



Safe 

**Field Superintendent
Handbook**

Field Superintendent Handbook



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OCIP and CCIP

Owner Controlled Insurance Programs and Contractor Controlled Insurance Programs



Background

The cost of insurance on a construction site can be a very expensive and potentially valuable cost savings for contractors. The construction industry has long known that reducing workers compensation costs, property loss, and environmental damage can make or break the profitability of a project.

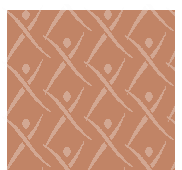
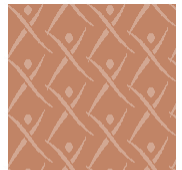
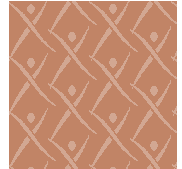
The idea of an Owner or Contractor Controlled Insurance Program was developed typically for very large projects, where one party decides to “buy” the liability insurance for all contractors working on-site. When purchasing the liability, one party (typically the facility owner or construction manager) pays for all workers compensation and general liability costs for all tiers of contractors on site. Those contractors must identify how much of their bid was calculated to cover these costs and then remove that line item cost from their project bid.

How It Works

- The OCIP or CCIP owner pays a cash deductible for all claims, by any contractor, while they are working on-site.
- The contractor having an injury, records the incident on their OSHA log, while the OCIP or CCIP owner does not.
- The contractor does not pay any deductible, medical, prescription, or compensation benefit for the injured worker. The OCIP or CCIP owner pays for everything.
- The OCIP or CCIP owner has insurance to cover costs above the deductible.

Examples

- In Columbus, Ohio, the Downtown Hilton project, managed by Turner, was a CCIP project.
- American Municipal Power (AMP) built four power plants under an OCIP between 2008-2016.
 - ◇ \$1,500,000,000 was the estimated construction value of the project.
 - ◇ \$9,000,000 was the anticipated cost of injury claims and workers compensation insurance over the course of the project.
 - ◇ \$3,000,000 was the estimated cost of safety management and services.
 - ◇ \$6,000,000 was the estimated cost of injuries.
 - By purchasing the OCIP, AMP was able to drive safety and risk management to reduce jobsite injuries for all contractors.
 - If properly managed, AMP could avoid \$6,000,000 in injuries and medical costs, adding to the profit for the project.





How It Impacts Your Site

If your company owns the OCIP or CCIP:

- Every dollar spent on employee injuries, medical, and lost time costs is paid out of your companies' pocket. Obviously, it is advantageous for you to not have any injuries.
- Contractors have no financial risk for any injury. A \$1,000,000 injury will not cost them a single dollar; however, they have no ability to manage the injury either. As the OCIP or CCIP owner, if your company uses a doctor that issues a prescription, then the contractor now has an OSHA recordable. If your company uses a doctor that issues a work restriction or days off, then the contractor now has an OSHA recordable that is a DART or Lost Time incident.
- You have a business responsibility to aggressively manage safety with all contractors, to avoid having any injuries.

If you work on a site under a host employer or construction manager that owns the OCIP or CCIP:

- You can have an unlimited number of injuries at no cost to your employer.
- Your contract likely indicates that you will follow every safety recommendation, provided by the owner of the OCIP or CCIP, and these will typically go in more detail than OSHA regulations.
- You can not defend against a false injury claim.
- The OSHA recordkeeping for each injury is your responsibility to record, but you have no authority to manage it.

What You Need To Do

If your company owns the OCIP or CCIP:

- Establish a comprehensive site safety policy for all contractors to follow.
- Ensure that all contractors honor your site safety policy.
- Engage, train, and guide all employees on-site. Their injuries come out of your pocket. You must have employee participation.
- Ensure that each subcontractor “buys in.”

If your company is covered under an OCIP or CCIP:

- Review the OCIP or CCIP site safety policy for items that are more stringent or different than what you typically know and do. They have a right to be more stringent.
 - ◊ A common example is when the CCIP owner requires all tools to be tethered to an employee working more than two feet above a lower level.
- Educate and train your employees on the site-specific safety policies.
- Notify the OCIP or CCIP owner of any injury, because they are paying for it and will dictate what doctors you may go to.
- Follow the owner's incident reporting process.
- Follow the owner's incident investigation process.



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Fall Protection

You have the power to reduce workplace falls and prevent them on your jobsite!



Background

- Approximately 35% of fatalities in construction occur due to falls.
- Falls increase workers compensation claims and have lasting effects on workers' health.
- Falls are an OSHA focus-four hazard and fall protection is one of OSHA's top 10 most frequently cited regulations annually.



What You Need To Do

- Collect and review letters from subcontractors:
 - Identifying who their designated Competent Person is for fall protection.
 - Certifying that employees have been trained to identify fall hazards, when and how to properly use a personal fall arrest system.
- Conduct and document daily inspections of all work areas you are responsible for regarding fall hazards.
- Communicate to correcting employers where guardrails are needed or floor holes must be covered.
- Verify that correcting employers are inspecting work areas sufficiently to identify fall hazards and promptly correcting hazards.
- Issue notice to stop work or remove a specific employee for working while exposed to uncontrolled fall hazards.



What Your Subcontractors Need To Do

- Identify their Competent Person for fall protection. They need to specifically state who this is and give them authority to take prompt corrective actions. See Competent Person letter in the Letters section.
- Provide documentation that employees are trained in identification of fall hazards common to their work and use of a personal fall arrest system. See Request For Training letter in the Letters section.
- If they cannot, or are not authorized to, correct a hazard, then they must avoid the work area until it is fixed and notify the controlling contractor.
- Inspect daily prior to employee exposure to identify any uncontrolled fall hazards.
- Inspect fall protection equipment prior to each use.
- Inspect portable ladders prior to each use.



Fall Hazard Inspections

- Identify and inspect exposure to areas 6 feet or more above a lower level requiring fall protection.
- Take corrective actions for unprotected areas including guardrails, personal fall arrest, or safety nets. Alternative systems (such as warning lines or safety monitors) are permitted only for roofing work on low sloped roofs (4:12 pitch or less).
- Using the fall hazard assessment form, evaluate a work area for the items listed on this page.

Guardrails

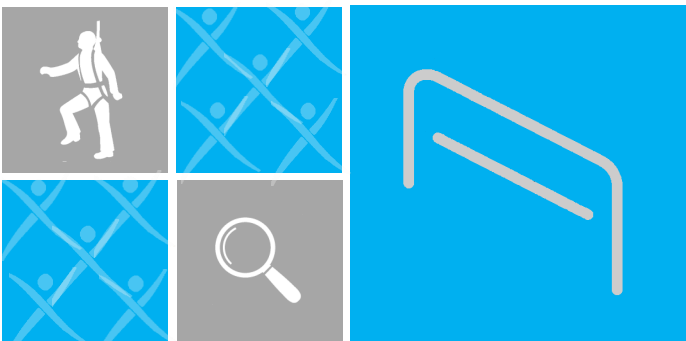
- Guardrail systems include a top-rail, mid-rail, and toe board when necessary.
- Top rails must be positioned 42 inches, plus or minus 3 inches, above the walking-working surface.
- Midrails must be positioned at half the height of the top-rail, or 21 inches above the walking-working surface.
- A top rail must support 200 pounds of force applied in any direction. Midrails must support 150 pounds of force applied in any direction. To obtain the required strength for wooden guardrail systems, verify that framers do not space vertical support braces further than 8 feet apart.
- Wire rope guardrail systems must meet the same height requirements as wooden guardrails. Deflection is permitted, but deflection must not permit either the top or midrail from deflecting below the minimum height requirements.
- Toe boards must be installed when there is a potential for material to fall off an edge. A wooden 2 x 4 is considered an acceptable toe board.

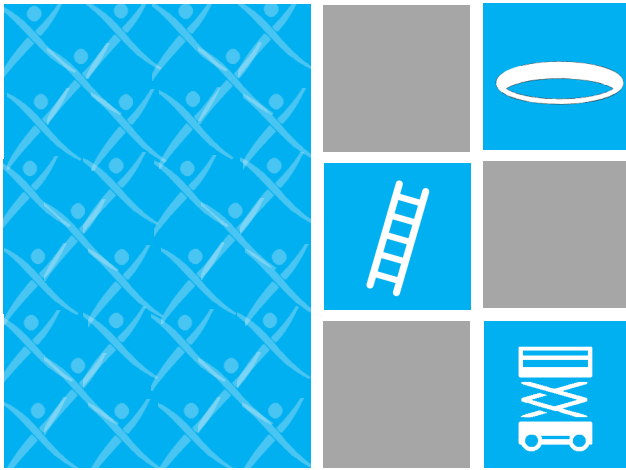
Personal Fall Arrest Systems (PFAS)

- PFAS must contain an anchorage device, connecting device and body harness.
- Proper configuration of a PFAS includes an employee connecting to an anchor and their harness. Only one connecting device is permitted in a PFAS.
- It is the responsibility of the contractor using the equipment to inspect prior to each use.
- Anchorage devices and surfaces must be capable of supporting 5,000 pounds of force. If you are unsure of the rating of a surface, contact the project manager or project engineer for assistance.
- Evaluate swing potential. Employees should not deviate more than 15 degrees away from the point of anchorage (overhead or ground level) when using PFAS.
- Calculate fall clearance distance. When using a shock absorbing lanyard, 18½ feet of clearance between the point of anchorage and ground is required. When using a vertical lifeline (rope grab), locate the grab device on the rope and determine potential free-fall distance.
- Encourage the use of properly manufactured equipment when working on leading and unprotected edges. Connecting devices engineered for falls on leading edges are preferred.

Warning Lines

- Warning lines are only permitted for roofing work on low sloped roofs (4:12 pitch or less). The warning line must be installed 6 feet back from the roof edge.
- Warning lines for non-roofing work are permitted but must be installed 15 feet back from the roof edge with the implementation of a rule. Ask the contractor to submit a policy or plan for their use of a warning line for non-roofing work. Examples include mechanical contractors installing equipment during construction, as this is not considered roofing work.
- Rope, chain, or wire cables are permitted to be used as warning lines. The warning line must be flagged with high visible material at minimum intervals of no more than 6 feet. Materials like caution or danger tape do not meet requirements for a warning line.





- Warning lines must be erected at a height of 34-39 inches above the walking-working surface.
- The warning line must enclose the roof fully. A walkway system from the ladder access area must be designated with a warning line. Employees are not permitted to walk unprotected from the ladder and inside the warning line.

Ladders

- Ladders used for access to an upper level or roof must extend 3 feet above the walking-working surface. This must be measured from the top of the ladder, not by counting three rungs.
- The correct ladder must be used for each task. Straight and extension ladders are permitted to be used for access. Step ladders are considered working platforms only.
- Unless approved by the manufacturer, step ladders are not permitted to be folded and leaned along a surface to be used as a working platform.
- During inspections, determine if employees on ladders are exposed to fall hazards by working near or above guardrails. If so, ask contractors to utilize PFAS or extend guardrail system height by installing an additional top rail 21 inches above the existing 42-inch top rail.

Scissor Lifts and Aerial Lifts

- Fall protection is required in aerial lifts. OSHA does not require fall protection in scissor lifts. Identify your company and site policy regarding tie-off in scissor lifts.

- Fall protection in either style of lift should incorporate fall restraint. Employees should use either a self-retracting lifeline or tethering device to prevent ejection from the basket.
- Employees must not stand on top rails or mid-rails to perform work.
- Lifts are equipped with engineered tie-off points. During inspections, determine that employees in baskets are only connected to approved anchorage points in the lift basket.

Holes

- Holes are considered gaps or voids in the floor 2 inches or more in the least direction.
- Holes must be equipped with a cover that supports twice the maximum intended load. Covers must be secured and marked. Typical holes on construction sites such as floor holes for bathroom plumbing must be covered when unattended or active work is not occurring.
- Wall openings measure as 18 inches or wider, and 30 inches or more in height, with the inside bottom edge less than 39 inches above the walking-working surface. If these openings are more than 6 feet above a lower level, fall protection must be utilized or guardrails must be installed. Common examples include trash chutes and open windows.

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INSPECTION CHECKLIST - FALL PROTECTION EQUIPMENT

HARNESSES

DESCRIPTION:			MODEL NUMBER:		
SERIAL NUMBER:			DATE OF MANUFACTURE:		
INSPECTOR:			DATE OF INSPECTION:		
	DESCRIPTION	PASS	FAIL	COMMENTS:	
Harness	Webbing				
	Stitching				
	Not altered?				
	Labeling intact?				
	Serial Number Visible?				
Buckles, Grommets, & D-Rings	No deformations?				
	No rust?				
	Buckles & clips functioning?				
PASS			FAIL		
Inspector Signature:					



INSPECTION CHECKLIST - FALL PROTECTION EQUIPMENT

LANYARD

DESCRIPTION:			MODEL NUMBER:		
SERIAL NUMBER:			DATE OF MANUFACTURE:		
INSPECTOR:			DATE OF INSPECTION:		
	DESCRIPTION	PASS	FAIL	COMMENTS:	
Main Unit	Shock pack intact?				
	Stitching intact?				
	Not altered?				
	Serial number visible?				
	Labelling intact?				
	Cuts, tears, burns?				
Hooks & Carabiners	Swivel on snaphook?				
	Hook Body				
	Hook Nose				
	Load Impact Indicator				
	Gate intact?				
	Hinge intact?				
	Carabiner intact?				
PASS			FAIL		
Inspector Signature:					

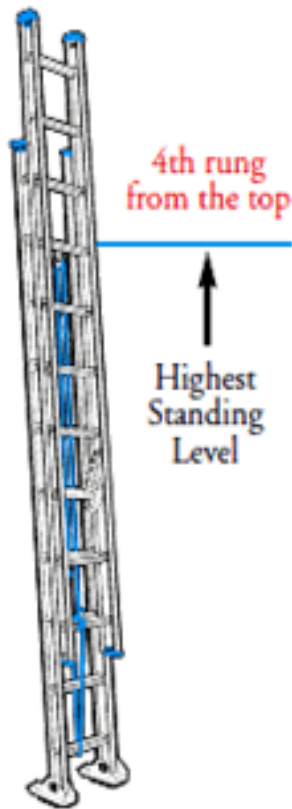
INSPECTION CHECKLIST - FALL PROTECTION EQUIPMENT

RETRACTABLE LANYARD

DESCRIPTION:			MODEL NUMBER:		
SERIAL NUMBER:			DATE OF MANUFACTURE:		
INSPECTOR:			DATE OF INSPECTION:		
	DESCRIPTION	PASS	FAIL	COMMENTS:	
Main Unit	Webbing or cable				
	Stitching or crimp				
	Stop ball in place? (cable type only)				
	Housing intact?				
	Labelling intact?				
	Swivel top intact?				
	Braking test complete?				
Hooks & Carabiners	Swivel on snaphook?				
	Hook Body				
	Hook Nose				
	Load Impact Indicator				
	Gate intact?				
	Hinge intact?				
	Carabiner intact?				
PASS			FAIL		
Inspector Signature:					

<i>Fall hazards greater than 6 feet require an assessment</i>	Fall Hazard Assessment Form	<i>Use only one assessment form per location</i>			
Building and Location:	Date & Time:				
Purpose of Work:	Department:				
Fall Hazard Evaluator(s):					
Area Type	Y N	Area Access	Y N	Reason for Access	Y N
Building Rooftop		Stairs		Electrical	
Work Platform		Fixed Ladder		Mechanical	
Ceiling / Overhead Area		Portable Ladder		Repairs	
Floor / Wall Opening		Ceiling		Cleaning	
Pipe Chase / Utility Shaft		Door		Servicing / Preventative Maintenance	
Other:		Vertical / Horizontal Hatch		Work with Contractors?	
Fall Distance / Height of Work (feet)		Other:		Other:	
Potential Hazards	Y N	Potential Hazards	Y N		
Sloping or Unstable Surfaces		Moving Parts			
Slip / Trip Hazards		Low Light			
Difficult Access		Floor Openings / Skylights / Manholes			
Leading Edge Work		Weather Related Hazards (High Wind, Rain, Lightning, etc)			
Hidden Drop-Offs		Protruding Objects			
Other:		Other:			
Rooftop Determination	Y N	Rooftop Requirements			
Will employees be working within 15 feet from the roof edge?		Must use guardrails, netting, travel restraint, or personal fall arrest system			
Will employees be working more than 15 feet from the roof edge?		Must use guardrails, netting, travel restraint or personal fall arrest system; OR may use a work rule prohibiting employees from going within 15 feet of the roof edge (If work is infrequent and temporary)			
Will a Designated Area be used?		Temporary and infrequent work only; No less than 6 feet from edge and not less than 15 feet from other work; Must have warning line and safety monitor; Additional information may be required			
Engineering Controls	Y N	Personal Fall Protection	Y N		
Guardrail Systems or Parapets (42" +/-3")		Full Body Harness			
Anchors (Must be inspected and certified)		Shock-Absorbing Lanyard			
Horizontal Lifeline System (Must be inspected and certified)		Self-Retracting Lifelines (SRL's)			
Vertical Lifeline System (Must be inspected and certified)		Rope Grabs			
Covers (Must support twice intended load and be secured)		Cable Positioning Lanyard			
Other:		Other:			
Falling Object Controls:	<input type="checkbox"/> Housekeeping <input type="checkbox"/> Toeboards <input type="checkbox"/> Net / Screen / Canopy <input type="checkbox"/> Barricade <input type="checkbox"/> Move Equipment				
Rescue Plan	Y N	Final Determination	Y N		
Written (Must Distribute to All Personnel / Departments Involved)		Work May Proceed with Above Selected Controls and Equipment			
Verbal (Toolbox Talk, Pre-Job Meeting, etc)		If NO to Above, Select Reason(s) Below or Use Comments Section			
<input type="checkbox"/> Equipment Needed <input type="checkbox"/> Training Needed <input type="checkbox"/> Certification/Inspection Needed <input type="checkbox"/> Rescue Plan Needed <input type="checkbox"/> Other (Specify Below)					
COMMENTS					
ASSESSMENT CERTIFICATION					
<i>We certify that we have conducted a fall hazard assessment of the above location and have detailed the findings of the assessment on this form.</i>					
Requestor:	(PRINT):	(SIGN):			
Risk Management Representative:	(PRINT):	(SIGN):			

Ladder Safety Specifications

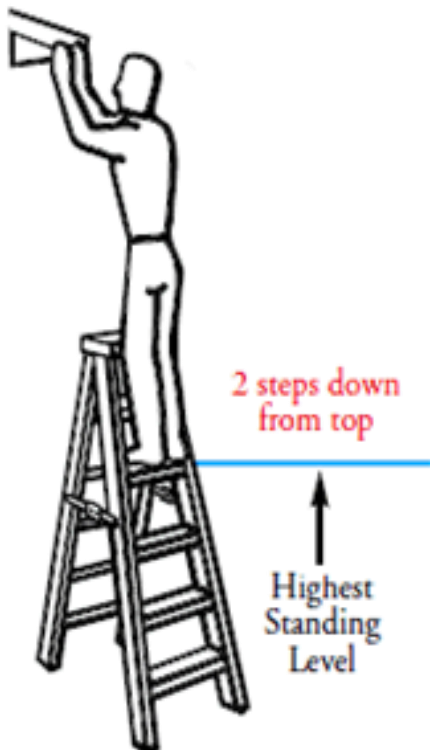


EXTENSION LADDERS

Height To Top Support Point	Buy This Size Extension Ladder*	Maximum Working Ladder Length**	Highest Standing Level (Approx.)
9' max.	16'	13'	9' 2"
9' to 13'	20'	17'	13' 1"
13' to 17'	24'	21'	16' 11"
17' to 21'	28'	25'	20' 10"
21' to 25'	32'	29'	24' 8"
25' to 28'	36'	32'	27' 7"
28' to 31'	40'	35'	30' 6"

* Reflects section overlap, ladder angle, and 3' potential extension above roof line.

** The maximum working length is less than total ladder length because of overlap of extension ladder sections.



STEPLADDERS

Max. Height You Want to Reach*	Buy This Size Stepladder	Highest Standing Level (Approx.)**
7'	3'	11"
8'	4'	1' 11"
9'	5'	2' 10"
10'	6'	3' 10"
11'	7'	4' 9"
12'	8'	5' 8"
14'	10'	7' 7"
16'	12'	9' 6"
18'	14'	11' 5"
20'	16'	13' 4"

* Assumes a 5' 9" person with a vertical 12" reach.

** Two steps down from the top.

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Scaffolds

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Background

- Scaffolding accidents injure almost 4,500 workers every year.
- Roughly 60 scaffold related fatalities occur annually.
- More than 70% of the injuries that occur on scaffolds are due to issues with planking, slips, trips, and falls.
- OSHA and subpart L is one of the most frequently cited standards and is continually in OSHA's list of top 10 violations.

How To Do It

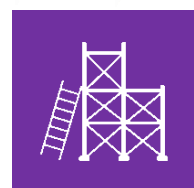
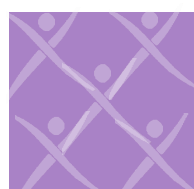
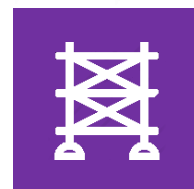
- Collect and review letters from subcontractors:
 - ◊ Identifying who their designated Competent Person is for scaffold safety.
 - ◊ Certifying a list of employees to operate vertical mobile scaffolds (e.g., Hydro Mobile, Franco, Klimer, etc.) who have been trained to erect, dismantle, and perform work on scaffolds.
- Inspect scaffold systems daily, looking for potential hazards (e.g., scaffold stair towers used by all employees daily).
- Confirm that inspections are occurring, prior to each shift, through daily communication with the Competent Person.
- Communicate, to correcting employers, where unsafe scaffold conditions occur and require correction.
- Issue notice to stop work, or remove a specific employee, for working while exposed to uncontrolled hazards on the scaffold.

What Your Subcontractors Need To Do

- Identify their Competent Person for scaffolding inspections. They need to specifically state who the Competent Person is and give them authority to take prompt corrective actions. See recommended Competent Person letter in the Letters section of this binder.
- Provide documentation that employees are trained to identify common hazards specific to the type of scaffold in use. See recommended Request for Training letter in the Letters section of this binder.
- Inspect scaffolds daily, prior to employee exposure, to identify any uncontrolled scaffolding hazards.
- Document scaffold inspections using a tagging system, or other method of written documentation.
- If workers cannot, or are not authorized to, correct hazards, then they must avoid the work area until it is fixed and notify the controlling contractor.

Scaffolding Inspections

- Inspections must occur each day, prior to employee exposure, and after any event which may have impacted the condition of the scaffold.
- Inspections must include a review of scaffold foundations, platforms, bracing, and guardrail systems.





Scaffold Foundations

- Baseplates are required on **all** supported scaffolds. Failure to install a baseplate creates an unstable scaffold.
- Baseplates must rest on either adequate, firm foundations (concrete or asphalt) or a mudsill. Baseplates should be centered and secured to mudsills.
- Stacked material (e.g., bricks, wood, etc.) must not be used as a mudsill, unless approved by the manufacturer.
- Scaffolds must never sit on, or be constructed over, unsupported ground (e.g., a large hole that is covered with a mudsill).

Platform Construction

- Must be planked as fully as possible.
- Gaps between planks must be 1" or less.
- Planks with elongated cracks must be removed from the scaffold platform.
- Unless cleated, planks must extend over supports a minimum of 6" and maximum of 12" (for scaffolds less than 10' in width) or a maximum of 18" (for scaf-

olds greater than 10' in width).

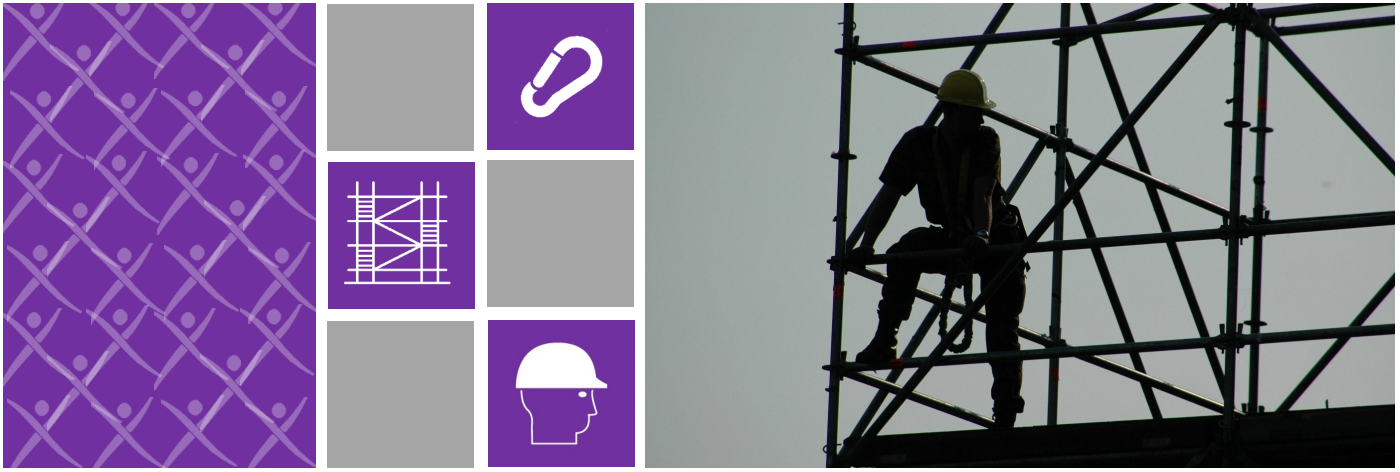
- Unless cleated, planks must be overlapped by at least 12" on supported members of the scaffold.
- Acceptable distances from the building, where work is permitted to be performed without fall protection, are as follows:
 - ◇ 3" from face of work/building when using outrigger.
 - ◇ 14" from face of work/building when using scaffold platform without outrigger platform.
 - ◇ Up to 18" from face of work/building when performing plastering tasks.

Bracing and Securing

- Scaffolds must be braced to remain plumb and to prevent racking.
- Combinations of cross, horizontal, and diagonal bracing, must be used in accordance with manufacturer requirements.
- Guys, ties, or braces are required at a 4:1 height to base ratio.
 - ◇ Repeated every 20' for scaffolds 3' wide or less.
 - ◇ Repeated every 26' for scaffolds wider than 3'.
- Guys, ties, or braces must be installed on each end of the scaffold and spacing between them must not exceed 30'.
- Scaffolds must be secured when debris nets or exterior weather protection is installed, regardless of the scaffold height.

Fall Protection

- Fall protection is required on scaffolds which are 10' above the ground on which they are constructed. Guardrails, personal fall arrest, or safety nets are acceptable forms of fall protection on scaffolds.
- Intersecting points on cross bracing is permitted as a top-rail or mid-rail, but it cannot be both.
 - ◇ Cross brace as top-rail: intersecting point 38-48" above platform.
 - ◇ Cross brace as mid-rail: intersecting point 20-30" above platform.
 - Other forms of guardrail must meet guardrail heights identified in the fall protection section of this binder.
- Do not permit the use of the scaffold as a fall protection anchorage point, unless written approval is provided by the manufacturer or an engineer.
- Account for fall protection in scaffold construction around the building under construction where additional guardrails may be required. Guardrails must always be installed on the end of the platform.
- Fall protection is required during erecting and dismantling operations, unless it can be proven infeasible or that it poses a greater hazard.



Falling Object Protection

- Debris nets, toe boards, or barricaded safe zones at ground level are acceptable options to protect against falling objects.
- If installing a barricaded safe zone, the Competent Person must determine how far away from the scaffold the barricade should be, and what method is to be used (e.g., caution tape, danger tape, orange snow fence, etc.).

Capacity and Deflection

- Scaffolds must be capable of supporting four times the maximum intended load.
- Prior to loading the scaffold, determine the scaffold capacity and maximum intended load. See Scaffold Calculation Sheet in this section.
- Planks must not deflect more than 1/60th of the span when loaded. See Scaffold Calculation Sheet in this section.

Access

- Access, in the form of a ladder or stairway, is required. It is not permitted to use guardrails, frames, or bracing as access.
- When scaffold platforms are 2' or more above or below a point of access, or another work platform, an access method must be installed.
- Direct access horizontally to another scaffold platform cannot exceed 14".
- Scaffold ladders must not be configured in a manner that requires employees to climb more than 35' at a time. Rest platforms must be provided every 35' at minimum.

Inspection and Use

- Must be erected, moved, dismantled, or altered under the supervision and direction of a Competent Person.
- Install tagging system, after inspections, for employee communication on multi-employer worksites.



- ◇ Red tag – Scaffold Not Safe for Use.
- ◇ Yellow tag – Scaffold Under Construction - Authorized Personnel Only.
- ◇ Green tag – Scaffold is Safe for Use.
- Devices to increase working height on platforms, such as ladders, are not permitted.
- Scaffolds must never be used when platforms are covered with snow or ice.

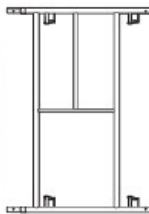


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Descriptive Terminology for Access Frame Scaffolding

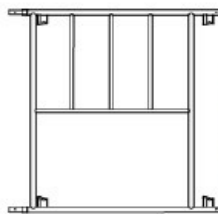
Standard frames

Frames are made up in various widths and heights and for various load capacities. The most common width of frames is 1.5 m (5 ft). However, there are frames 1.2 m (4 ft) and 1.0 m (3 ft), wide in daily use. The height of frames can vary from 1.0 m (3 ft), to 6.0 m (20 ft). Three types of standard frames are shown below.



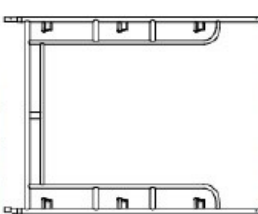
Standard half or bench frame

This frame is 1.0 m (3 ft), high x 1.5 m (5 ft), wide. It is often used at the base of a scaffold, especially with arch frames when height or heavy loading is a factor. It is also used as a make-up when the ground level drops away in excess of 1.0 m (3 ft).



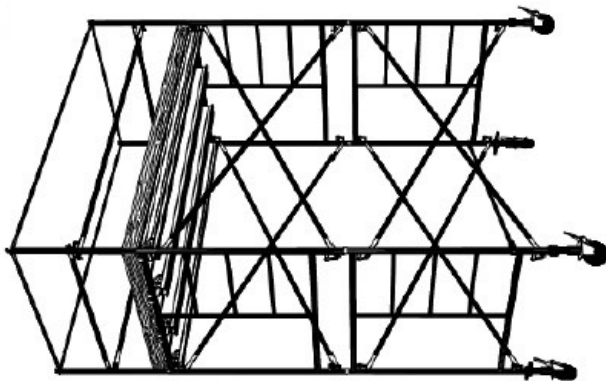
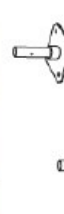
Standard end frame

This frame is 1.5 x 1.5 m (5 x 5 ft) and is often used to form rolling scaffolds. It is also used with side brackets or when the top working lift only is required.



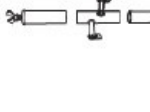
Standard arch or walk-through frame

This frame may vary in width but is generally 2.0 m (6 ft, 6 in.) high. It is used where a multi-trade operation or more than one working level is required. It is also popular with broilers when used with side brackets.



Guardrail

Purpose-made toe in various lengths. Guardrails are fixed to the brace-backs or attached to the post. Check the brace-back spacing to comply with heights for rails.



Guardrail post

Fixed to the top frame of a scaffold structure. Generally two types are available: intermediate and corner post.



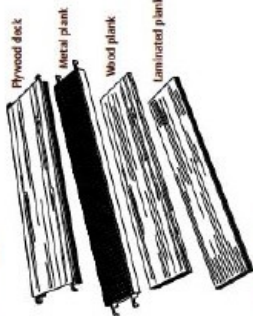
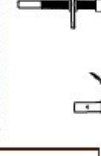
Side or end bracket

Normally a two-piece or one-piece wide bracket. It is hooked onto the face of the scaffold, either to increase the platform width or to create an intermediate platform. It allows workers such as plasterers unimpeded access to the working surface.



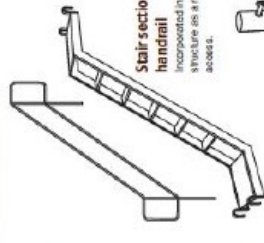
Outrigger bracket

Fixed to the base of a free-standing tower or a rolling scaffold to increase the base dimension. It prevents overturning in accordance with the 3 to 1 rule and rolling scaffolds. It can be used with an adjustable base plate or a caster with screw jack.



Deck or plank

Forms the working or loading platform for persons and materials. The load capacity is determined by the unsupported span of the plank or deck. For manufactured planks or decks, check manufacturer's specifications for loading.



Stair section and handrail

Incorporated into a frame structure as a means of access.



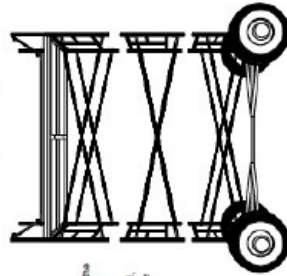
Brace lock

The attachment on the frame leg for installing the cross-brace to the frame.



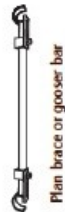
Rigid or gravity pin

Placed through the frame leg and coupling pin to prevent the frames separating.



Farm wagon

A unit with pneumatic tires to form the base of a free-standing tower or rolling scaffold. Make sure that brakes are installed, as well as base jacks to pick up the load in case of a flat tire.



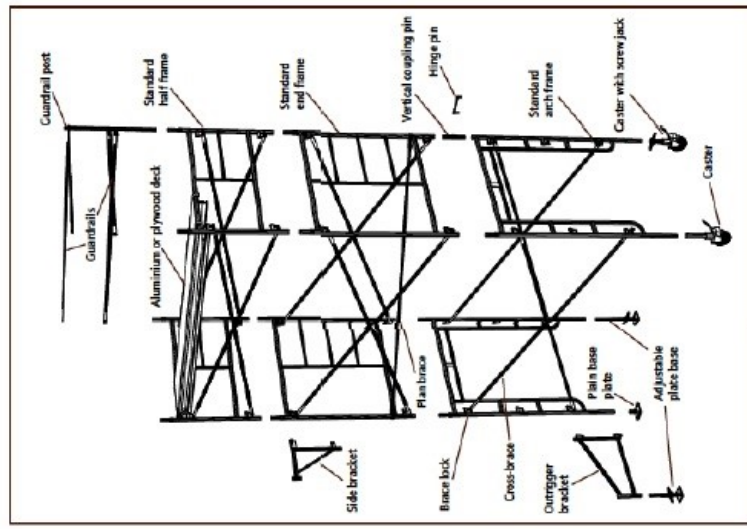
Plain brace or goose bar

Installed at the bottom of a rolling scaffold or a free-standing tower to prevent the structure from resting (going out of square). It may also be required at other heights and spacing according to the manufacturer's or supplier's.



Cross brace

The dimensions are generally determined by the various bays also lengths, from 1.0 m (3 ft), to a maximum of 3.0 m (10 ft). They are used in pairs to join frames together.



Toeboard

Usually made from nominal 1 x 4 in. lumber under the main part of the scaffold platform where there is a possibility of materials or tools falling off the platform. The top of the toeboard must be at least 10 cm (4 in.) above the platform.

Sill or mud sill

Usually made out of wood. Placed under the main part of the scaffold and anything placed on the scaffold (such as materials and workers). The sill can vary in size, from a piece of 12 x 12 x 1/2 in. plywood to a 9 in. x 6 in. x 6 ft. rail, depending on the ground conditions and the anticipated loads (as specified by the manufacturer).



Plain base plate

Installed in the bottom of the legs of frames on a wood sill. The plate screws the downward load on the leg ends and punch through the sill.

Adjustable base plate

Installed in the bottom of the legs of frames and usually seated on a wood sill. The plate can be adjusted by various ground conditions (as specified by the manufacturer).

Access frame scaffolding

Note: Not all of the items that are available for frame scaffolding have been included on this poster. Check your supplier for other items and for all of the manufacturer's specifications that may apply to any of the items shown.

If you have questions on workplace safety, call the WCB Prevention Line at 604-276-5100 in the Lower Mainland or toll-free 1-888-671-SAFE (7233) for the rest of B.C. on www.wcb.bc.ca or 800-663-0000. For Health and Safety Centre on www.wcb.bc.ca or 800-663-0000.

To order this poster (number 02008), phone 1-800-981-2112, local 3068.

Descriptive Terminology
for Access Frame Scaffolding

NU-ERA
SCAFFOLD SOLUTIONS MADE SIMPLE™



Scaffold Calculation Sheet

Scaffold Loading

When loading scaffolds, calculate your maximum intended load prior to accessing and performing work on the scaffold. The maximum intended load includes the weight of personnel, materials, tools, and equipment. **Scaffolds must be capable of supporting four times the maximum intended load.**

As an example, if a scaffold will be loaded with 2,000 pounds of material, equipment, and personnel, that scaffold must have a capacity of 8,000 pounds.

Scaffold Capacity

To calculate the capacity of the scaffold, the square footage of the scaffold platform is multiplied by the weight rating of the scaffold. Each type of scaffold has a different weight rating that it is capable of supporting, if it has been properly constructed. Common scaffolds include light, medium, and heavy duty scaffolds.

Light duty scaffolds – 25 lbs./square ft.

Medium Duty Scaffold – 50 lbs./square ft.

Heavy Duty Scaffold – 75 lbs./square ft.

NOTE: Check with the manufacturer of the scaffold. Some scaffolds may have weight ratings different than the common three categories of scaffolds.

After determining the weight rating of the scaffold, calculate the square footage of the full platform and multiply it by the weight rating.

As an example, to obtain the capacity of a medium duty scaffold that is 80 square feet, perform the following calculation:

$$50 \text{ lbs./square ft.} \times 80 \text{ square ft.} = 4,000 \text{ lbs. capacity}$$

Because scaffolds must be capable of supporting four times the maximum intended load, a scaffold which has a capacity of 4,000 pounds cannot be loaded with more than 1,000 pounds of material.



LUMBER GRADING

Scaffold-grade lumber is meant to withstand forces not imposed on ordinary, construction-grade wood (which is only two-thirds the capacity of scaffold-grade). Using construction-grade lumber on a scaffold platform is an unsafe practice and an invitation to a deadly incident.

Solid sawn wood used for scaffold planks should follow the grading rules of a recognized *lumber grading association* or an *independent lumber inspection agency* and be identified by that agency's grade stamp.

ALLOWABLE SPANS

The span of a scaffold plank is the distance it runs between supports. The longer the span the more deflection (bend) it will have, and, therefore the less load bearing capacity will be. For 2 X 10 (nominal) or 2 X 9 (rough) solid sawn planks, allowable spans for a given load are shown below:

Maximum Intended Permissible Span Load	Maximum Permissible Span Using Full Thickness Lumber	Maximum Permissible Span Using Nominal Thickness Lumber
25 lbs. / square foot	10 feet	8 feet
50 lbs. / square foot	8 feet	6 feet
75 lbs. / square foot	6 feet	-----

ALLOWABLE DEFLECTION

To assure that scaffold planking remains within its safe load-bearing capacity, it is not permitted to deflect more than $1/60^{\text{th}}$ of its span between supports when loaded. To calculate the allowable deflection of a scaffold plank, convert the span of the plank being loaded from feet to inches (10' span = 120"). Divide the number of inches in the span by 60. Example calculations for common spans are shown below.

Scaffold Inspection Form

Date of Inspection:	Time:
Location of Scaffold:	
Inspected by (Designated Competent Person):	

BEFORE USING THE SCAFFOLD-

Has this work location been examined before the start of work operations and have all the appropriate precautions been taken?

e.g. checking for: overhead objects, falling or tripping hazards, uneven ground, opening onto a door.

Will fall protection be required when using this scaffold?

Has the scaffold been setup according to manufacturer's instructions?

General Rules for All Scaffolds	YES	NO	N/A
Scaffold components can support at least four times their maximum intended load.	<input type="checkbox"/>	<input type="checkbox"/>	
Scaffold is fully planked- No more than 1" gap between planks.	<input type="checkbox"/>	<input type="checkbox"/>	
Platform is at least 18 inches wide (12 inches on pump jacks).	<input type="checkbox"/>	<input type="checkbox"/>	
Guardrails are used or personal fall arrest system is used, if work height is >10 feet. Guardrail system: <input type="checkbox"/> Toprail <input type="checkbox"/> Midrail <input type="checkbox"/> Toeboard <input type="checkbox"/> Posts	<input type="checkbox"/>	<input type="checkbox"/>	
Scaffold is 14" or less from face of work, if workers remove front guardrails (18" for plasterers).	<input type="checkbox"/>	<input type="checkbox"/>	
Planks do not extend past the ends of the scaffold frames more than 12 inches.	<input type="checkbox"/>	<input type="checkbox"/>	
Casters are locked before work begins.	<input type="checkbox"/>	<input type="checkbox"/>	
Work platform free of clutter, mud, snow, oil or any tripping hazard.	<input type="checkbox"/>	<input type="checkbox"/>	
Minimum power line clearance (10 feet)	<input type="checkbox"/>	<input type="checkbox"/>	
If the scaffold is defective, has it been removed from service and tagged out?	<input type="checkbox"/>	<input type="checkbox"/>	
General Rules for Supported Scaffolds			
Height to base width ratio is: Less than 4:1 (no guying, ties, or braces required)	<input type="checkbox"/>	<input type="checkbox"/>	
Over 4:1 scaffolds are restrained from tipping by guying, tying, or bracing.	<input type="checkbox"/>	<input type="checkbox"/>	
All scaffold frames and uprights use base plates (mud sills required if on dirt)	<input type="checkbox"/>	<input type="checkbox"/>	
Footings are level, sound, and rigid. No settling has occurred.	<input type="checkbox"/>	<input type="checkbox"/>	
Unstable objects such as blocks, bricks, buckets, etc. are not used as work platforms or to support scaffolds.	<input type="checkbox"/>	<input type="checkbox"/>	
Are riggers secured and installed correctly?	<input type="checkbox"/>	<input type="checkbox"/>	
General Rules for Access			
No more than 2' step up or down or a 14" step across to get on or off a platform.	<input type="checkbox"/>	<input type="checkbox"/>	
Ladder first rung is not more than 24" above the ground.	<input type="checkbox"/>	<input type="checkbox"/>	
Hook-on and attachable ladders are designed for the scaffold.	<input type="checkbox"/>	<input type="checkbox"/>	
Add-on ladders must have a rung length of at least 11 1/2"	<input type="checkbox"/>	<input type="checkbox"/>	
Built in ladders (part of the scaffold frames) must have a rung length of at least 8".	<input type="checkbox"/>	<input type="checkbox"/>	
Rungs line-up vertically for the entire height of the scaffold.	<input type="checkbox"/>	<input type="checkbox"/>	
Cross braces are not used for climbing up or down from the scaffold.	<input type="checkbox"/>	<input type="checkbox"/>	

Scaffolding is complete and compliant per OSHA Standards and safe to use

Scaffolding is incomplete. DO NOT USE!

Signature of Competent Person: _____ Date: _____

Field Superintendent Handbook



Trenching & Excavation

<i>Included in this section</i>	<i>Page</i>
Before You Dig	2
Trench and Excavation Differences	2
Inspections	2
Soil Types	3
Overview of General Conditions ...	3
Access and Egress	3
Protective Systems	3
Rigging, Material Handling, and Mobile Equipment.....	4
Confined Spaces	4
Trenching and Excavation Inspection Form	5

Trenching and Excavation



You have the power to prevent trench collapses on your jobsite!

Background

- Approximately 25 employees every year are killed in a trench collapse.
- Cave-ins and trench collapses are considered to be unpredictable and without warning.
- The fatality rate for excavation construction is considered to be 112% higher than that of general construction.

How To Do It

- Collect and review letters from subcontractors:
 - ◊ Identifying who their designated Competent Person is for trenching and excavation.
 - ◊ Certifying that employees have been trained to work in trenches, evaluate soil types, use and install protective systems, and identify common trenching and excavation hazards.
- Determine if the subcontractor will enter confined spaces as part of their scope of work.
- If confined space work is expected, collect and review letters from subcontractors, certifying that employees have been trained to work in confined spaces.
- Conduct and document daily inspections of all trenches and excavations that you are responsible for controlling, prior to employees accessing to perform work. Examples include mass excavations or trenches and excavations in which all contractors will be required to enter.
- Communicate to correcting employers where protective systems are required.
- Verify that correcting employers are inspecting work areas sufficiently, for trenching and excavation hazards, and promptly correcting hazards.
- Issue notice to stop work or remove employees from work areas where exposure to uncontrolled trenching and excavation hazards are present.

What Your Subcontractors Need To Do

- Identify their Competent Person for trenching and excavation. Subcontractors need to specifically state who it is and give them authority to take prompt corrective actions. See Competent Person letter in the Letters section of this binder.
- Provide documentation that employees are trained in the identification of common trenching and excavation hazards, installation and use of protective systems, and classification of soil types. See Request for Training letter in the Letters section of this binder for documentation.
- Inspect trenches and excavations daily, prior to employee exposure and after every major rainstorm event which could impact the soil classification, to identify any uncontrolled trench/excavation hazards. See recommended Trenching and Excavation Inspection Form in this section.





- Inspect portable ladders used for trench access prior to each use.
- If necessary, perform assessments of confined spaces prior to entry.
- Document pre-entry and confined space classification steps using the Confined Space Entry Classification and Hazard Assessment Form in the Confined Space section of this binder.
- Control the work area to ensure that exposure to mobile equipment or access to the open trench is limited and restricted.

“Before You Dig”

- Call 811 (Ohio Utility Protection Service - OUPS) two days before you are scheduled to excavate, to obtain a dig ticket.
- Provide OUPS with the requested information and do not begin excavation work until they mark utilities in the area. OUPS will verify their markings for 72 hours from when they originally marked the lines.
- After 72 hours, if necessary, request OUPS re-mark utilities.

Trench and Excavation Differences

- An excavation is generally considered to be wider than it is deep and greater than 15 feet in width. Examples may include mass excavations, large footers, or building foundations.

- A trench is considered to be a narrow excavation that is deeper than it is wide.
- Excavations do not require a protective system if they are wider than they are deep and greater than 15 feet in width. However, an excavation may become a trench if a structure is placed within 15 feet of an unprotected wall.

Inspections

- Prior to entering the trench at the beginning of each shift, a Competent Person must perform both a visual and manual inspection.
- Inspections by a Competent Person are required in all trenches/excavations, regardless of depth.
- All daily inspections should be documented. See the recommended Trenching and Excavation Inspection Form in this section.
- Visual inspections include a visual review of the soil conditions and surrounding area, to determine if hazardous conditions are present.
- Manual inspections involve manually evaluating the soil for strength and cohesiveness. Methods include:
 - ◊ use of a pocket penetrometer;
 - ◊ thumb penetration; or
 - ◊ plasticity test.

Perform manual inspections on soil taken from the nearby spoil pile. It is best to perform more than one manual method using more than one piece of soil.

Soil Types

- Stable Rock: Does not require a protective system and should not be classified unless you have consulted an engineer or geologist.
- Type A: Most stable to excavate and is cohesive and clay-like. It cannot be classified as Type A if it has cracks or fissures, has been previously excavated, or is exposed to heavy vibration (e.g., pile driving nearby).
- Type B: Fairly cohesive soil that has some cracking. Soil that has been previously excavated, but otherwise would be considered Type A, is classified as Type B.
- Type C: Loose and granular particles that do not stick together and are not stable. Wet and moisture-filled soil is considered Type C.



Overview of General Conditions

- A protective system is required at five feet and any depth before five feet where potential for a cave-in exists.
- Methods of access and egress are required for trenches and excavations at depths four feet and greater.
- Spoil piles, and piles of excavated materials, must be placed at least two feet away from the edge of the excavation. Failure to adequately place spoil piles results in the height of the spoil pile being added to the depth of the trench.
- Work in a trench is not permitted if standing water is present. Take steps to de-water all trenches prior to access.
- Work in trenches is generally considered more hazardous in the winter, due to freeze and thaw of soils and ground.

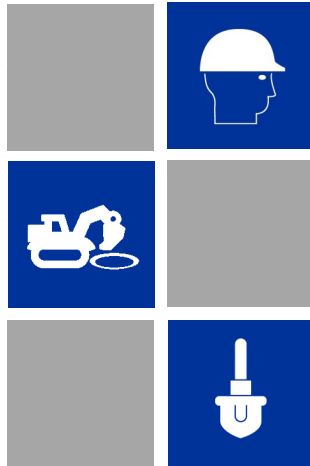
Access and Egress

- Methods of access and egress are required for trenches and excavations at depths four feet and greater.
- Horizontal spacing, between access and egress points, must not exceed 25 feet.
- Acceptable methods of access and egress include ladders, stairs, and ramps.
- Ladders must extend three feet above the top of the trench or trench box.

- Use catwalk systems, when necessary, to reach structures or to safely enter and exit trench boxes.

Protective Systems

- Protective systems are required on all trenches greater than five feet in depth and in trenches less than five feet deep in which inspections indicate the potential for a cave-in.
- Protective systems include sloping, benching, shoring, and shielding.
- Protective systems, in trenches deeper than 20 feet, will require the approval of a registered professional engineer.
- Sloping is permitted in any soil type, but the slope angle is dependent on the soil type identified during soil classification.
 - ◇ Type A: $\frac{3}{4}$ to 1 (53 degrees)
 - ◇ Type B: 1 to 1 (45 degrees)
 - ◇ Type C: $1\frac{1}{2}$ to 1 (34 degrees)
- Benching is only permitted in Type A and B soil.
 - ◇ The vertical height of the first bench in the bottom of the trench must not exceed four feet.
 - ◇ Subsequent benches may be up to five feet high in Type A soils and up to four feet high in Type B soils.
 - ◇ Horizontal bench must be adequate enough to ensure the appropriate angle for the soil type (e.g., Type A – 53 degrees and Type B – 45 degrees).
- Shoring provides a force that is applied opposite that of the unsupported wall. Shore jacks, aluminum shoring, timber shoring, and hydraulic shoring are acceptable forms of protective systems.
- Shoring must be installed from top down and removed bottom up.
- Trench boxes will shield employees from trench collapses.
- Trench boxes must be installed as close to the trench wall as possible. The box must extend at least 18" above the top of the trench. No more than two feet of ground is permitted below the trench box in the bottom of the trench.
- The Competent Person must verify that shoring and trench boxes are installed correctly and in accordance with the manufacturer's tabulated data. Daily trench inspections must include inspection of the protective system.



Rigging, Material Handling, and Mobile Equipment

- When placing material in the trench, ensure that spotters and laborers are never in the path of the material being placed. Never stand under the bucket of an excavator.
- Lift material only from approved lifting points on forklifts or excavators. Free-rigging, and lifting from non-approved lifting points, would result in unsecured loads and is not permitted.
- All rigging equipment must be inspected prior to each use.
- Position the excavator to pull trench boxes and excavate by tracking backwards. It is generally not considered a good practice to place the excavator on the side of the trench.
- If excavation work occurs on an active roadway, verify that buffer zone is established between the work area and active traffic, to prevent the excavator from striking vehicles while swinging. Use spotters and traffic control if necessary.

Confined Spaces

- A confined space has each of the following characteristics:
 - ◇ Large enough to enter and perform work;
 - ◇ Not intended for continuous occupancy; and
 - ◇ Has limited or restricted means of entry or egress.
- Spaces like manholes, vaults, storm sewers, etc., that are installed by excavation crews, typically meet the three characteristics of a confined space.
- Crews must assess the space and determine if it is a confined space or not. Confined spaces must then be classified as either:
 - ◇ non-permit;
 - ◇ alternate; or
 - ◇ permit-required.Determine classification using confined space forms in this tab.
- All pre-entry steps (including air monitoring, assessment, and classification) must be documented.



140 N Otterbein Ave
Westerville OH 43081
614.890.0800 | www.safex.us

DAILY CHECKLIST - TRENCHES AND/OR EXCAVATIONS

AT MINIMUM, SECTIONS 1 & 2 ARE REQUIRED TO BE FILLED OUT FOR EXCAVATIONS GREATER THAN 4 FEET OR WHERE SOIL/SITE CONDITIONS WARRANT OR REQUIRE SLOPING, TRENCHING, OR SHORING AS DEEMED BY THE COMPETENT PERSON.

SITE ADDRESS/CROSS STREETS:

DATE: _____ TIME: _____ PROJECT START DATE: _____

COMPETENT PERSON NAME:

SIGNATURE:

EXCAVATION DEPTH: _____ EXCAVATION WIDTH: _____ EXCAVATION LENGTH: _____

NAME OF EMPLOYEES ON JOBSITE:

DATE & TITLE OF TAILGATE:

EXCAVATION: An excavation is any man-made cut, cavity, trench, or depression in the earth's surface formed by earthremoval.
TRENCH: A trench is defined as a narrow underground excavation that is deeper than it is wide, and no wider than 15 feet(4.5 meters).
COMPETENT PERSON: A Competent Person is one who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees.
 The Competent Person has the authority to impose prompt corrective measures to eliminate these hazards. This includes the authority to remove employees from the excavation immediately.

Indicate for each item: YES - NO - or N/A for not applicable	YES	NO	N/A
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1. Underground Service Alert & Underground Utility Owners:

A. Underground Service Alert contacted on: ____/____/____ Expiration Date: ____/____/____
 Extension Date: ____/____/____

B. Inquiry identification number given by the Underground Service Alert # _____

C. Were all applicable utility owners contacted? (check below)
 Communication Electric Gas Oil Other _____ Sewer Water

2. General Inspection of Jobsite:

A. Are the locations of the utilities marked?

B. Prior to starting any excavation, take photographs or sketch markings (white marks and utility marks) that are present.

C. Hand-expose lines to a point of no conflict (24 inches on either side of the underground installation). Power-operated or power-driven equipment may be used for removal of existing pavement only if there are no underground installations contained in the pavement. If marked utility cannot be located, excavation must not proceed and you must notify 811 or the utility provider to provide additional information to determine the exact location.

D. Document conditions of all utilities as soon as exposed.

E. Damage to underground installations caused or discovered by excavation must be reported to the installation operator immediately. If installation operator cannot be contacted for high-priority lines, 911 must be called.

F. Are underground installations protected, supported, or removed when excavation is open?

G. Before the start of work, a competent person has completed a daily visual inspection of the excavation's adjacent areas.

H. Personal Protective Equipment (PPE) worn by all employees (hard hats, traffic safety vests, fall protection as applicable, etc.).

DAILY CHECKLIST - TRENCHES AND/OR EXCAVATIONS

2. General Inspection of Jobsite (Continued):	YES	NO	N/A
I. Spoils, materials, and equipment set back at least 2 feet from the edge of the excavation.			
J. Barriers provided for excavations, wells, pits, shafts (fenced, plated, backfilled, etc.).			
K. Walkways and bridges over excavations 6 feet or deeper or wider than 30 inches are equipped with standard guardrails and toe boards.			
L. Employees reminded to stand away from vehicles being loaded or unloaded.			
M. Warning system established and utilized when mobile equipment is operating near the edge of the excavation.			
N. There shall be no excavation of material greater than 2 feet below the bottom of the support system and only if the system is designed to support the loads calculated for the full exposed excavation depth.			

3. Means of Access and Egress:	YES	NO	N/A
A. In trenches of 4 feet or deeper, ladders or other safe means of access/egress are located within 25 feet of the work area, secured, and extend 3 feet above the edge of the trench.			

4. Wet Conditions:	YES	NO	N/A
A. Water removal equipment and operations monitored by a Competent Person.			
B. Surface water or runoff diverted or controlled to prevent accumulation in or adjacent to the excavation.			
C. Re-inspection made following a rainstorm, earthquake, or other hazard-increasing occurrence during this day. Re-inspection time: _____			

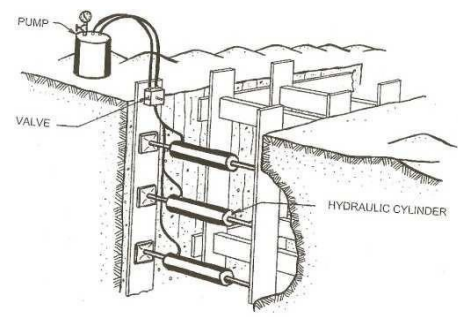
5. Support Systems Sloping/Shoring/Shielding:	YES	NO	N/A
A. Three primary options: Note: If an excavation is deeper than 5 feet, sloping, shoring, or shielding is required by Cal/OSHA; except for excavations entirely in stable rock (very rare!). If an excavation is less than 5 feet and a potential for a cave-in is determined by the Competent Person, sloping, shoring, or shielding is required. A 4th option is a system signed off by a Registered Professional Engineer with stamp of approval.			

Option #1 - Sloping
 [For excavations less than 20 feet deep.] Sloping/benching greater than 20 feet shall be designed by a registered professional engineer.

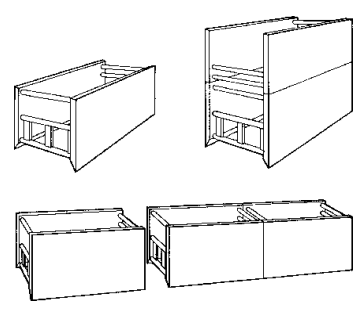
SOIL TYPE	MAXIMUM ALLOWABLE SLOPE (H:V)
Type C	1½ : 1 or 34°
Type B	1:1 or 45°
Type A	¾:1 or 53°
Stable Rock	Vertical or 90°

Requirements for Protective Systems, Appendix B.

Option #2 - Shoring (Speed Shores or Full Sheet Shoring) [Shoring must be installed according to charts in the Cal/OSHA standard or the manufacturer's tabulated data, and these charts or data must be on-site.]



Option #3 - Shielding
 [Shielding must be installed according to the manufacturer's tabulated data, and this data must be on-site.]



Indicate for each item: YES - NO - or N/A for not applicable	YES	NO	N/A
B. Materials and/or equipment for support systems selected based on expected loads.			
C. Materials and/or equipment for support systems selected based on trench depth.			

DAILY CHECKLIST - TRENCHES AND/OR EXCAVATIONS

D. Materials and/or equipment for support systems selected based on soil type.

E. Materials and equipment used for protective systems inspected and in good condition.

GOOD	FAIR	POOR
------	------	------

6. Current Condition of Utility/Utilities Once Exposed:

7. Hazardous Atmosphere:

A. Bump Test

Serial No.	Successful (Yes/No)	Calibrated Yes/No	User Initial

B. Where there is a reasonable possibility of an oxygen deficiency (less than 19.5% oxygen), combustible (gas in excess of 10% of the lower explosive limit) hazard or other harmful contaminant exposing employees to a hazard, the atmosphere will be tested. Air monitoring shall be performed before every entry into the trench and the result will be documented below.

Time	O ₂ (%)	LEL (%)	H ₂ S (PPM)	CO (PPM)

8. Trench Security/Backfilling: Was the excavation or trench (check one):

Fenced Plated Backfilled

Reference: GREENBOOK Standard Specifications for Public Works Construction 2012

9. Comments:

Field Superintendent Handbook



Confined Space

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Confined Space

You have the power to control confined space incidents and prevent them on your jobsite!

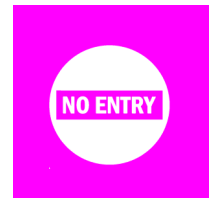
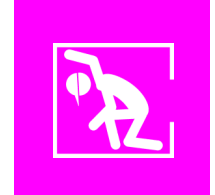


Background

- A confined space is a space defined as:
 - Limited or restricted by means of entry and/or exit
 - Large enough for a worker to enter and perform work
 - Not intended for regular/continuous occupancy
- Some common examples of confined spaces on construction sites are:
 - Tanks
 - Pits
 - Sewers/pipelines
 - Utility vaults
 - Tank cars
- Confined space entries lead to approximately 92 fatalities and thousands of injuries each year.
- Of those incidents, 95% of the entries were authorized by supervision and 85% of the time, a supervisor was even present.
- The main reasons workers enter into a confined space is to perform their work functions of routine maintenance, repairs, and inspections.

How To Do It

- Ensure that all spaces on your site, that could be considered confined spaces by the criteria above, are evaluated, assessed, and properly labeled by a Competent Person.
- Collect and review documents from subcontractors:
 - Identify who their designated Competent Person is for fall protection.
 - Ensure they have a written permit space program.
 - Certifying that employees have been trained in confined space hazards, entry and rescue procedures.
 - Identify who is authorized for entry, who will be the attendant, and what their emergency procedures are.
- Ensure unauthorized employees and contractors do not enter into confined spaces.
- When confined space entry is to occur, collect all entry permits and documentation from the authorized contractor.
- Issue a notice to stop work, or remove a specific employee, if you find confined space entry procedures are not being followed.





Permit Space Entry Communications and Coordination

Before entry operations begin, you must provide to following information, if you have it, to the authorized contractor:

- The location of each known permit space;
- The hazards or potential hazards in each space or the reason it is a permit space; and
- Any precautions that the host employer, or any previous controlling contractor or entry employer, implemented for the protection of employees in the permit space.

What Your Subcontractors Need To Do

- Identify their Competent Person for confined spaces, specifically state who this is, and give them authority to take prompt corrective actions. See Competent Person letter in the Letters section of this binder.
- Provide documentation that employees are trained in confined space hazards, entry, and rescue procedures. See Request for Training letter in the Letters section of this binder.
- If they can't, or aren't authorized to, correct a hazard, then they must avoid the work area until it is fixed and notify the controlling contractor.
- Conduct appropriate monitoring, prior to employee entry into the spaces. Follow the confined space entry permits and procedures established for the space.

- Inspect rescue equipment prior to each use.
- Develop and implement procedures for summoning rescue and emergency services for:
 - rescuing entrants from permit spaces;
 - providing necessary emergency services to rescued employees; and
 - preventing unauthorized personnel from attempting a rescue.

Harnesses and Rescue Equipment

- It is the responsibility of the contractor using the equipment to inspect prior to each use.
- If a hoisting system is used, it must be designed and manufactured for personnel hoisting; however, a job-made hoisting system is permissible if it is approved for personnel hoisting by a registered professional engineer, in writing, prior to use.
- Evaluate swing potential if emergency rescue is needed. Employees should not deviate more than 15 degrees away from the point of anchorage and should not strike anything when being cranked out of the space.
 - Gas meters should be bump tested before use and have their batteries checked.
 - Communication equipment (e.g., radios, phones, etc.) should be fully charged and tested.

Ladders

- Ladders used for access into and out of a confined space must extend 3' above the walking-working surface. This must be measured from the top of the ladder (not by counting three rungs).
- The correct ladder must be used for each task. Straight and extension ladders are permitted to be used for access. Step ladders are considered working platforms only.



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CONFINED SPACE ENTRY CLASSIFICATION AND HAZARD ASSESSMENT FORM

Company: _____ Date: _____

Space Evaluated: _____ Evaluator: _____

Description of Space: _____

- | | Yes | No | N/A |
|--|--------------------------|--------------------------|--------------------------|
| 1. Can an employee enter the space and perform assigned work within the space? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Are there limited or restricted means of entry and/or exit? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Was the space designed for continuous human occupancy? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

If you answered "no" to #1 or #2 or you answered "yes" to #3, this space is not a confined space as defined by OSHA 29 CFR 1910.146 Confined Space Standard. Please sign here and complete the classification section at the end of this form.

Signature Date

For all spaces classified as confined spaces please complete the following hazard assessment.

- | | Yes | No | N/A |
|---|--------------------------|--------------------------|--------------------------|
| 4. Can the space be oxygen deficient or enriched?
Explain: _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Can the space contain a flammable atmosphere?
Explain: _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Can the space contain a toxic atmosphere?
Explain: _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Is there material in the space which could engulf an entrant? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7a. If yes, can the material be removed prior to entry?
If "no" to 7a, space is a permit required confined space.
If "yes" to 7a, explain _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Are there hazards on the walking/working surfaces which could cause entrants to trip or slip or fall while in the confined space?
If "yes" can these hazards be removed prior to entry?
If "no" to 8a, space is permit required confined space.
If "yes" to 8a, explain _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Does the space have inwardly converging walls? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Does the space contain an energy source? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10a. If "yes" can the energy source be de-energized and locked out prior to entry?
If "no" to 10 a space is a permit required confined space.
If "yes" to 10a, explain: _____ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Alternate Space Entry Certificate

Alternative procedures may be used for confined-space entry if the only hazard within the space is an atmospheric hazard and the hazard can be controlled to acceptable safe levels solely by forced-air ventilation. If the space must be entered to determine hazards, the initial entry must be done in full compliance with the requirements of a confined-space entry permit.

1.0 GENERAL INFORMATION						
Date of Entry:		Duration of Entry:		Certification Expiration Date:		
Space Location:						
Confined Space Profile #:						
Description of Space:						
Purpose of Entry:						
Atmospheric Hazards Expected: <input type="checkbox"/> Oxygen Deficiency <input type="checkbox"/> Oxygen Enrichment <input type="checkbox"/> Flammable Vapors <input type="checkbox"/> Toxics (specify):						
Entry Supervisor (ES):				Attendant(s):		
2.0 CERTIFICATE REQUIREMENTS						
Yes N/A						
<input type="checkbox"/>	<input type="checkbox"/>	Required Energy Isolation Completed				
<input type="checkbox"/>	<input type="checkbox"/>	Engulfment Hazards Removed				
<input type="checkbox"/>	<input type="checkbox"/>	No non-atmospheric hazards remain in this space				
<input type="checkbox"/>		Communication methods established between entrants and the attendant				
<input type="checkbox"/>		Continuous forced-air ventilation is positioned in the immediate area where entrants are working.				
3.0 ATMOSPHERIC MONITORING						
Frequency: <input type="checkbox"/> Prior to Entry <input type="checkbox"/> Continuous <input type="checkbox"/> Periodic (specify):						
Instruments: <input type="checkbox"/> O ₂ Monitor <input type="checkbox"/> Combustible Gas Indicator <input type="checkbox"/> CO Monitor <input type="checkbox"/> H ₂ S Monitor <input type="checkbox"/> Other(specify):						
Substances Monitored: <input type="checkbox"/> Oxygen <input type="checkbox"/> Flammables <input type="checkbox"/> CO <input type="checkbox"/> H ₂ S <input type="checkbox"/> Other (specify):						
Monitoring Results		Oxygen	Flammability	Toxicity		
Monitors	Limits	19.5 – 23.5 %	< 10 % of LEL	< PEL/TLV		
Initials	Date Time	%	% of LEL	Substance	Level	Limit
4.0 CERTIFICATE AUTHORIZATION AND CANCELLATION						
Entry Supervisor Signature		Employee Number	Date	Time		
Entry Authorized						
Entry Canceled						
Problems Encountered During Entry						

Confined Space Entry Permit

General Information

Location: _____
 Description of Space: _____
 Purpose of Entry: _____
 Confined Space Profile Number: _____
 Additional Permits Required? YES NO
 Hot Work Permit Other: _____

If additional permits are required please attach them to the confined space permit.

Permit Duration (Permit is Only Valid for One Shift)

From: Date: _____ Time: _____
 To: Date: _____ Time: _____

Identified Potential Hazards Associated with Entry*

	Y	N		Y	N		Y	N		Y	N
Oxygen Def.	<input type="checkbox"/>	<input type="checkbox"/>	Entrapment	<input type="checkbox"/>	<input type="checkbox"/>	Spark	<input type="checkbox"/>	<input type="checkbox"/>	Toxics (list)	<input type="checkbox"/>	<input type="checkbox"/>
Oxygen Enrich.	<input type="checkbox"/>	<input type="checkbox"/>	Mechanical	<input type="checkbox"/>	<input type="checkbox"/>	Pressure	<input type="checkbox"/>	<input type="checkbox"/>	_____		
Comb. Dust	<input type="checkbox"/>	<input type="checkbox"/>	Electrical	<input type="checkbox"/>	<input type="checkbox"/>	Steam/Heat	<input type="checkbox"/>	<input type="checkbox"/>	_____		
Flam. Vapor	<input type="checkbox"/>	<input type="checkbox"/>	Fall	<input type="checkbox"/>	<input type="checkbox"/>	Hot Surfaces	<input type="checkbox"/>	<input type="checkbox"/>	Other	<input type="checkbox"/>	<input type="checkbox"/>
Drowning	<input type="checkbox"/>	<input type="checkbox"/>	Corrosives	<input type="checkbox"/>	<input type="checkbox"/>	Chemicals	<input type="checkbox"/>	<input type="checkbox"/>	_____		
Gulphment	<input type="checkbox"/>	<input type="checkbox"/>	Noise	<input type="checkbox"/>	<input type="checkbox"/>	Spilled Liquid	<input type="checkbox"/>	<input type="checkbox"/>	_____		

* Hazards inside the space and that may occur as part of the activities planned inside the space.

Hazard Elimination/Control Ventilation

Isolation	Y	N	N/A	Purging/Venting	Y	N	N/A
Machinery Lockout/Tagout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Liquids Drained	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electrical Lockout/Tagout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Liquid/Vapor Purged	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Piping Block/Bleed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ergulung Solids Removed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Piping Block/Blind	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Exhaust Ventilation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Barriers, Cones	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Natural Ventilation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (describe) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Forced Air Ventilation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				Other (describe) _____			

Protective and Rescue Equipment

Item	Yes	No	Type	Item	Yes	No	Type
Gloves	<input type="checkbox"/>	<input type="checkbox"/>	_____	Goggles	<input type="checkbox"/>	<input type="checkbox"/>	_____
Apron	<input type="checkbox"/>	<input type="checkbox"/>	_____	Face Shield	<input type="checkbox"/>	<input type="checkbox"/>	_____
Chemical Suit	<input type="checkbox"/>	<input type="checkbox"/>	_____	Fire Extinguisher	<input type="checkbox"/>	<input type="checkbox"/>	_____
Hearing Protection	<input type="checkbox"/>	<input type="checkbox"/>	_____	Hard Hat	<input type="checkbox"/>	<input type="checkbox"/>	_____
Boots/Shoes	<input type="checkbox"/>	<input type="checkbox"/>	_____	Lighting	<input type="checkbox"/>	<input type="checkbox"/>	_____
Coveralls	<input type="checkbox"/>	<input type="checkbox"/>	_____	Hoist	<input type="checkbox"/>	<input type="checkbox"/>	_____
GFCI	<input type="checkbox"/>	<input type="checkbox"/>	_____	Lifeline & Harness	<input type="checkbox"/>	<input type="checkbox"/>	_____
Respirator	<input type="checkbox"/>	<input type="checkbox"/>	_____	Tripod	<input type="checkbox"/>	<input type="checkbox"/>	_____
Respirator Cart/Filter	<input type="checkbox"/>	<input type="checkbox"/>	_____	First Aid Kit	<input type="checkbox"/>	<input type="checkbox"/>	_____
Safety Glasses	<input type="checkbox"/>	<input type="checkbox"/>	_____	Other	<input type="checkbox"/>	<input type="checkbox"/>	_____

Emergency Phone Numbers	Name	Number (Day/Night)
Rescue		
Fire		
Police/Security		
Ambulance		
Entry Supervisor		
Non- Entry Rescue: Yes <input type="checkbox"/> No <input type="checkbox"/> Winch Yes <input type="checkbox"/> No <input type="checkbox"/> Tripod Yes <input type="checkbox"/> No <input type="checkbox"/> Harness Yes <input type="checkbox"/> No <input type="checkbox"/> Secondary Fall Arrest Yes <input type="checkbox"/> No <input type="checkbox"/>		Entry Rescue: Yes <input type="checkbox"/> No <input type="checkbox"/> Entry Rescue Plan:

<i>Project Personnel</i>	<i>Permit Reviewed</i>		<i>Permit Reviewed</i>
Entry Supervisor (Print)	Initials		
Authorized Entrants (Print)	Initials	Authorized Entrants (Print)	Initials
1.		4.	
2.		5.	
3.		6.	
Available Attendants (Print)	Initials	Authorized Attendant (Print)	Initials
1.		4.	
2.		5.	
3.		6.	

**The entry supervisor is responsible for ensuring that all personnel have been trained to the position assigned and have reviewed the permit prior to entry into the space. Additional Entrants can be listed on the back of this form.*

Atmosphere Monitoring							
Frequency							
Initial	<input type="checkbox"/>	Continuous	<input type="checkbox"/>	Periodic	<input type="checkbox"/>	Other	<input type="checkbox"/>
Initial Monitoring Results							
Date	Time	Oxygen	Combust. Gas	H ₂ S	CO	Other	Initials of Tester

Instruments Used			
Type	Model	Calibrated Prior to Use	
		Yes	No
		Yes	No

I certify that all above conditions have been satisfied.

Authorized Confined Space Entry Supervisor _____
 Signature _____ Date _____

Permit Cancelled Time : _____
 Signature _____ Date _____

Confined-Space Non-Permit Certificate

This certificate may be used for confined spaces that pose no actual or potential atmospheric hazard above acceptable safe levels and if all non-atmospheric hazards can be eliminated without entry into the space.

1.0 GENERAL INFORMATION				
Project:		Project #:		PM:
Date of Entry:		Duration of Entry:		Certification Expiration Date:
Space Location:				
Description of Space:				
Purpose of Entry:				
2.0 CERTIFICATE REQUIREMENTS				
Yes	N/A			
<input type="checkbox"/>	<input type="checkbox"/>	Actual or potential atmospheric hazard do not exist or have been eliminated for this space.		
<input type="checkbox"/>	<input type="checkbox"/>	All energy isolating procedures have been completed for safe entry into the space.		
<input type="checkbox"/>	<input type="checkbox"/>	All engulfment hazards have been removed and all potential engulfment hazards have been eliminated.		
<input type="checkbox"/>	<input type="checkbox"/>	Non-atmospheric hazards do not exist in this space or have been eliminated without entry.		
<input type="checkbox"/>	<input type="checkbox"/>	Communication methods have been established between entrants and a second employee on site.		
<input type="checkbox"/>	<input type="checkbox"/>	Entrants have been informed to exit the space if any hazard is observed.		
3.0 CERTIFICATE AUTHORIZATION AND CANCELLATION				
	Entry Supervisor Signature		Employee #	Date
Entry Authorized				
Entry Canceled				
4.0 AUTHORIZATION/ACCOUNTABILITY LOG				
The following individuals have successfully completed confined space training, have attended a pre-entry briefing, and are authorized to enter the space.				
Name of Entrant				
Problems Encountered During Entry:				

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Background

- Electrical injuries in occupational settings are the fourth leading cause of workplace related deaths.
- The dangers of electricity are separated into four categories:
 - ◇ Electrocutation
 - ◇ Arc Flash
 - ◇ Burns
 - ◇ Falls from elevations due to electrical shock

Dangers on Construction Sites

- Hazards exist when live wires or other electrical parts are exposed. This generally occurs when a cover is removed from a breaker panel, junction box, or similar electrical fixture.
- Overload hazards often occur when extension cords are daisy-chained, or when a cord is plugged into an outlet which is not rated to handle the current that the cord draws.
- When an electrical system is not properly grounded, a hazard exists because the unwanted voltage cannot be eliminated, leading to a short-circuit.
- Defective insulation can lead to employees being exposed to a shock hazard.
 - ◇ Electrical tape alone is not a sufficient repair method for frayed or cut cords, as stated in an interpretation letter from OSHA.
- Wet conditions increase the chances for electrical exposures. Use caution when using corded equipment on rainy days.
- Employee exposures to exposed circuits occur in the form of uncovered electrical outlets, light switches, panels, and incorrectly installed temporary power.

How to do it

- Collect letters from contractors performing electrical installations or live electrical work, stating that employees are trained in electrical safety, NFPA 70E, and arc flash as necessary. See Request for Training letter in the Letters section of this binder.
- Determine if critical systems, which cannot be de-energized, are present in the work area.
- Coordinate de-energization of all circuits and electrical systems where possible.
- Coordinate the installation of temporary power on construction sites.
- Perform daily inspections of potential electrical hazards which would expose all contractors on a multi-employer work site (e.g., temporary power outlets, temporary lighting cords, uncovered electrical outlets and light switches, etc.).
- Direct contractors to cover or de-energize electrical exposures which would expose all employees on the site. Examples include:
 - ◇ a panel or outlet with a missing cover
 - ◇ live wiring hanging from a ceiling in a hallway



What Your Subcontractors Need To Do

- Provide documentation that employees are trained in the identification of electrical hazards common to their work. See Request for Training letter in the Letters section of this binder.
- Provide a letter certifying that employees are trained in arc flash and NFPA 70E if necessary. See Request for Training letter in the Letters section of this binder.
- Inspect all electrical equipment and all cords prior to each shift.
- Ensure proper ground-fault circuit interrupter outlets are used when using extension cords.
- Replace all electrical outlet and light switch covers that have been removed to perform construction work.



Electrical Cord Inspections

- Identify and inspect every cord in use, prior to each shift.
- If the cord is missing its ground prong, remove the cord from service and install a tag stating “DO NOT USE.”
- If the outer jacket on the cord is cut or frayed, remove the cord from service and install a tag stating “DO NOT USE.”
- While in use, if the cord feels hot to the touch, it may be possible that the insulation is worn out. This cord is no longer safe for use.
- Only qualified electrical workers may repair damaged extension cords.

Extension Cord Usage

- Only use electrical cords which are designed for outdoor or industrial use. It is recommended that cords above 16 gauge not be used on construction sites.
- Never daisy-chain extension cords to gain additional distance from the power source.
- Protect cords from damage by not placing them across sharp edges or through doors and windows.
- Avoid running extension cords across conductive objects such as aluminum studs, piping, and other metal objects. If the cord is damaged and the live parts are exposed, they could energize the conductive objects.
- Do not place extension cords in puddles of water.

- When suspending cords overhead, avoid suspending them from conductive materials.
- Do not lay cords on the floor in areas with frequent vehicle or lift traffic.

Cord Sets and Power Cords

- Only one extension cord is permitted in a cord set (as required by cord manufacturers).
- Extension cords, plugged into permanent power, which are not GFCI protected must be equipped with a portable GFCI receptacle.
- All portable GFCI receptacles must be plugged directly into the power source. Connecting a GFCI to the power source using an extension cord is not permitted.

Electrical Panels

- Electrical installations, that are open to unqualified persons, shall be made with a metal enclosure and/or controlled by a lock.
- All electrical installations shall be marked with appropriate signs, warning those in the area of the live electricity.
- Once energized, electrical panels must be covered with a dead front cover to eliminate electrical exposures. Missing breakers must be replaced.
- Material is not permitted to be placed on top of electrical panels, due to potential for arc flash if material was to fall inside the panel.
- A minimum of 3’ of clear space must be kept in front of all electrical panels.

Temporary Lighting

- Temporary lighting on the job must be supported by non-conductive materials, similar to how cords must be supported.
- Splices in the lighting must be hung 8’ above the ground, in order to protect employees against accidental contact. If the splices hang below 8’, the splices must be within a junction box.
 - ◇ The use of electrical tape and wire nuts is not adequate protection for splices.



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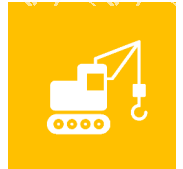
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Background

- Moving large, heavy loads is critical to today's construction industry. Cranes are common pieces of equipment which are used on construction sites to move and lift heavy loads. The use of cranes creates unique hazards that require highly trained and skilled individuals.
- A recent 10-year study revealed that over 60% of crane fatalities are related to employees who are struck by objects which fell from the crane. Often times, this can be attributed to falling loads, which are due to failed or improper rigging.
- To prevent these incidents from happening on your site, ensure you have properly trained personnel who are fulfilling the necessary responsibilities when working with cranes and performing rigging tasks.

What You Need To Do

- Collect and review letters from each of your subcontractors, identifying who their designated Competent Person is for rigging equipment inspections. See recommended Competent Person letter in the Letters section of this binder.
- Collect and review letters, certificates, or wallet cards from each of your subcontractors, certifying that employees have been trained and are designated as a "Qualified Rigger."
- Collect and review letters, certificates or wallet cards from each of your subcontractors certifying that employees have completed classroom training, a written test, demonstration of skills, and are designated as a "Qualified Signal Person."
- Collect and review a certificate of annual inspection for each mobile crane operated on-site. In addition to reviewing annual inspections, also review the crane operator's daily inspection report.
- Collect and review letters, certificates or wallet cards for each crane operator, certifying they have completed classroom training, a written test, demonstration of skills, and are designated as a "Certified Crane Operator."
- Communicate to the correcting employers, where hazards exist and have them corrected.
- Verify that correcting employers are inspecting work areas sufficiently to identify hazards and are promptly correcting the hazards.
- Issue notice to stop work or remove a specific employee for working while exposed to uncontrolled rigging or crane hazards.





What Your Subcontractors Need To Do

- Identify maximum wind speeds for operation of the crane.
- Identify their Competent Person for cranes and rigging inspections. They need to specifically state who this is and give them authority to take prompt corrective actions. See recommended Competent Person letter in the Letters section of this binder.
- Inspect the hoist area for hazards associated with the rigging, loads, and crane operations.
- The Qualified Rigger must inspect all rigging equipment prior to each use; this includes all slings, wire ropes, chokers, chain slings, and synthetic slings. Make sure that all tags are affixed to equipment and legible.
- Certified Crane Operators must complete daily pre-use crane inspections.
- Verify that ground conditions will support the weight of the crane, loads, and forces generated during lifting operations.
- Provide documentation that employees are trained in the identification of hazards common to their work. See Request for Training letter in the Letters section of this binder.
- If your subcontractor cannot or is not authorized to correct any hazards, then they must avoid the work area until it is corrected.

Crane Use and Site Overview

- Determine if dropped loads over a building would cause a structural collapse of walls or floors. Involve project engineers to determine if areas of the building must be evacuated or blocked during lifting and loading.
- Develop a traffic control plan if crane lifts will occur over jobsite roads or public roadways.

Electrical Hazards

- Crane operators, signalers, and all employees involved in the operation of a crane, must be aware of placement of power lines surrounding the work site.
- When necessary, place signage on the ground warning of overhead power lines.
- Maintain clearance of at least 20 feet from energized electrical lines, unless other precautions have been implemented.
- When working near power lines, take steps to de-energize when possible, to prevent electrocution and fires from accidental contact with live wires.

Rigging

- Prior to performing any rigging tasks, a Qualified Rigger must calculate the weight of the load and determine that the crane and available rigging equipment are capable of performing the lift.
- All rigging must be inspected by a Competent Person prior to each use.
- Rigging which is found to be damaged during inspections must be tagged and removed from service. Equipment, in which the capacity tag is either missing or not legible, is not safe for use.



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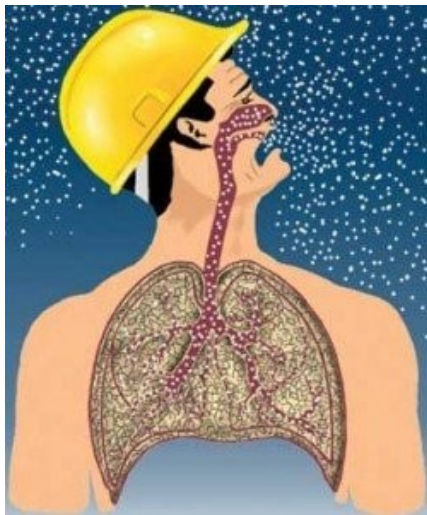
Background

- Crystalline silica is a common mineral found in construction materials such as sand, stone, concrete, brick, and mortar.
- When workers cut, grind, or crush these materials, respirable crystalline silica particles are generated and dispersed into the air.
- Respiratory diseases such as silicosis, chronic obstructive pulmonary disease, and lung cancer are linked to chronic occupational exposure to respirable crystalline silica.

What You Need To Do

- Collect and review letters from subcontractors:
 - ◇ Identifying the designated Competent Person for silica. See recommended Competent Person letter in the Letters section of this binder.
 - ◇ Certifying that employees are trained to identify hazards and controls associated with respirable crystalline silica. See Request For Training letter in the Letters section of this binder.
- Generate a list of contractors whose work has the potential to generate respirable crystalline silica.
- Request and collect required silica exposure control plans from all contractors with potential to generate respirable crystalline silica.
- Collect fit test records, medical clearances, and respiratory protection training records for all employees who are required to wear respirators. See Request for Fit Test Records and Medical Clearance on page 12 of this section.
- Hold meetings with contractors with the potential to generate respirable crystalline silica to determine controls that will be taken to reduce exposures to all employees on-site.
- Verify that contractors are following their submitted silica exposure control plan during site walkthroughs.
- Request signage, barriers, or other control measures if subcontractor's work creates silica exposures for other employees or visitors on-site.

- Issue notices to stop work or remove specific employees that are exposed to uncontrolled silica hazards.



What Your Subcontractors Need To Do

- Identify and document a competent person to recognize silica hazards in the workplace. The competent person is responsible for implementing and enforcing the exposure control plan for silica.
- Provide documentation of silica training.
- Provide record of fit test, medical clearance, and respiratory protection training for all employees who are required to wear respirators for a silica generating task.





- Make available all engineering controls and personal protective equipment as listed and required in your company's exposure control plan.
- Enforce your company's silica exposure control plan.
- Verify that all employees wearing respirators are clean shaven, fit tested, and medically cleared to wear respirators.
- Track daily usage of respiratory protection. Your company should develop a strategy to track how many days each year employees are required to wear respirators for silica related tasks. Employers are required to enroll employees in a medical surveillance program if they are required to wear a respirator due to silica exposures for more than 30 days per year. Wearing a respirator for a few minutes to perform one task equals a full day of wear.

Understanding Your Options

- Employees who perform tasks once per day are considered exposed or overexposed to respirable crystalline silica if performing work without engineering and work practice controls.
- To protect employees and comply with OSHA requirements, employers have multiple options to mitigate exposures to respirable crystalline silica:
 - ◇ Conducting industrial hygiene air monitoring; this can be used to determine if respiratory protection is required for specific tasks when following Table 1. It can also be used when performing tasks differently than what is listed on Table 1, or for a task that is not covered under Table 1.
 - ◇ Use engineering controls, work practice controls, and PPE in accordance with Table 1 of 1926.1153, OSHA's silica standard. See attached table in this tab.
 - ◇ Conduct industrial hygiene air monitoring. This can be used to determine if respiratory protection is required for specific tasks when following Table 1. It can also be used to when performing tasks differently than what is listed on Table 1, or for a task that is not covered under Table 1.
 - ◇ Use objective data to determine that exposures for the tasks are below the OSHA Action Level of 0.025 mg/m^3 . Objective data is collected from another organization performing an identical task, stating that exposure is below the OSHA Action Level of 0.025 mg/m^3 for an 8-hour time weighted average. Any deviation from work practices and controls listed in the objective data would assume an overexposure.

- Select and use engineering and work practice controls as required in Table 1 of 1926.1153. Or, provide air monitoring data that indicates employees are not exposed above the OSHA Action Level for respirable crystalline silica.
- Provide a written exposure control plan. This plan must include a list of tasks being performed that have the potential to generate respirable crystalline silica, engineering and work practice controls to be followed, restricted access procedures to eliminate potential exposures to other contractors, and the identification of a competent person.
- Track daily usage of respiratory protection. Employers are required to enroll employees into a medical surveillance program if they are required to wear a respirator due to silica exposures for more than 30 days per year.

If You Have Employees Self-Performing Silica Tasks

- Discuss a formal plan with project management to control exposure to silica for your own employees.
- Confirm that your company has developed a silica exposure control plan.

Table 1 of 1926.1153

- Includes common construction activities with guidance on how to limit exposure to silica.
 - ◊ This is only a list of typical construction tasks. Not all tasks which create exposures to respirable crystalline silica are included in Table 1.
- Follow the table when necessary, or if stated in the Silica Exposure Control Plan, to prescribe proper safe work practices including:
 - ◊ Engineering controls (e.g., dust collection system or integrated water delivery system)
 - ◊ Work practice controls
 - ◊ Respiratory protection
- When following Table 1 to manage silica exposures on your site, you must recognize that although engineering controls are utilized, there are still respiratory protection requirements which must be met.

Air Monitoring

- When tasks are not listed on Table 1 of 1926.1153, overexposure must be assumed (even when using engineering controls and respiratory protection) unless air monitoring has been performed that indicates exposures are not above OSHA's Action Level.
 - ◊ Performing a task not listed on Table 1 or performing a task differently than what is listed in Table, just one time, assumes an exposure to silica above OSHA's Action Level of 0.025 mg/m^3 .
- Use air monitoring to perform personal monitoring of employees performing a task over the course of an 8-hour workday for tasks not listed on Table 1.
- The use of air monitoring can also be performed to eliminate the requirement for employees to wear respirators if following Table 1. If data indicates exposures below the Action Level when using all listed engineering controls for the task in Table 1, employees would not be required to wear respirators.



Dangers On Construction Sites

Tasks that have the potential to generate respirable crystalline silica include, but are not limited to, the following:

- Abrasive blasting
- Cutting/sawing
- Drilling
- Demolition
- Grinding
- Jackhammering
- Sanding
- Dry sweeping
- Concrete mixing
- Tuck pointing operations

Materials that have the potential to create crystalline silica include, but are not limited to, the following:

- Asphalt
- Brick
- Cement
- Concrete
- Concrete block
- Drywall and joint compounds
- Fiber cement products
- Mortar
- Plaster
- Rock
- Roofing tiles and pavers
- Sand
- Soil
- Stone (granite, limestone, shale, etc.)
- Tile (clay, ceramic, concrete, etc.)



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§1926.1153 Respirable crystalline silica.

(c) Specified exposure control methods. (1) For each employee engaged in a task identified on Table 1, the employer shall fully and properly implement the engineering controls, work practices, and respiratory protection specified for the task on Table 1, unless the employer assesses and limits the exposure of the employee to respirable crystalline silica in accordance with paragraph (d) of this section.

Table 1: Specified Exposure Control Methods When Working With Materials Containing Crystalline Silica

Equipment / Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours /shift	> 4 hours /shift
(i) Stationary masonry saws	<p>Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p>	None	None
(ii) Handheld power saws (any blade diameter)	<p>Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <ul style="list-style-type: none"> - When used outdoors. - When used indoors or in an enclosed area. 	None APF 10	APF 10 APF 10

Equipment / Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours /shift	> 4 hours /shift
(iii) Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less)	<p>For tasks performed outdoors only:</p> <p>Use saw equipped with commercially available dust collection system.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <p>Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.</p>	None	None
(iv) Walk-behind saws	<p>Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <ul style="list-style-type: none"> - When used outdoors. - When used indoors or in an enclosed area. 	None APF 10	None APF 10
(v) Drivable saws	<p>For tasks performed outdoors only:</p> <p>Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p>	None	None

Equipment / Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours /shift	> 4 hours /shift
(vi) Rig-mounted core saws or drills	<p>Use tool equipped with integrated water delivery system that supplies water to cutting surface.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p>	None	None
(vii) Handheld and stand-mounted drills (including impact and rotary hammer drills)	<p>Use drill equipped with commercially available shroud or cowling with dust collection system.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <p>Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.</p> <p>Use a HEPA-filtered vacuum when cleaning holes.</p>	None	None
(viii) Dowel drilling rigs for concrete	<p>For tasks performed outdoors only:</p> <p>Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter-cleaning mechanism.</p> <p>Use a HEPA-filtered vacuum when cleaning holes.</p>	APF 10	APF 10
(ix) Vehicle-mounted drilling rigs for rock and concrete	<p>Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector.</p> <p>OR</p> <p>Operate from within an enclosed cab and use water for dust suppression on drill bit.</p>	None	None

Equipment / Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours /shift	> 4 hours /shift
(x) Jackhammers and handheld powered chipping tools	<p>Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.</p> <ul style="list-style-type: none"> - When used outdoors. - When used indoors or in an enclosed area. <p>OR</p> <p>Use tool equipped with commercially available shroud and dust collection system.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <p>Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.</p> <ul style="list-style-type: none"> - When used outdoors. - When used indoors or in an enclosed area. 	<p>None</p> <p>APF 10</p>	<p>APF 10</p> <p>APF 10</p>
(xi) Handheld grinders for mortar removal (i.e., tuckpointing)	<p>Use grinder equipped with commercially available shroud and dust collection system.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <p>Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.</p>	<p>None</p> <p>APF 10</p>	<p>APF 10</p> <p>APF 10</p> <p>APF 25</p>

Equipment / Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours /shift	> 4 hours /shift
(xii) Handheld grinders for uses other than mortar removal	<p>For tasks performed outdoors only:</p> <p>Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <p>OR</p> <p>Use grinder equipped with commercially available shroud and dust collection system.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <p>Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.</p> <ul style="list-style-type: none"> - When used outdoors. - When used indoors or in an enclosed area. 	None	None
		None	None
		None	APF 10

Equipment / Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours /shift	> 4 hours /shift
(xiii) Walk-behind milling machines and floor grinders	<p>Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <p>OR</p> <p>Use machine equipped with dust collection system recommended by the manufacturer.</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</p> <p>Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.</p> <p>When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.</p>	None	None
(xiv) Small drivable milling machines (less than half-lane)	<p>Use a machine equipped with supplemental water sprays designed to suppress dust.</p> <p>Water must be combined with a surfactant.</p> <p>Operate and maintain machine to minimize dust emissions.</p>	None	None

Equipment / Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours /shift	> 4 hours /shift
(xv) Large drivable milling machines (half-lane and larger)	<p>For cuts of any depth on asphalt only:</p> <p>Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust.</p> <p>Operate and maintain machine to minimize dust emissions.</p> <p>For cuts of four inches in depth or less on any substrate:</p> <p>Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust.</p> <p>Operate and maintain machine to minimize dust emissions.</p> <p>OR</p> <p>Use a machine equipped with supplemental water spray designed to suppress dust.</p> <p>Water must be combined with a surfactant.</p> <p>Operate and maintain machine to minimize dust emissions.</p>	None	None
(xvi) Crushing machines	<p>Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components, and discharge points).</p> <p>Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions.</p> <p>Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.</p>	None	None

Equipment / Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)	
		≤ 4 hours /shift	> 4 hours /shift
(xvii) Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	Operate equipment from within an enclosed cab. When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.	None None	None None
(xviii) Heavy equipment and utility vehicles for tasks such as grading and excavating but not including: demolishing, abrading, or fracturing silica-containing materials	Apply water and/or dust suppressants as necessary to minimize dust emissions. OR When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None None	None None

- (2) When implementing the control measures specified in Table 1, each employer shall:
- (i) For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust;
 - (ii) For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;
 - (iii) For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:
 - (A) Is maintained as free as practicable from settled dust;
 - (B) Has door seals and closing mechanisms that work properly;
 - (C) Has gaskets and seals that are in good condition and working properly;
 - (D) Is under positive pressure maintained through continuous delivery of fresh air;
 - (E) Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 µm range (e.g., MERV-16 or better); and
 - (F) Has heating and cooling capabilities.
- (3) Where an employee performs more than one task on Table 1 during the course of a shift, and the total duration of all tasks combined is more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift. If the total duration of all tasks on Table 1 combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.

Request for Fit Test Records and Medical Clearance

_____ is committed to the health and safety of all
(Company Name)
employees on-site. In order to provide a safe work environment, it is of the utmost importance that all employees are wearing the required personal protective equipment for the hazards to which they are exposed. OSHA requires that when employees are mandated to wear respiratory protection to perform specific tasks, they must be medically cleared and fit tested to wear a respirator. This is to ensure that the employee is medically qualified to wear a respirator and that the respirator fits properly on the employee. In OSHA's silica standard, 1926.1153, compliance with Table 1 will result in mandatory usage of respirators.

Because your employees are required to wear respirators when performing tasks which generate respirable crystalline silica in accordance with Table 1 of 1926.1153,

_____ requests that fit test records and proof of
(Company Name)
medical clearance be submitted to the site superintendent for all employees who will wear a respirator to perform silica related tasks and are required to wear respiratory protection. Respirator fit tests must be performed annually. If an employee's fit test expires within the course of the project, they must receive an updated fit test.

_____ requests that all updated fit tests be
(Company Name)
submitted while the employee remains on-site.

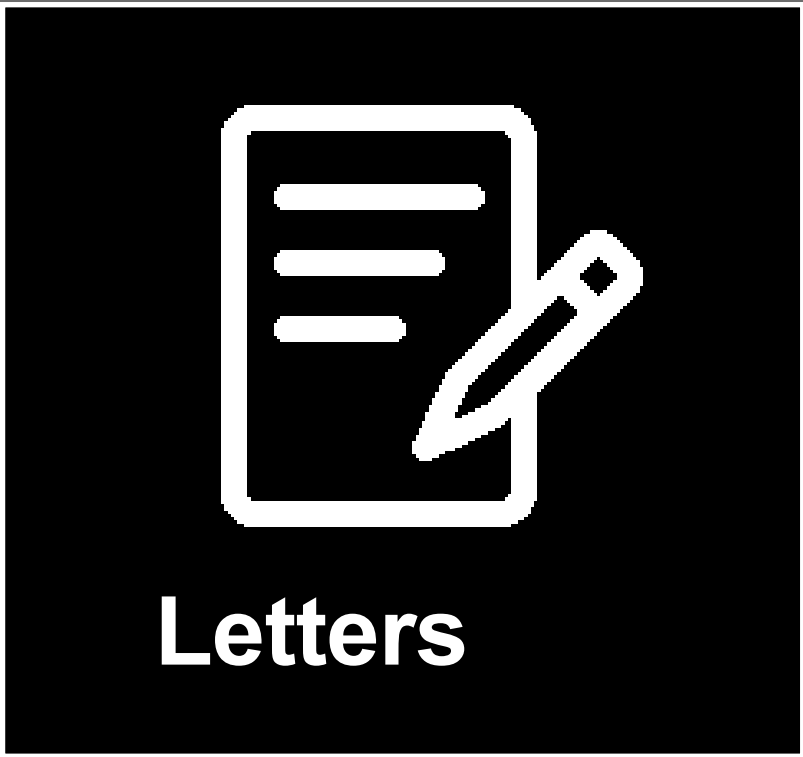
For any questions, please contact _____ at
(Company Name)

(Phone Number)

(Signature)

(Print Name)

Field Superintendent Handbook



<i>Included in this section</i>	<i>Page</i>
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Competent Person Assignment Notice

_____ CATEGORY

_____ assigns _____ to the
COMPANY NAME
responsibility as the Competent Person on-site during _____ operations.

CATEGORY

The assigned employee understands the responsibilities and will act to the best of their abilities to mitigate hazardous conditions in the workplace and ensure the health and safety of all

_____ employees.

COMPANY NAME

The term "Competent Person" is used in many OSHA standards and documents. An OSHA "Competent Person" is defined as "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 to eliminate them" [29 CFR 1926.32(f)]. By way of training and/or experience, a competent person is knowledgeable of applicable standards, is capable of identifying workplace hazards relating to the specific operation, and has the authority to correct them. Some standards add additional specific requirements which must be met by the Competent Person.

The Competent Person as assigned by _____ will:

COMPANY NAME

- Frequently and effectively inspect the work area for hazardous conditions.
- Identify potential and immediate hazards in the workplace.
- Correct hazards immediately.
- Contact site management when corrective measures are unclear.

_____ **Representative**

COMPANY NAME

Signature: _____ Date: _____

Name: _____

Competent Person

Signature: _____ Date: _____

Name: _____

Request for Training Documents

To whom it may concern,

_____ is committed to the health and safety of all persons on-site. In order to provide a safe work environment, it is of the upmost priority to ensure that all employees on-site are properly trained and experienced to identify potential hazards within their scope of work and know the necessary steps to correct them. In compliance with OSHA Standard 29 CFR 1926, _____

COMPANY NAME

COMPANY NAME

requests documentation of training for all employees working within the scope of work listed below:

- Powered platforms, manlifts, vehicle mounted platforms
- Welding and cutting
- Scaffolds
- Electrical (general requirements)
- Trenching and excavating.
- Fall protection
- Steel Erection
- Confined Space
- Blasting/Use of explosives
- Cranes and derricks
- Rigging

Documentation must be submitted to the site superintendent prior to employees beginning work on the site. For any questions contact _____ at _____ . Documentation can be in digital or print form. All employees must be listed as trained in accordance with their scope of work. If new employees arrive on the site, their relevant training documentation will be required upon arrival.

PHONE

COMPANY NAME

Construction Manager Name (print) _____

Construction Manager Signature _____

Notification of Hazard

To whom it may concern,

Following the site inspection performed on _____, _____
DATE COMPANY NAME

_____ identified a serious safety and health hazard in your work area. The identified serious hazard is listed below. This observation violates OSHA regulations, _____ safety and health requirements, _____
COMPANY NAME and exposes employees to serious hazards in the workplace.

Identified Hazard and Hazard Details: _____

Upon the competent person's receipt of this notification, _____
COMPANY NAME

requests that corrective actions be taken to eliminate the hazard immediately. If correction requires additional equipment or planning, _____
COMPANY NAME

requests that the contractor provide information to the superintendent regarding planned corrective actions by the end of business day.

This observation may be filed as part of _____
COMPANY NAME

progressive discipline policy at the discretion of the superintendent. Failure or refusal to abate this recognized safety hazard may result in permanent removal of the contractor or employee(s) at the discretion of the _____ project team.
COMPANY NAME

Construction Manager Name (print) _____

Construction Manager Signature _____