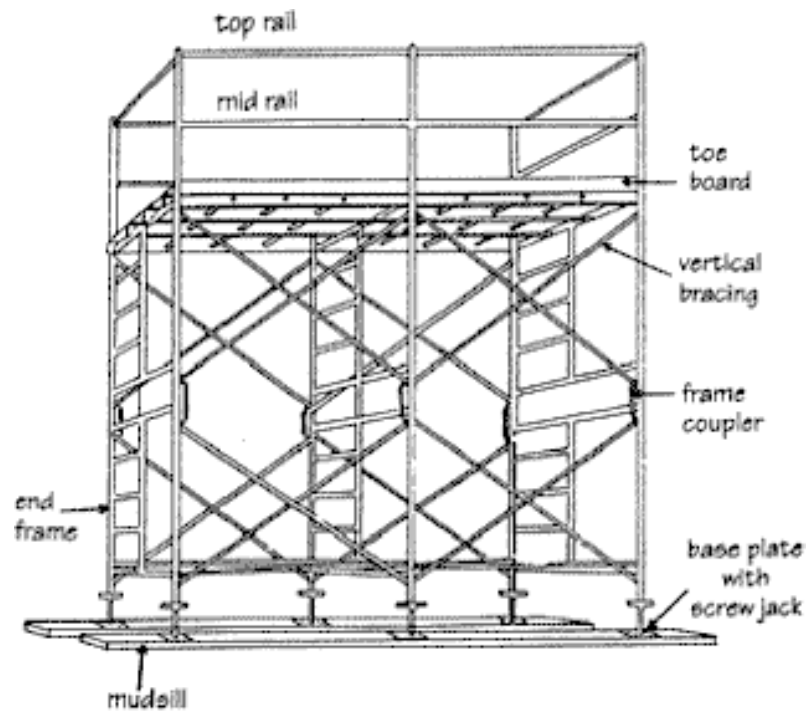


WorkSafe Consulting Services Presents - Scaffold and Ladder Safety.

WorkSafe Consulting Services is committed to helping Employers and Employees to take a pro-active approach to loss prevention in the workplace.

Scaffold Workbook

The main parts of the Scaffold



When installing a Scaffold, you are required to use all the required parts and ensure that none of the parts are damaged in any way. You are not allowed to use damaged parts. Bent or broken parts need to be replaced immediately before erecting the Scaffold System.

Scaffold Safety

What Is a Scaffold?

An elevated, temporary work platform

Three basic types:

- **Supported scaffolds** -- platforms supported by rigid, load bearing members, such as poles, legs, frames, & outriggers
- **Suspended scaffolds** -- platforms suspended by ropes or other non-rigid, overhead support
- **Aerial Lifts** -- such as “cherry pickers” or “boom trucks”



Hazards

Employees working on scaffolds are exposed to these hazards:

- **Falls from elevation** – caused by slipping, unsafe access, and the lack of fall protection
- **Struck by** falling tools / debris
- **Electrocution** – from overhead power lines
- **Scaffold collapse** - caused by instability or overloading
- **Bad planking** giving way



Scaffold Safety

Fall Hazards

Falls May Occur

- While climbing on or off the scaffold
- Working on unguarded scaffold platforms
- When scaffold platforms or planks fail



Protecting Workers from Falls

If a worker on a scaffold can fall more than 10 feet, protect them by:

- Guardrails, and/or
- Personal Fall Arrest Systems (PFAS)

Guardrails

Install along open sides & ends

Front edge of platforms not more than 14 inches from the work, unless using guardrails and/or PFAS

Top rails - 91 to 107 centimeters tall

Midrails halfway between toprail and platform

Toeboards at least 125 millimeters high



Scaffold Safety

Personal Fall Arrest Systems (PFAS)

You must be trained how to properly use PFAS

PFAS include anchorage, lifeline and body harness.



Fall Protection Requirements

- Can use PFAS instead of guardrails on some scaffolds
- Use PFAS & guardrails on suspension scaffolds
- Use PFAS on erectors and dismantlers where feasible



The ends of this scaffold are not properly guarded

Falling Object Protection



- Wear hardhats
- Barricade area below scaffold to forbid entry into that area
- Use panels or screens if material is stacked higher than the toe board
- Build a canopy or erect a net below the scaffold that will contain or deflect falling objects

Scaffold Safety

Overhead Power Lines

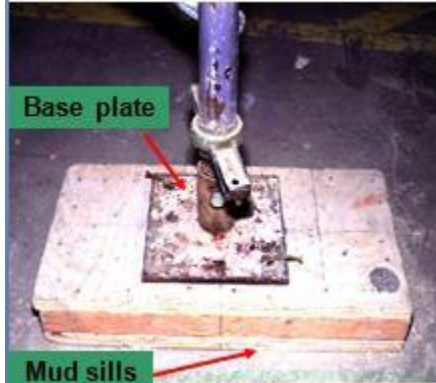
The possibility of electrocution is a serious consideration when working near overhead power lines.

Check the clearance distances listed in the standard

Voltage	Distance (Metres)
750-150,000	3
150,001-250,000	4.5
250,001 +	6



Scaffold Support Examples



Good support



Inadequate support –In danger of collapse?

Essential Elements of Safe Scaffold Construction

- Use appropriate scaffold construction methods
- Proper scaffold access
- Properly use a competent person



Scaffold Safety

Scaffold Platform Construction

Platforms must:

- be fully planked or decked with no more than 1 inch gaps
- be able to support its weight & 4 times maximum load
- be at least 18 inches wide



This is not a properly constructed scaffold

Scaffold Platform Construction

- No large gaps in front edge of platforms
- Each abutted end of plank must rest on a separate support surface
- Overlap platforms at least 12 inches over supports, unless restrained to prevent movement



Planks not properly overlapped



Scaffold Safety

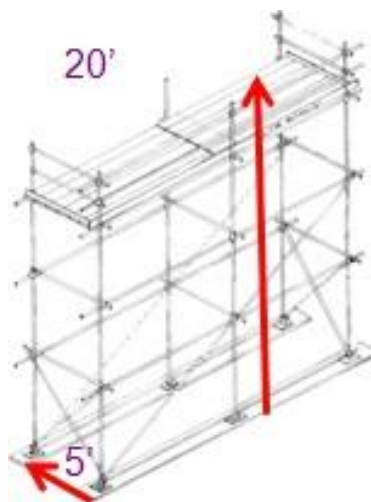
Scaffold Platform Construction

- No paint on wood platforms
- Use scaffold grade wood- #1 Grade Spruce (Ontario)
- Fully planked between front upright and guardrail support
- Component pieces used must match and be of the same type
- Erect on stable and level ground
- Lock wheels and braces



Scaffold Height

The height of the scaffold should not be more than three times its minimum base dimension unless guys, ties, or braces are used. Scaffolds must be tied at least every 4.57m (15'-0") intervals vertically and 6.0m (20'-0") horizontally.



Scaffold Safety

Platform Ends

Each end of a platform, unless cleated or otherwise restrained by hooks, must extend over its support by at least 6 inches



Supported Scaffolds



- Platforms supported by legs, outrigger beams, brackets, poles, uprights, posts, & frames.
- Restrain from tipping by guys, ties, or braces.
- Scaffold poles, legs, posts, frames, and uprights must be on base plates and mud sills or other firm foundation.

Scaffold Safety

Proper Scaffold Access

Provide access when scaffold platforms are more than 2 feet above or below a point of access

Permitted types of access:

- Ladders, such as portable, extension, straight, stairway type, and built-ins
- Stair towers
- Ramps and walkways

May use building stairs and come out window

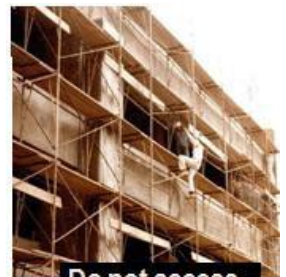


Scaffold Access

- No access by cross braces
- When using ladders, bottom rung no more than 24 inches high
- No access by end frames
- Can access from another scaffold, structure or hoist



End Frame



**Do not access
by crossbraces**

Scaffold Safety

Suspension Scaffolds

Platforms suspended by ropes or wires. Rope must be capable of supporting 6 times the load.

Train employees to recognize hazards.

Secure/tie to prevent swaying.

Support devices must rest on surfaces that can support four times the load.

Competent person:

- evaluate connections to ensure the supporting surfaces can support load
- inspect ropes for defects before shift

PFAS must have anchors independent of the scaffold support system



Moving Scaffolds

Employees can't be on a moving scaffold unless:

- Surface is level
- Height to base ratio is 3 to 1
- Outriggers are installed on both sides of scaffolds

Employees can't be on scaffold part beyond the wheels.

Competent person must be on site to supervise.



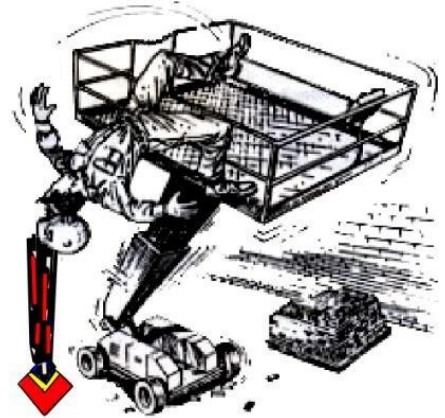
Scaffold Safety

Fatal Fact – Moving a Lift

Employee was operating an aerial lift, with an extendable boom rotating work platform.

The boom was fully extended and the machine apparently ran over some bricks, causing the boom to flex or spring, throwing the employee from the basket.

The employee fell 37 feet to a concrete surface.



Don't use Shore or Lean-to Scaffolds

Shore scaffold supported scaffold which is placed against a building or structure and held in place with props

Lean-to scaffold supported scaffold which is kept erect by tilting it toward and resting it against a building or structure



Using Scaffolds

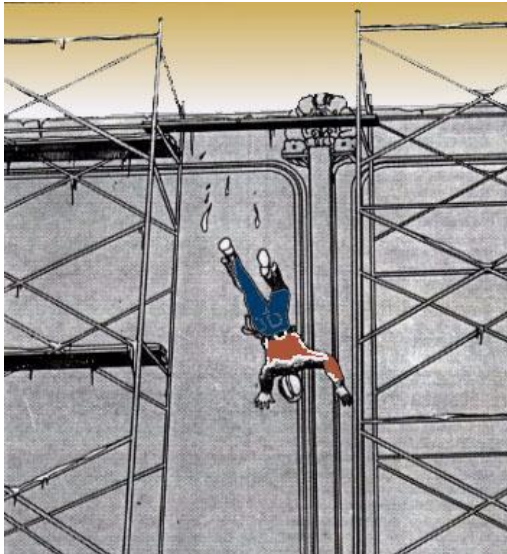
- Don't work on snow or ice covered platforms or during storms or high winds
- Use tag lines on swinging loads
- Protect suspension ropes from heat & acid



A covered scaffold has special wind load considerations

Scaffold Safety

Fatal Fact – Ice & No Guardrails



Laborer was working on the third level of a tubular welded frame scaffold which was covered with ice and snow.

The scaffold was not fully decked, there was no guardrail and no access ladder.

The worker slipped and fell head first 20 feet to the pavement below

Overhand Bricklaying

From Supported Scaffolds

A guardrail or personal fall arrest system is required on all sides except the side where the work is being done.



Scaffold Safety

Competent Person

- Person capable of identifying and promptly correcting hazards
- Determines if it's safe to work on a scaffold during storms or high winds
- Trains workers to recognize hazards
- Selects qualified workers to conduct work



Scaffold Inspection

Competent person inspects scaffolds for visible defects before each shift and after any alterations

Defective parts must be immediately repaired



Scaffold Erection



Scaffolds can only be erected, moved, dismantled or altered under the supervision of a competent person

Competent person selects & directs these workers and determines the feasibility of fall protection

Scaffold Safety

Training Requirements

Train employees on scaffold hazards and procedures to control the hazards

The training must include:

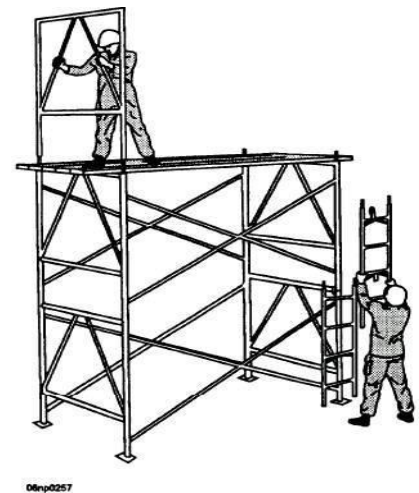
- Nature of electrical, fall, and falling object hazards
- How to deal with electrical hazards and fall protection systems
- Proper use of the scaffold
- Scaffold load capacities

Retrain as necessary



Training Erectors

Train employees involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold to recognize its hazards and the correct procedures to use.



Scaffold Safety

Avoid the Main Hazards of Scaffolds

- Falls from elevation
- Bad planking
- Scaffold collapse
- Getting struck by falling tools or debris
- Electrocution



Summary

Remember to:

- Use appropriate scaffold construction methods
 - Erect, move, or alter scaffold properly
 - Protect from falling objects or tools
- Ensure stable access
- Use a competent person
 - Train on scaffold construction and the hazards involved with scaffolds
 - Inspect scaffold before each shift and after alterations
 - Determine fall protection requirements

Ladder Safety and Fall Protection Workbook



Ladder and Fall Protection Safety

Types of Ladders

- Step stools
- Straight or extension ladders
- Step or "A" frame ladders
- Built-in mounted ladders (manholes)



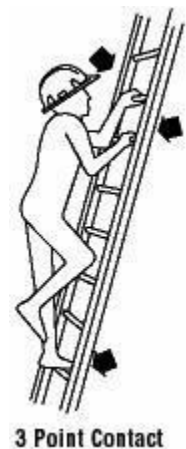
How ladders can be dangerous

- Using the wrong ladder for the job
- Using ladders incorrectly
- Using defective ladders



Safely using a ladder

- Use the correct ladder for the job not too big or too small and check load capacities.
- Take the time to get the right size and type ladder and not the most available one.
- Consider the use and the need for a non-conductive ladder.

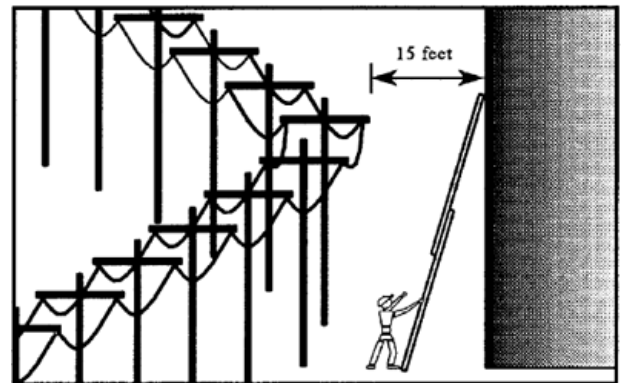


Ladder and Fall Protection Safety

Getting Started

- Determine the size and type of ladder you will need
- Will you be working with or around electrical energy?
If so, a non-conductive ladder will be required
- Watch out for overhead power lines

Voltage	Distance (Metres)
750-150,000	3
150,001-250,000	4.5
250,001 +	6



Pre-use ladder inspection

- Check to make sure that rungs do not have oil or slippery substance on them
- Check to make sure that rungs and rails are not split, broken, or damaged. If, so tag it out for repairs.
- If it can NOT be properly repaired cut it up and throw it away.
- Check to make sure feet, slip locks, and spreaders are working



Ladder and Fall Protection Safety

Set-up Considerations

- Make sure that ladder is placed on an even surface and that the ground is not too soft to prevent sinking
- Use the 4 to 1 ratio against a base for straight or extension ladders
- Extend straight or extension ladders 3 rungs above the roof surface.
- Tie off ladders against the building if working above 10 feet



Consider the Land Down-under

- Barricade off area below your ladder so pedestrians don't walk into or under your ladder while you're on it.
- Also you may drop something and injure someone passing by below you.



Ladder and Fall Protection Safety

Climbing tips

- Keep at least one foot and one hand on the ladder at all times
- Hold the side rails not the rungs when climbing or descending a ladder
- Only take one step at a time
- Do not stand on the top step of a "A-frame" ladder.



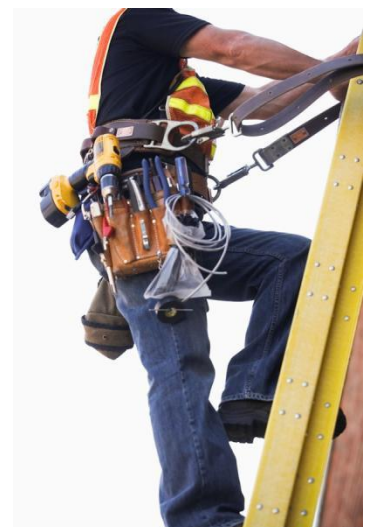
Moving a Ladder

- Never attempt to move a ladder while you are on it (rock-n-roll, or hip-hop)
- Take the time to move a ladder instead of "over-reaching" your position.
- If your body is outside the rails you are over-reaching



Carrying materials

- Use a tool belt to keep hands free
- Lift materials from a hand line bucket from the ground



Ladder and Fall Protection Safety

Consider using mechanical equipment instead of a ladder if at all available or possible



Contractors in action

Example of things NOT to do:

- Creative but very DANGEROUS ladder set-ups and operations

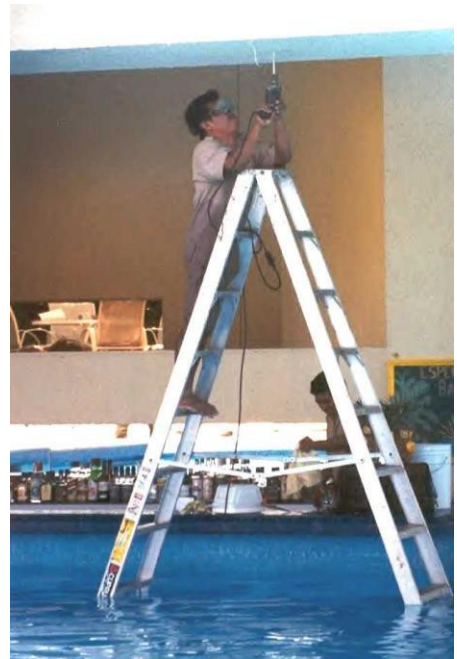


Ladder and Fall Protection Safety

Ladder in a back-hoe bucket!



Ladder in a pool with an electric drill!



Modified High-Lift or Extension Ladder?



Please complete the training feedback form.

Thank-You

Training Sponsored By:

Training Course Feedback Form

Course: _____ Course Date: _____

Instructor: _____ Company: _____

Rating: 1 = Very Poor 5 = Very Good

Administration

Category	Rating				
Course was scheduled at a good time	1	2	3	4	5
Course started on time	1	2	3	4	5
Course finished on time	1	2	3	4	5
Trainer took periodic breaks	1	2	3	4	5

Course Content

Category	Rating				
Course workbook was easy to understand	1	2	3	4	5
Course workbook was informative	1	2	3	4	5
Presentation was easy to understand	1	2	3	4	5
Presentation was informative	1	2	3	4	5

Instructor

Category	Rating				
Instructor presented material in ways that were easy to understand	1	2	3	4	5
Instructor answered questions clearly	1	2	3	4	5
Instructor encouraged active participation	1	2	3	4	5

Technology

Category	Rating				
I could clearly hear what the instructor was saying	1	2	3	4	5
I could clearly see what the instructor was doing	1	2	3	4	5
The technology was beneficial to the learning process, not a hindrance	1	2	3	4	5

**** Over All, This was a positive experience: 1 2 3 4 5**

Comments: _____

