Accident Prevention Policy

The investigation of accidents and incidents are an essential part of Master Construction Solutions' accident prevention program. A thorough investigation, reconstructing the chain of events leading to an accident or incident, identifies unsafe acts and conditions requiring corrective action. An accident/incident investigation and subsequent implementation of the corrective action minimizes the potential for future accidents or incidents.

Responsibilities

- **OSHA**
  - OSHA investigates all major accidents resulting in death or catastrophe (hospitalization of 1 or more employees, amputation, or loss of an eye). Call OSHA's Emergency number at 1-800-321-OSHA (6742) within 8 hours of the fatality or 24 hours of the catastrophe.
- **Supervisor**
  - The responsible supervisor completes the initial report and gathers pertinent wtiness statements when:
    - An employee involved in a minor occupational accident is unable to work the subsequent full shift due to a resulting illness or injury, or;
    - The employee receives medical treatment from other than a Master Construction Solutions trained first aid provider, or;
    - Events and conditions involving an incident or non-injury accident indicate there was a high probability of serious injury, illness, or significant property damage.
- **President**
  - The President is responsible for reviewing the Supervisor's Accident/Incident Investigation Form and initiating and implementing corrective action to prevent accident reoccurrence. The President may authorize a Competent Person to perform his duties.

Investigation

The supervisor, upon notification of an accident or incident, immediately reports the incident to the Master Construction Solutions' President. The Master Construction Solutions' President will then report the accident or incident to any host or client if applicable (within 24 hours).

- **Preserving the Site**
  - The Supervisor is to ensure that the accident/incident site is preserved as it was when the event occurred. Equipment involved in and/or evidence from a major accident is not to be moved unless it is necessary for victim removal or accident prevention. Present (or Approved Representative) authorizes removal of equipment involved ina major accident.
- **Investigation**
  - The Supervisor is to immediately investigate a minor accident (i.e., First Aid only). Accidents involving more than "First Aid Only" treatment will be investigated by Master Construction Solutions's President (or approved representative) within 24 hours of the accident/incident. While the objective of an investigation is to determine the accident/incident cause an initial identification of evidence immediately following an accident/incident is crucial to the investigation. Evidence may include, but is not limited to, a list of witnesses or people involved, record of environmental factors (wind, rain, temperature, etc.), illumination, noise, ventilation, etc. After the cause is determined, the Supervisor is to provide corrective action immediately. The corrective action(s) should eliminate or minimize the potential of reoccurrence. The name of the person responsible for the corrective action(s) and the date the corrective action(s) were completed will be recorded.
- **Participants**
  - Investigation participants may include the immediate supervisor fo the injured/involved employee, witnesses, an employee representative, and any other person with the special expertise to evaluate the facts relating to the cause of the accident/incident.
- **Involved Person(s) Statement**
  - The involved person(s) must complete all applicable forms including the First Report of Injury/Illness and/or a Written Statement. They may also be interviewed.
- **Witness(es) Statement**
  - A witness to the accident/incident must complete a Written Statement or be interviewed by properly trained personnel. Follow-up interviews may be requiredso be sure to obtain contact information for all involved persons.
- **Evaluation Factors**

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- Refer to the Supervisor's Accident/Incident Investigation Form for factors to evaluate during an accident/incident investigation.

Investigation Report

After the investigation and within 48 hours of he incident, the President completes a written Accident/Incident Report. Written incident reports should include an incident report form and a detailed narrative statement concerning th events. The format of the narrative report may include an introduction, methodology, summary of the incident, investigation board member names, narrative of th event, findings and recommendations. Photographs, witness statements, drawings, and all other pertinent documents should be included.

The report should be routed as follows:

- Original – President
- Copy – Approved Representative or Designated Competent Person

➢ **Lessons Learned and Communication**

- A copy of the original will be made and routed to any personnel Master Construction Solutions' President feels are pertinent to the accident/incident.
- After completion of the final report lessons learned should be reviewed and communicated to all affected personnel. Changes to processes must be placed into effect to prevent reoccurance or similar events.

Assistance

Contact Master Construction Solutions' President if assistance is required in conducting an accident/incident investigation or completing the required report(s).

➢ **Training**

- Personnel will be trained in their roles and responsibilities for incident response and investigation techniques. All employees will be trained to be aware of Master Construction Solutions' Accident Prevention program. Supervisors and management (or a designated competent person) will be trained in accident investigation. All training will be provided upon employment with Master Construction Solutions and reviewed whenever a change in procedure is made.

➢ **Equipment**

- All proper accident/incident investigation forms are attached as part of this document. Any additional equipment such as cameras, measurement equipment, audio recorders, etc., will be provided as needed.

➢ **First Repsonders**

- In the absence of an infirmary, clinic, hospital, or physician, that is reasonably accessible in terms of time and distance to the worksite, which is available for the treatment of injured employees, a person who has a valid certificate in first aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the worksite to render first aid.
- Only those employees certified to provide first aid shall do so. If you are evere in any doubt, or if you are not comfortable with the injured/ill employee's situation, always call 911.

➢ **Loss Control**

- After an accident/incident, actions to prevent further loss should occur. If needed personnel will be available to aid in the prevention of any additional loss, for example: maintenance could be summoned to prevent further damage to equipment or buildings, properly trained personnel called for hazardous chemical clean-up, etc.

Additonal assistance may be provided by our outside safety consulting agency:

Safety Resources Co. of Ohio, Inc.
4650 Southway St., S.W.
Canton, Ohio 44706
Phone: (330) 477-1100 or (833) 793-7726
Fax: (330) 477-1200

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WHAT TO DO WHEN…

You have an accident involving "Property Damage" **(the customers or Master Construction Solutions' property)** equaling or exceeding a combined dollar amount over $250.00.	1. **Call Master Construction Solutions' Office** and report the accident. 2. Call **Safety Resources at 330-477-1100**. If the office is closed the answering machine will give you a list of emergency numbers. Please feel free call our cell phones at any time.
You have an **injury/illness that involves First Aid Only Treatment** by an emergency responder on the job site. 	1. **Call Master Construction Solutions' Office** and report the accident/illness. 2. Call **Safety Resources at 330-477-1100**. If the office is closed the answering machine will give you a list of emergency numbers. Please feel free call our cell phones at any time. 3. Complete as much of the First Report of Injury/Illness Form as you can.
You have an **injury/illness that involves transporting the employee** to a medical care facility.  **NOTE: Refer to the "Treatment Facilities & Guidelines" section of this manual for further clarification on when you should utilize an ambulance, or other emergency response service to transport an employee to a medical care facility and when it is acceptable for you to transport the injured/ill employee to the medical care facility.** **If ever in any doubt, or if you are not comfortable with the injured/ill employee's situation, always call for emergency transportation.** **Do not attempt to transport the employee yourself.**	1. If the Health Care Facility has a pre-registration phone number (i.e., Ault Works, Work, Health & Safety Services) call that number now and tell them that you have an accident/illness. At this point they will ask you additional questions. 2. Either transport the injured/ill employee to the medical care facility for treatment, or call your job sites posted emergency response number (see the **"Emergency Instruction Form"**) and inform them that you have an injured/ill employee and require emergency transportation (i.e., ambulance, emergency squad). **Under no circumstance** should you allow the employee to drive or make their own transportation arrangements (such as, calling a family member or friend to come to the job site and get them) to a medical care facility. 3. **Call Master Construction Solutions' Office** and report the accident/illness. 4. Call **Safety Resources at 330-477-1100**. If the office is closed the answering machine will give you a list of emergency numbers. Please feel free call our cell phones at any time. 5. Complete as much of the First Report of Injury/Illness Form as you can.

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WHAT TO DO WHEN…

You have a work related death or catastrophe (hospitalization of 3 or more employees).	1. Call **Safety Resources at 330-477-1100**. If the office is closed the answering machine will give you a list of emergency numbers. Please feel free call our cell phones at any time. 2. **Call Master Construction Solutions' President immediately.** 3. Call OSHA's Emergency number at 1-800-321-OSHA (6742) within 8 hours of the fatality or catastrophe.
OSHA shows up at a job site.	1. Ask OSHA Compliance officer to wait in the job trailer. 2. Call **Safety Resources at 330-477-1100**. If the office is closed the answering machine will give you a list of emergency numbers. Please feel free call our cell phones at any time. 3. **Call Master Construction Solutions' President immediately.**

Safety Resources Co. of Ohio, Inc.

4650 Southway St. SW
Canton, Ohio 44706
Toll Free: 833-793-7726

Phone: 330-477-1100 • Fax: 330-477-1200

Cell Phones

Rebecca (Becki) DePasquale **Cell Phone: 330-704-5918**
Curt Speck **Cell Phone: 330-704-5958**

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OSHA 300 Log Case No. _____	Sections in red are required by OSHA and must be completed.

First Report of Injury/Illness (also used to report Property Damage)

Must Be Completed within 24 hours of event.

Employee's Section

Name	SS #	Phone #

Address	City	State / Zip	Sex (circle one) M F	Date of Birth / Date of Hire

Check if the answer is yes.

- ❑ Were you injured in an accident?
- ❑ Did the accident involve property damage?
- ❑ Are you reporting an occupational illness?
- ❑ Was a motorized vehicle (i.e. towmotor, truck, car) involved?

Describe body part(s) affected, or injured, and how affected or injured:

Date of Injury or Illness	**Time of Event:** ☐ am ☐ pm ☐ (check if cannot be determined)	Time Employee Began Work

Exact location of accident/illness ***(Work Site, Department, Building, Floor, Geographical Location):***

Activity you were performing when injury or illness occurred, or immediately prior to injury or illness; include any tools, materials or equipment you were using at the time ***(an example would be, climbing a ladder while carrying roofing materials):***

Was this part of your normal duties? ☐ **Yes** ☐ **No**

If no, explain why you were performing these duties?

List Witnesses:

Report prepared by (if different from injured/ill employee): _____
(Name) ***(phone number)***

Employee Signature

Date:

Supervisor's Section

Name of Supervisor Completing This Form (please print):

Telephone No. _____

This accident/illness was reported to me on:

_____ **at** _____
(date) **(time include am/pm)**

by:_____

Describe body part(s) affected, or injured, and how affected or injured ***(example - 2nd degree burn, lower left forearm):***

Activity employee was performing when injury or illness occurred, or immediately prior to injury or illness; include any tools, materials or equipment you were using at the time ***(example - cutting metal plate for flooring):***

How the injury or illness occurred ***(an example would be … employee stepped back to inspect work and slipped on some scrap metal, as worker fell, worker fell onto the hot metal plate):***

What object or substance directly harmed the employee ***(example - acetylene cutting torch, metal plate) If this questions does not apply, you may leave it blank:***

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OSHA 300 Log Case No. _____	Sections in red are required by OSHA and must be completed.

Supervisor's Section (cont.)

Employee was working:	Workday Phase:	Injury/Illness Severity:
❑ Alone ❑ With a crew or fellow worker ❑ Other (explain:)	❑ Performing Work ❑ Meal/Break Period ❑ Entering/Leaving ❑ Chronic Exposure ❑ Other (explain):	❑ No Treatment Required ❑ First Aid Only ❑ Emergency Room Only ❑ Employee Hospitalized Overnight as an In-Patient ❑ Other Medical Treatment Faciltiy (explain):

If the employee died, when did death occur? (Date of Death):

Supervision at time of accident/illness:	Witness Names & Phone Numbers:
❑ Directly Supervised ❑ Indirectly Supervised ❑ Not Supervised ❑ Supervision Not Feasible	

Signature of Supervisor Completing This Form:	*Exact Title of Supervisor*	*Date*

Information on Health Care Provider

If treatment was given away from the worksite, this section must be completed.

Treated by *(Name of physician or other health care provider):*

Was Employee Treated in an Emergency Room?	Was employee hospitalized overnight as an in-patient?
☐ Yes ☐ No	☐ Yes ☐ No

Name of Treatment Facility:	Address of Treatment Facility:	State: Zip:

Any misc. information in regards to Health Care Provider and Facility:

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Written Statement

Name		Company		Job Title
Accident/Incident Date	Accident/Incident Time	Incident Location		Cell/Home Telephone
Name of Involved/Injured Employee			Did the employee appear injured/ill?	
If the employee appeared injured or ill, please describe the body part that was involved, what the injury was, and the apparent cause (in your opinion)				
Where were you in proximity to accident/incident? (in front, back, next to, number of feet, etc.)				
Describe the general work or activity being performed by you and the involved/injured employee				
Describe the accident/incident. Include specific work/activity involved; tools and equipment used; the use or nonuse of personal protective equipment. Written/oral rules; any verbal statements made; general site conditions, e.g., lighting, noise, unusual odors, housekeeping; weather.				

Add additional pages if necessary for additional space or drawings.

Continued on back.

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Written Statement (cont.)

Did you speak to the involved/injured employee at or near the time of the incident? _____ Yes _____ No	If so, what did he/she tell you?
Did you offer any assistance? _____ Yes _____ No	If so, please describe.
Have you had any subsequent discussions with the involved/injured employee regarding this incident? _____ Yes _____ No	If so, when and what did he/she tell you on this occasion?
Please add any additional comments you may have regarding this incident:	

I have had a chance to read and correct my statement, consisting of _____ pages.

Signature	**Date**

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Supervisor's Accident/Incident Investigation Form

Employee Name	Job Site/Location	Accident Date
Supervisor's Name	**Supervisor's Title**	**Investigation Date**

Check all factors contributing to the accident/incident/illness:

☐ **Human**
Training
Task Performance
Protective Equipment
Work History

☐ **Site Conditions**
Physical Layout
Walking/Working Surfaces
Lighting
Weather

☐ **Equipment/Tools/Materials**
Operation
Safety Guards & Controls
Condition & Maintenance
Labels/Signs/Tags

☐ **Time Factors**
Work Shift
Cause/Effect Relationship
Sequence of Events

☐ **Policies & Procedures**
Safety Policies & Procedures
Operating Specifications
Regulations & Standards

☐ **Occupational Exposures**
Air Contaminants
Chemicals
Noise
Biohazards, Human Body Fluids

Explain all checked factors in the space below. Add additional pages for more space and to provide any necessary drawings.

List all recommended corrective action(s). Add additional pages if needed.

Name of Person Responsible for Corrective Action	Department Responsible for Corrective Action
Anticipated Date of Corrective Action	**Actual Date of Corrective Action**

Supervisor's Signature	Date	Employee's Signature	Date
President's Signature			**Date**

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Accident/Incident Diagram/Narrative

Location	Date of Accident/Incident

Notes

Name of Person Completing Form:	Signature	Date

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FACTORS OF AN ACCIDENT

UNSAFE ACTS

Construction project accidents cause too many painful injuries and claim far too many lives. The primary concern behind an accident is to find a way to prevent a recurrence. Construction workers control the first cause, unsafe acts. The following is a list of these unsafe acts:

- A worker may use equipment that is defective or damaged.
- A worker may use good equipment in a careless or other unsafe manner.
- Disregarding posted warning signs
- Failure to wear a hard hat
- Smoking near flammables or explosives
- Working to close to power lines
- Handling chemicals or other hazardous materials improperly
- Putting any part of your body onto or into shafts or openings and lifting material incorrectly.



UNSAFE CONDITIONS

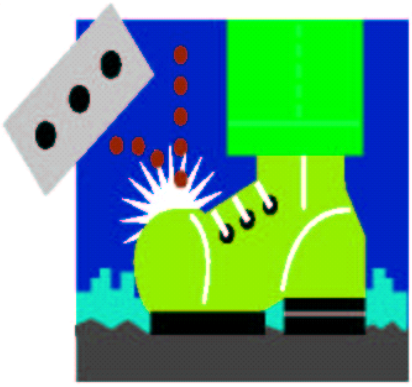
Many construction sites have the second accident factor, unsafe conditions. Keep a watch out for the following unsafe conditions:

- Inadequate or improperly installed guard rails
- A lack of any guarding at all
- Insufficient illumination
- Poor ventilation
- Electrical grounding requirements not observed
- Too few fire extinguishers available
- Containers that are not labeled
- Careless disposal of waste or excess material

These unsafe conditions can be caused by co-workers, subcontractors, or the general contractor. YOU can make a difference by taking the time to perform your work safely and by reporting any unsafe conditions you discover to your supervisor immediately.

After the cause of an accident is found, you'll find that safety on the job plays a major part in preventing that accident from happening again.

By everyone on the job cooperating, injury and death statistics will be reduced and it will be much safer for you to do your job



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Aerial Lifts Policy

The term "Company" as used in these policies and procedures includes all employees (regardless of status), sub-contractors, and vendors of Master Construction Solutions Construction sites for which Master Construction Solutions has responsibility.

This policy outlines procedures for the safe operation, and proper maintenance, of all aerial lift devices operated by "Company" employees. It applies to all operations that require any employee to access elevated locations and/or use aerial work platforms.

To minimize the hazards and dangers associated with the operation of an aerial lift, The "Company" requires that two or more employees be present during the operation of any aerial lift on any "Company" worksite. The ground person shall be instructed in the operation of the aerial lift.

Fall Protection

- Full body harnesses and lanyards, as outlined in the "Company's" Fall Protection Policy and Procedure, shall be utilized during any aerial lift operations involving articulated arm lifts.
- If a scissor type lift has the ability to be "tied off", to an engineered type of anchor point, then the occupants must wear fall protection as outlined in the "Company's" Fall Protection Policy and Procedure.
- All fall protection equipment shall be carefully inspected before each use and periodically throughout the day.
- Fall Protection equipment showing any sign of mildew, torn or frayed fiber or fabric, burns, excessive wear or other damage or deterioration that could cause failure shall be permanently removed from use.
- Body harnesses, lanyards, safety lines, and all other fall protection equipment shall be:
    - Properly maintained and stored;
    - Kept dry and out of sunlight; and
    - Away from caustics, corrosives or other materials which could cause defects.

Personal Protective Equipment

- ANSI approved class A or B Hard Hat shall be worn by employees in the bucket or on the platform of any aerial lift device while in operation.
- High-visibility apparel is not required for employees "in the air", but shall be worn before entering and after leaving the bucket or platform if the equipment is being utilized next to, or on a roadway or high traffic area (i.e., parking lot, shipping and receiving areas, etc.)
    - Sufficient signs, racks, and traffic cones shall also be utilized in these circumstances.
- Additional PPE will be utilized in accordance with the "Company's" Personal Protective Equipment policy.

Aerial Lift Equipment

- Aerial lift devices shall conform to ANSI standards applicable to the type of equipment being used (i.e., bucket truck, portable and/or self-propelled personnel lift).
- Aerial lift devices shall only be used for the purpose(s) intended by the manufacturer.
- All manufacturer recommendations and warnings regarding operation, capacity, and safety precautions shall be strictly followed.
- Permanent labeling must be conspicuously posted to indicate lifting capacity and travel height.
- Only devices specifically approved for lifting personnel shall be used as aerial lifts. Loaders, forklifts, or other material lift devices shall not be used to transport employees to elevated locations nor as work platforms.
- Modification shall not be made to any aerial lift device without written approval from the manufacturer.

Operating Procedures

- Prior to the start of any operation involving an aerial lift, the ground person shall be made aware of Emergency phone numbers, and the location of phones (i.e., in-house, cellular) shall be readily known and easily accessible.

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- Lift equipment shall be inspected, and controls tested daily before use.
- On boom devices, one crew member qualified in the operation of the ground controls shall always remain readily available on the ground while the lift is operating.
- Only properly trained employees shall operate the lift.
- Ground controls shall not be operated without the permission of the employee(s) "in the air", except in emergencies.
- Before extending the boom or raising the platform, outriggers (if the vehicle is so equipped) shall be positioned properly and the truck level.
    - Outriggers shall be placed on pads, blocking, or other sold surface, and shall not be used to level the vehicle.
- The parking brake (and micro brake if so equipped) shall be set and wheel chocks in place.
- Sufficient overhead clearance shall be checked before raising any aerial lift.
- Employees shall keep both feet on the bucket floor while the bucket is moving, or work is being performed.
- Employees shall not attach themselves to an adjacent pole, structure or equipment while working from the bucket, but shall remain connected by a full body harness and a lanyard attached to the boom or basket when working from an aerial lift.
- Employees required to leave the bucket to gain access to a work location shall maintain 100% fall protection by connection of a lanyard to a safety line or structure capable of supporting the employee(s).
- Buckets shall have an inside and outside step (i.e., portable E-Z step or step through features).
- Platform lifts shall have a top and mid rail and kick plate, and a means for each person to attach a full body harness and lanyard to the platform.
    - A full body harness and lanyard shall be used by each employee on the platform.
    - Employees shall keep both feet on the floor of the platform.
    - Shall not sit or climb on the railing.
    - Shall not use planks, ladders, or other devices to raise the working height.
    - The gate shall be closed before raising or lowering the work platform.
- The carrier portion of an aerial lift unit shall not be moved (travel) while the lift is out of its cradle, unless the unit is designed to do so, and the operator has been appropriately trained.
- When a unit is moved with employees in the air, they shall be aware of the move and be in communication with those moving the vehicle.
- Generally, for transport the boom shall be properly cradled and the outriggers properly stowed.
- Bucket covers shall be in place during transport to prevent loss of the bucket liner.
- The lift's reverse signal alarm must be audible above the surrounding noise, or a spotter must be used.
- Tools, parts, or any materials shall not be dropped or thrown from the bucket or platform of any aerial lift.
- When using welding or heating equipment from the bucket or platform, the vehicle shall be protected from sparks or slag and special care taken to protect or remove flammables.

Electrical Safety

- When working near electrical lines or equipment, avoid direct or indirect contact.
    - Direct contact is body contact;
    - Indirect contact is when the body touches or is in dangerous proximity to any object in contact with energized systems.
- Always assume that lines are "live" and carry high voltage. Electrical lines can only be considered "dead" when verified by the utility.
- When working near electrical systems carrying 600 volts or more:
    - Ensure employees are not placed in proximity to high voltage (within 10 feet up to 50 kilovolts).
    - Post warning decals on equipment requiring 10-foot minimum clearance.
    - Educate affected employees of the hazards and precautions required when working near high voltage.
    - Ensure that when an equipment operator is unable to assess clearances a "spotter" observes for clearance and directs the operator.
    - Notify the utility at least 5 working days before any work begins which requires the utility to identify voltages and clearances, or de-energize, insulate, or relocate lines.
- As voltages increase, minimum clearances increase and potential for arcing increases.
    - Injuries or fatalities may occur even if contact is not made.
    - Weather and contact with conductors such as tools can increase the possibility of arcing.

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- Because the "Company's" employees are not qualified to determine voltage, the utility shall be called to establish voltages and minimum clearances, and to render the work safe.
    - Where prior notification cannot be made, request the utility to respond immediately.
- Prior to the start of any operation where contact with energized electrical systems is possible, the supervisor shall identify energized lines or equipment, and reference their location.
    - Their location shall be discussed at a pre-work safety meeting of all crew members and affected employees.
- The aerial lift is not to be touched if it comes into contact with electrical wiring.

Working Near Railroads

- Hazard awareness is the key to working safely near railroads. Understanding basic railroad definitions can increase safety when working on or over railroad property, or railroad tracks.
- When working on railroad property or next to any railroad tracks, the railroad owner/operator ("railway") shall be notified in advance, and arrangements made for a railroad flagger, if necessary.
    - The "Company's" employees shall adhere to railway regulations while on railroad right-of-way.
- "Company" employees shall be aware of railroad clearances (both vertical and lateral) and be able to remove the infringement to clearance within the time specified by the railroad.
- When working with a railroad flagger, "Company" employee(s) will notify the flagger each time it is necessary to "foul" the tracks, and then proceed only after "absolute protection" is received.
    - Efforts to clear the tracks shall begin immediately anytime the railroad flagger indicates.
- For jobs longer than one day, the railroad flagger and the work site supervisory personnel shall discuss the day's activity and the need to "foul" the tracks at the start of the day.
    - On jobs longer than 30 days, the railroad flagger is usually the same person;
    - On shorter jobs, the railroad flagger may change daily and will require discussing job details with each new flagger.
- Access roads to and across tracks are used for emergency vehicles and shall not be blocked or disrupted.
    - Vehicles shall not be parked within 10 feet of the tracks;
    - Tools or equipment shall not be left on or near the tracks;
    - Work areas shall be carefully inspected after each day to ensure nothing is left on or near the tracks.
- Red markers, flagging or lights shall not be used on railroad right-of-way. Red means "immediate danger" and trains must stop.
    - Flares shall only be used in emergencies.
- Train schedules do not assure safety. Passenger trains are often off schedule. Freight trains have no schedules, and move "anyplace, anytime".
- Railroad equipment is not always heard, especially if there is other noise. A coasting or slow-moving train may not give adequate warning.

Definition of Railroad Terms

- **Absolute Protection:** Periods when workers have exclusive use of the track to perform work, and when trains are not to be operating. This protection is accomplished by the railroad "flagger" assigned to the job by means of radio contact with the train operators and dispatchers. Even when "absolute protection" is granted, never assume the impossibility of train traffic.
- **Foul:** Presence of anyone or any object within 4 feet of the rails. Railroads prefer to keep all personnel, tools, and equipment outside 4 feet of the tracks at all times. Within 4 feet (in addition to being struck by a train), there are hazards from loose objects on the train. When on the railroad right-of-way, stop work each time a train passes to maximize advance warning.
- **Gauge-of-Track:** Distance between rails. Stay out of the "gauge-of-track" whenever possible.
- **In-the-Clear:** Any location more than 4 feet from the rails. Stay "in-the-clear" whenever possible.
- **Railroad Flagger:** Individual employed by, and assigned, by the Owner/Operator (railway) to coordinate communication between the "Company" and the railway. **This person has ultimate authority over the worksite.**

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Awareness & Training

Supervisory personnel responsible for operations that require using any type of aerial lift device shall ensure that employees involved in such operations are aware of the "Company's" policy and procedures and receive initial and periodic refresher training in accordance with current American National Standards Institute (ANSI) requirements A92.2-1990 for "Vehicle Mounted Elevating and Rotating Aerial Devices".

- Crews shall conduct brief daily tailgate safety meetings to review special job features, traffic considerations, and appropriate safety precautions.

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Work Platforms

Scissor Lift • Aerial Lift • Boom Lift • Man Lift • Articulating Boom Lift

Operator Qualifications

Only trained and authorized workers should use work platforms. Training must be specific to the type of work platform being used.



Safe use of a work platform requires the operator to understand the limitations, warnings, operating procedures and responsibility for maintenance.

To do this, the operator must be familiar with and understand the Operating Manual for each model of work platform to be operated, and be familiar with the rules and regulations applicable in their work environment. They should also be able to demonstrate their ability to understand and operate the specific work platform to be operated in the presence of a Qualified Person.

Electrocution Hazard

Work Platforms are not insulated. Maintain safe clearances from electrical power lines and apparatus. You must allow for platform sway, rock or sag. Work Platforms do not provide protection from contact with or proximity to an electrically charged conductor.

Voltage Range (Phase to Phase)	Minimum Safe Approach Distance (Feet)	(Meters)
0 - 300 V	AVOID CONTACT	
Over 300 - 50 KV	10	3.05
Over 50 KV - 200 KV	15	4.60
Over 200KV - 350KV	20	6.10
Over 350KV - 500KV	25	7.62
Over 500KV - 750KV	35	10.67
Over 750KV - 1000KV	45	13.72

Jobsite Hazards

- Only elevate your work platform on **Firm Level Surfaces** . Avoid pot holes, loading docks, debris, drop offs and surfaces that may affect the stability of your work platform.
- Make sure the surface you are working on is capable of supporting the weight of the work platform, including the rated load. **DO NOT** operate on access covers, drains or trenches.
- When operating in a busy environment mark off your work area and inform people you will be working nearby.
- Be aware of overhead obstacles, poorly lit areas, obstructions and overhangs in your work area.
- **DO NOT** raise your platform in windy or gusty conditions.
- **DO NOT** exceed the rated capacity of your work platform, and make sure the load is evenly distributed on the platform.
- Wear any protective equipment required by jobsite conditions or regulations.

Work Platform Conditions

An Operator should not use any work platform that:

- Has ladders, scaffolding or other devices mounted on it to increase its' size or work height.
- Does not have a clean, uncluttered work area.
- Does not appear to be working properly.
- Has been damaged or appears to have worn or missing parts.
- Has alterations or modifications not approved by the manufacturer.
- Has Safety Devices which have been altered or disabled.

Emergency Procedures

The operating manual for your work platform will contain information on emergency procedures. It is imperative that you review these procedures, in the operating manual, before using any work platform. Items to review include:

- Emergency Descent Procedure;
- Towing and Freewheeling Procedures;
- Daily Inspection and Test Procedures;
- Set Up Procedures;
- Operation Procedures;
- Shut Down Procedures.

Work Platform.pub

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Behavior-Based Safety Policy

Introduction

What is Behavior-Based Safety?

Behavior-Based Safety (BBS) is a proactive approach to enhancing workplace safety by focusing on employees' behaviors and the underlying factors influencing them. The primary objective of BBS is to identify and modify unsafe behaviors to prevent accidents and injuries in the workplace. By adopting a systematic process, offering comprehensive training, and continuously evaluating its effectiveness, Master Construction Solutionscan significantly reduce workplace accidents and foster a culture where safety is a shared responsibility.

- **Observation:** BBS is based on direct observation of workers performing their tasks. These observations help identify both safe and unsafe behaviors.
- **Feedback:** Once observations are made, constructive feedback is provided to the workers aiming to reinforce safe behaviors and correct unsafe ones.
- **Involvement:** BBS involves all levels of employees, not just supervision and management. Peer to peer interactions carry as much weight as supervisory interactions.
- **Behavior Focus:** BBS focuses on workers' behaviors not just workplace conditions. By adjusting unsafe behaviors to safe, accident frequency can significantly diminish.
- **Data-Driven:** BBS relies on the collection and analysis of data. By tracking and analyzing both current and past data, workplaces can see incident trends and can target investigations to eliminate those trends.
- **Positive Reinforcement:** One of the most counterproductive measures of BBS is to become hyper-focused on only negative behaviors. By recognizing, congratulating, and encouraging positive behaviors, employees will be more invested in BBS.
- **Continuity:** BBS is an ongoing process seeking continuous improvement through regular observations, feedback, and data-analysis.
- **Shift in Culture:** Over time, the goal of BBS is to instill a positive culture of safety where employees have a vested, proactive involvement in their own and each other's safety.

7 Steps in The Behavior-Based Safety Process

1. **Developing a Problem Statement**
   - The first step is to clearly identify and define the safety challenges or concerns for Master Construction Solutions. This involves a comprehensive understanding of specific issues, incidents, or patterns that indicate a safety problem. Through a clear concise statement, Master Construction Solutions can identify and target specific interventions and ensure everyone is aligned with the safety objectives.

2. **Selecting the Problem Behaviors**
   - The focus then shifts to identifying specific behaviors contributing to the safety challenges. The specific behaviors can range from not wearing proper PPE to bypassing or ignoring safety protocols due to time pressures. Addressing allows Master Construction Solutions to address the root causes of incidents.

3. **Identifying the Critical Behaviors**
   - This step identifies which behaviors would have the most positive impact on incident reduction if changed. These "critical behaviors" become the primary focus for Master Construction Solutions.

4. **Identifying Triggers and Outcomes Related to Problem Behaviors**
   - For every behavior, there are triggers (antecedents) that prompt it and outcomes (consequences) that reinforce or discourage it. By understanding what drives unsafe behaviors, Master Construction Solutions can develop strategies to modify or replace these triggers and outcomes, making safe behavior more likely.

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5. **Design and Implement Interventions**
    - Now that the triggers and outcomes have been identified, the next step involves creating and implementing a plan to promote safe behaviors. The interventions can range from new safety equipment to changes in work processes. The key to ensure success is making sure the interventions specifically address the triggers and outcomes of the critical behaviors.

6. **Validating the Effectiveness of Interventions**
    - Now that the interventions are in place, they must be effectively evaluated to ensure that the critical behaviors are changing. Employee surveys and safety observations are two examples of validating the effectiveness of the intervention.

7. **Measuring Outcomes**
    - The final step is measuring tangible outcomes such as monitoring key safety metrics like accident rates, near misses, and injury frequencies. Assessing these outcomes will allow Master Construction Solutions to determine the overall effectiveness of the BBS process and make necessary changes for continuous improvement.

Behavior-Based Safety Training

Training is designed to educate employees about the principles of BBS and equip them with skills to identify, analyze, and modify unsafe behaviors in the workplace. Training typically involves the following steps:

- **Introduction to BBS**
    - The introduction includes defining and discussing the principles of BBS, the importance of focusing on behavior as the number one deterrent in workplace accidents, and a general overview of the BBS process.

- **Observation**
    - The observation skillset involves learning how to observe workers without being intrusive, recognizing safe and unsafe behaviors, and the importance of unbiased observation.

- **Feedback**
    - The feedback skillset will show employees how to provide constructive feedback to peers, the importance of positive feedback, and how to address unsafe behaviors without placing blame.

- **Data Collection and Analysis**
    - Data collection and analysis techniques teach employees how to record observations, analyze data for trends, and to use data to drive safety initiatives and interventions.

- **Management**
    - The role management plays in a BBS culture is paramount for its success. Management must support and promote BBS, set the tone for a safety culture, and commit to the BBS process.

- **Employee Involvement**
    - Encourage employees to actively participate in the BBS process with peer observations, forming safety committees, and show how they contribute to the continuous improvement of the BBS process.

- **Case Studies**
    - Use real-life examples of how BBS has been implemented and the results achieved; show the lessons learned from successful and unsuccessful BBS initiatives.

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- **Continuous Improvement**
  - BBS is not a one-time activity. Show the importance of regularly reviewing and refining the BBS process. Keep the BBS process fresh and exciting through various techniques that actively engage employees.

- **Addressing Challenges**
  - Recognize that a BBS cultural shift takes time to implement and show improvements. Address common challenges Master Construction Solutions may face and develop strategies to overcome resistance and skepticism.

- **Action Planning**
  - Develop a plan to implement and improve BBS in the workplace, set goals and milestones, and identify resources and support needed to successfully integrate BBS into the workplace.
  - BBS training can be delivered in various formats, including classroom, online, workshops, and on-the-job training. The training should be interactive, allowing participants to observe and give feedback, engage in group discussions, and work on action plans.

It is essential that BBS training is not a one-time event. Refresher courses, ongoing coaching, and continuous feedback are crucial to ensure that the principles of BBS are ingrained in the workplace culture and that employees remain engaged and relevant in the process.

Implementing a Successful Behavior-Based Safety Program

Implementing a successful Behavior-Based Safety program requires a systematic approach, commitment from all levels of Master Construction Solutions, and continuous monitoring and improvement.

- **Management Commitment**
  - Ensure that top management is fully committed to the BBS program because their support and involvement are paramount to the program's success. They allocate the necessary resources, including time, budget, and personnel, to support the program.

- **Establish a BBS Steering Committee**
  - Form a committee with representatives from management, safety professionals, and frontline employees who will oversee the implementation, monitor progress, and make necessary adjustments to the program.

- **Define Clear Objectives**
  - Determine what you want to achieve with the BBS program, such as reducing accidents and injuries, improving safety culture, and/or increasing employee engagement in safety. Set measurable and achievable goals that can be tracked and analyzed.

- **Conduct Baseline Assessments**
  - Conduct a baseline assessment of the current safety culture by collecting past data on accident rates, near misses, and unsafe behaviors. This will determine where the BBS program can improve the safety culture.

- **Develop Observation and Feedback Processes**
  - Train selected employees to perform safety observations. Establish a process to provide constructive feedback to employees based on the observations, and ensure the feedback is non-punitive and focuses on positive reinforcement.

- **Employee Training and Engagement**
  - Provide training to all employees on the principles of BBS and their role in the program. Encourage active participation by creating opportunities for employees to participate in safety observations, feedback sessions, and revolving-member safety committees.

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- **Data Collection and Analysis**
  - Develop a system for collecting and analyzing data from safety observations and review this data regularly for trends, areas of concern and improvement.

- **Communication**
  - Keep all employees informed of the program's progress, successes, and challenges. Use a variety of options to disseminate the information, such as safety meetings, newsletters, bulletin boards, and intranet communications, weekly, biweekly, or monthly.

- **Positive Reinforcement**
  - Recognize and reward safe behaviors and contributions to the BBS program through verbal recognition, certificates, intranet communications, and other incentives. Positive recognition will reinforce management commitment and employee buy-in to the BBS program.

- **Continuous Improvement**
  - Regularly review and adjust the BBS program based on feedback and data, it is a living document meant for continuous scrutiny and updates. Conduct periodic assessments to measure the effectiveness of the program in its current state: monthly safety committee meetings and quarterly steering committee meetings are realistic and attainable.

- **Address Challenges Proactively**
  - Be prepared for resistance and skepticism from some employees, it is natural. Address their concerns opening and provide information, particularly data, to alleviate any misconceptions. Ensure the program does not solely focus on individual behaviors thereby ignoring or neglecting systematic or environmental conditions that contribute to unsafe conditions.

- **External Validation**
  - Considered bringing in a third-party safety professional to review and discuss the BBS program created. An outside professional assessment could help bring the BBS program to a new level previously not considered.

- **Celebrate Successes**
  - Celebrating individual employee accomplishments is not the only thing to be considered. Recognize and celebrate milestones and achievements of the BBS program as well. Sharing success stories from the program can boost morale and reinforce the importance of the program.

Behavior-Based Safety Examples

Here are some real-world examples of BBS in action to help form your BBS program:

- **Safety Observations:**
  - **Scenario:** In a manufacturing plant, trained observers regularly walk the production floor to observe workers performing their tasks.
  - **BBS Application:** Observers note both safe and unsafe behaviors, such as proper used of personal protective equipment (PPE) or bypassing safety guards. Feedback is then provided to the workers, and data is collected for analysis.

- **Feedback Cards:**
  - **Scenario:** In a construction site, workers are given feedback cards to fill out when they observe a colleague performing a task safely or unsafely.
  - **BBS Application:** These cards are then reviewed in weekly safety meetings, allowing for positive reinforcement of safe behaviors and discussions on how to correct unsafe ones.

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- **Peer-to-Peer Feedback:**
  - **Scenario:** In an office setting, employees are encouraged to provide immediate feedback to their peers if they notice unsafe behaviors, such as leaving trip hazards or not following ergonomic guidelines.
  - **BBS Application:** This immediate feedback helps in real-time correction of behaviors and fosters a culture where everyone looks out for each other's safety.

- **Safety Scoreboards:**
  - **Scenario:** In a warehouse, a scoreboard displays the number of days without an accident and highlights specific safe behaviors observed during the week.
  - **BBS Application:** The scoreboard serves as a visual reminder of the importance of safety and provides positive reinforcement for safe behaviors.

- **Safety Incentive Programs:**
  - **Scenario:** A chemical processing plant offers monthly rewards to teams or departments that demonstrate the highest percentage of safe behaviors.
  - **BBS Application:** By focusing on rewarding safe behaviors (rather than just the absence of accidents, or not reporting them to "win"), the plant promotes proactive safety measures.

- **Near-Miss Reporting:**
  - **Scenario:** In a hospital, staff members are encouraged to report near misses or situations where an accident could have occurred but did not.
  - **BBS Application:** By analyzing these near misses, the hospital can identify potential hazards and address them before they lead to actual accidents.

- **Safety Role-Playing:**
  - **Scenario:** In a retail store, employees participate in role-playing activities where they act out scenarios involving potential safety risks, such as spills, using ladders, or lifting heavy objects.
  - **BBS Application:** These exercises allow employees to practice safe behaviors in a controlled environment and receive feedback on their performance.

- **Safety Behavior Audits:**
  - **Scenario:** In a mining operation, external safety consultants conduct periodic audits to observe and evaluate workers' behaviors in relation to established safety protocols.
  - **BBS Application:** These audits provide an unbiased view of safety behaviors and offer recommendations for improvement.

- **Interactive Safety Training:**
  - **Scenario:** In a logistics company, drivers participate in interactive training sessions where they are presented with various road scenarios and must choose the safest course of action.
  - **BBS Application:** This training reinforces safe driving behaviors and allows drivers to learn from their mistakes in a risk-free environment.

- **Safety Behavior Surveys:**
  - **Scenario:** In a research laboratory, employees are periodically surveyed about their own safety behaviors and their perceptions of their colleagues' behaviors.
  - **BBS Application:** The survey data provides insights into areas where safety behaviors can be improved and helps identify potential barriers to safe behaviors.

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Task Safety Observation **Date:** _____

Job Name and Location: _____

Observer's Name: _____

Craft: _____ **Task:** _____

_____

_____

_____

********EMPLOYEE ACTIONS********

Check the appropriate box:

Y	N	n/a	
			Are employees wearing safety glasses?
			Are employees wearing hard hats?
			Are employees wearing hearing protection?
			Are employees wearing proper clothing and footwear?
			Are employees wearing respiratory protections?
			Are GFCIs being used for all 120V electric outlets?
			Is there 100% fall protection over 4 feet?
			Are tools being used properly?
			Are employees using proper hand signals for lifts?
			Are employees using ladders properly?
			Are employees using proper eye protection while burning or welding?

Check the appropriate box:

Y	N	
		Are any employees working in a manner that may cause injury to themselves or others?

If yes, explain: _____

_____

_____

_____

Y	N	n/a	Are there any other conditions or ongoing procedures that may cause injury to the
			workers or others in the area?

If yes, explain: _____

_____

_____

_____

Y	N	n/a	
			Is corrective action required?

What can be done to make this job safer? _____

_____

_____

_____

_____

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********CONDITIONS & PROCEDURES********

Check the appropriate box:

Y	N	n/a	
			Are tools and equipment in good condition and safe for use?
			Are cords, leads and hoses elevated or protected from damage?
			Does the work area have adequate lighting?
			Is the work area free from slip/trip and fall hazards?
			Is housekeeping being maintained?
			Are compressed gas cylinders secured upright?
			Are energy sources locked out/tagged out?
			Are proper permits posted and followed?

Check the appropriate box:

Y	N	n/a	
			Were corrections made immediately?
			Was the Foreman/Supervisor notified?

In the opinion of the observer, the evaluation requires the following action:

	The overall site conditions &/or personnel actions are acceptable
	The site &/or personnel need attention as outlined
	Immediate attention is required

NAME: **Date:**

Additional Comments:

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Cold Weather Safety/ Cold Stress Policy

Policy

It is the policy of Master Construction Solutions that any employee participating in job tasks when environmental risk factors for cold illness are present will comply with the procedures in this program. Workers in the normal course of their duties may be required to perform work in adverse weather conditions. Precautions and continuing measure shall be taken by each worker to minimize health risks and discomfort from working in these conditions.

Purpose

To ensure that all employees of Master Construction Solutions are protected from cold illness while working on job tasks where environmental risk factors for cold illness are present and to establish the minimum requirements for working in this environment.

Cold Weather

Employees who work in outdoor places of employment or on job tasks in unheated areas at those times when the environmental risk factors for cold illness are present, are at risk for developing cold illnesses if they do not protect themselves appropriately. The supervisor will ensure an assessment is made to identify the types of jobs or employees who are at risk for cold exposure, such as unheated buildings, open structures, pit excavations, manholes/ underground vaults, etc. The objective of this program is employee awareness regarding cold illness symptoms, ways to prevent illness, and what to do if symptoms occur.

Definition of Terms

Acclimatization: temporary adaptation of the body to work in the cold that occurs gradually when a person is exposed to it. Acclimatization peaks in most people within four to fourteen days of regular work for about two hours per day in the cold.
Cold Illness: a serious medical condition resulting from the body's inability to cope with cold environment, and includes cramps exhaustion, and hypothermia.
Environmental risk factors for cold illness: working conditions that create the possibility that cold illness could occur, including air temperature, relative humidity, conductive cold sources such as the ground, air movement, workload severity and duration, protective clothing and personnel protective equipment worn by employees.
Personal risk factors for cold illness: factors such as an individual's age, degree of acclimatization, health, water consumption, alcohol consumption, caffeine consumption, and use of prescription medications that affect the body's water retention or other physiological responses to cold.
Preventative recovery period: a period of time to recover from the cold in order to prevent cold illness.

Responsibilities

- **The designated representative** is responsible for:
  - Assisting with providing training to all potentially impacted employees and their supervisors on the risks and prevention of cold illness, including how to recognize symptoms and respond when they appear.
- **Directors, Managers, and Supervisors** are responsible for:
  - Identifying all employees who are required to work outdoors where potential cold illness could occur and identifying the supervisor of the employees.
  - Ensuring that all affected employees have received proper training on cold illness prevention.
  - Ensuring that the requirements in this document are followed.
  - Contacting EMS to request emergency medical services in the event medical assistance is required.

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- **Affected employees** are responsible for:
    - Complying with the provisions of this Cold Illness Prevention Program, as described in this document and in the training sessions they attend.
    - Reporting cold related illness symptoms to your supervisor.

Basic Requirements

- The following basic requirements apply to all employees while working where environmental risk factors for cold illness are present.
- All employees shall be identified who are required to work where environmental factors for cold illness are present.
- Training shall be provided for all potentially impacted employees working where environmental risk factors for cold illness are present and their supervisors. Training information shall include but not be limited to the topics listed in the training section of this written program. All potentially impacted employees and supervisors who supervise these employees must be trained in the risks and prevention of cold illness, including how to recognize symptoms and respond when they appear.
- Hydration is equally important when working in hot or cold environments. Drinking water in the quantity of 1 quart per hour shall always be available for each employee for the duration of the entire shift while working in cold environments. Supervisors shall remind employees to drink frequently, and this topic will be addressed at tailgate meetings.
- The importance of taking rest breaks and recognizing when a preventative recovery period is needed allowing employees to warm shall be addressed at tailgate meetings. Other preventive measures include drinking plenty of liquids, avoiding caffeine and alcohol. It is easy to become dehydrated in cold weather. If possible, heavy work should be scheduled during the warmer parts of the day. Take breaks out of the cold. Try to work in pairs to keep an eye on each other and watch for signs of cold stress. Avoid fatigue since energy is needed to keep muscles warm. Take frequent breaks and consume warm, high calorie food such as pasta to maintain energy reserves.
- In the event an employee feels discomfort from the cold, a preventative recovery period is needed to allow the employee to warm up and prevent the onset of cold illness.
- Supervisors and employees shall carry radios or other means of communication to ensure that emergency services can be called. Verification that the radios or other means of communication are functional at the worksite shall be carried out prior to each shift.

Training

Training shall be provided for employees working on job tasks where environmental risk factors for cold illness are present, and training for their respective supervisors. All employees working on job tasks where environmental risk factors for cold illness are present shall receive instruction before being assigned to work tasks. Employees who are required to work in cold weather conditions shall receive initial and annual training regarding the health effects of cold exposure, proper rewarming procedures, recognition and first aid for frostbite and hypothermia, required protective clothing, proper use of warming shelters, the buddy system, vehicle breakdown procedures, and proper eating and drinking habits for working in the cold.

- Training topics shall include the following:
    - Environmental and personal risk factors for cold illness.
    - Procedures for identifying, evaluating, and controlling exposures to the environmental and personal risk factors for cold illness.
    - Importance of acclimatization.
    - Different types, signs, and symptoms of cold illness.
    - Employees shall be familiar with the signs and symptoms of cold weather induced health problems such as hypothermia, frostbite and trench foot through their initial and annual training.

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- Hypothermia occurs when body heat is lost faster than it can be replaced. When the core body temperature drops below the normal 98.6° F to around 95° F, the onset of symptoms normally begins. The person may begin to shiver and stomp their feet to generate cold. Workers may lose coordination, have slurred speech, and fumble with items in their hand. The skin will likely be pale and cold.

  Frostbite occurs when the skin actually freezes and loses water. In severe cases, amputation of the frostbitten area may be required. While frostbite usually occurs when the temperatures are 30° F or lower, wind chill factors can allow frostbite to occur in above freezing temperatures. Frostbite typically affects the extremities, particularly the feet and hands. The affected body part will be cold, tingling, stinging or aching followed by numbness. Skin color turns red, then purple, then white, and is cold to the touch. There may be blisters in severe cases.

  Trench Foot or immersion foot is caused by having feet immersed in cold water at temperatures above freezing for long periods of time. It is similar to frostbite, but considered less severe. Symptoms usually consist of tingling, itching or burning sensation. Blisters may be present.

- Importance of immediately reporting symptoms or signs of cold illness in themselves or in coworkers to their supervisor. Workers should be under constant protective observation by a co-worker or supervisor. Master Construction Solutions will use a "Buddy System" to ensure that no employee is working alone in cold work environments.

- Procedures for responding to symptoms of possible cold illness, including how emergency medical services will be contacted and provided, should they become necessary. Employees will be trained to administer proper first aid treatment on cold induced injuries or illnesses through their initial and annual training. All employees who are required to perform work in cold conditions should be knowledgeable on how to administer first aid treatment on cold induced injuries or illnesses.

Supervisors of Affected Employees

- Supervisors or their designees shall receive training on the following topics prior to being assigned to supervise outdoor employees:
  - Information as detailed above in employee training requirements.
  - Procedures the supervisor shall follow to implement the provisions of this program.
  - Procedures the supervisor shall follow when an employee exhibits symptoms consistent with possible cold illness, including emergency response procedures.

Cold Weather

Workers should prepare for cold weather by wearing several layers of clothing. This allows the worker to remove or add layers as necessary throughout the work shift as temperature, and the worker's cold changes. Proper cold weather protection must be worn by employees when working in cold, wet and windy conditions. Protective Clothing is the most important way to avoid cold stress. The type of fabric also makes a difference. Cotton loses its insulation value when it becomes wet. Wool, silk and most synthetics, on the other hand, retain their insulation even when wet. The following are recommendations for working in cold environments:

- Wear at least three layers of clothing. An inner layer of wool, silk or synthetic to wick moisture away from the body. A middle layer of wool or synthetic to provide insulation even when wet. An outer wind and rain protection layer that allows some ventilation to prevent excess moisture.
- Wear a hat or hood. Up to 40% of body cold can be lost when the head is left exposed. Facemasks, gloves and glove liners should be considered in extreme weather conditions.
- Wear insulated boots or other suitable footwear.
- Keep a change of dry clothing available in case work clothes become wet

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- With the exception of the wicking layer do not wear tight clothing. Loose clothing allows better ventilation of cold away from the body.
- Do not underestimate the wetting effects of perspiration. Oftentimes wicking and venting of the body's sweat and cold are more important than protecting from rain or snow.

Hot drinks may help the worker maintain body temperature; however, coffees and teas should be avoided. Under no circumstances shall any alcoholic beverages be used. Cold weather supplies will be regularly inspected and restocked when necessary. Regular inspections on cold weather supplies (e.g. hand warmers, jackets, shovels, etc) should be carried out to ensure that supplies are always in stock. Certain combinations of temperature, wind, and jobsite location may make it impractical to work. In those extreme cases, workers should check with their supervisor, or the responsible safety officer, for direction.

Wet or Inclement Weather

Workers exposed to rain, sleet, snow, or other wet conditions shall wear protective, waterproof clothing. Careful assessment of the jobsite under inclement weather conditions must be made. Slips and falls may happen in the general jobsite area of work, in addition to slips from ladders, scaffold, or other work surfaces. Any regularly used walkways and travel-ways shall be sanded, salted, or cleared of snow and ice as soon as practicable. Employees will be informed of the dangers associated with working around unstable snow and ice build ups. In addition, all employees shall be informed of the dangers and destructive potential caused by unstable snow buildup, sharp icicles, and ice dams and know how to prevent accidents caused by them through their initial and annual training.

Any electrically- operated tools shall not be used in wet conditions due to the risk of electrical shock.

Windy Conditions

Some workers in windy conditions are at great risk. Handling large, lightweight materials, working on ladders, or elevated work surfaces, and working with small lightweight materials are all examples of job duties which pose special hazards in windy conditions. Therefore, each jobsite and work assignments shall be assessed for dangers from high winds.

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Concrete and Masonry Policy

This policy sets forth requirements to protect employees from the hazards associated with concrete and masonry construction operations performed in workplaces covered under 29 CFR Part 1926. In addition to the requirements in Subpart Q, other relevant provisions in Parts 1910 and 1926 apply to concrete and masonry construction operations. This policy is not all inclusive and the actual standards should be consulted for the resolution of any areas not outlined.

General Requirements

- **Construction Loads** – No one may place a construction load on a concrete structure or portion of a concrete structure unless Master Construction Solutions has determined (based on information received from a person who is qualified in structural design) that the structure or portion of the structure to receive the load can support the intended load.
- **Impalement Hazards/Reinforcing Steel** – Materials and other objects which could pose impalement hazards shall be kept out of the area below where workers are working or shall be properly guarded.

  - Ends of all protruding metal (i.e., rebar), lumber or plastic must be guarded.
  - Only rebar caps designed to provide impalement protection, such as those containing steel reinforcement, shall be used.





  - Standard plastic mushroom type caps are designed to provide scratch protection only and are never to be used as a means of protecting against impalement hazards.
  - If not using rebar caps (designed to provide impalement) you must bend over the ends of protruding steel rebar.
  - All supervisors and workers are to be trained to follow safe work procedures when working with protruding rebars. Specifically, the hazards of protruding steel rebars and Master Construction Solutions's protective systems.
  - For employees working at any height above exposed rebar (or above any other exposed sharp object that could impale), fall prevention or protection is the first line of defense and must be used.
- **Bad Weather:** When adverse weather (i.e., high winds, rain, snow, or sleet) creates a hazardous condition, operations shall be suspended until the hazardous condition no longer exists. No one shall be allowed on scaffolding covered with ice and snow, except as directed by the Competent Person (see Master Construction Solutions's scaffolding guidelines), for the purpose of removing the snow and ice.
- **Staging of Materials/Equipment:** Materials and equipment (for the work to be performed) shall be conveniently located to the workers. Reaching over or under the edges is prohibited without adequate fall arrest or protection systems in place.
- **Trained Workers Only:** Only trained workers shall be allowed to work on the top of a foundation wall, and only as necessary to complete the construction of the wall.
- **Employees working more than 6 feet above adjacent surfaces** and involved in rebar tying or placing must be equipped with a personal fall arrest system or equivalent device (i.e., fall restraint).
- Reinforcing steel for vertical structure must be guyed and supported to prevent collapse.
- **Adequate Support:** All formwork shall be adequately supported before any worker may work on top.
- Wire mesh rolls should be prevented from recoiling by securing them at each end.

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- **Concrete mixers with one yard or larger loading skips** should have a mechanical device to clear the skip of material.
- **Guardrails on each side of the skip** are required on mixers of one yard or greater capacity.
- Manually guided, **power and rotating type concrete travels** must have dead man type switches.
- Handles of concrete buggies should not extend beyond the wheels of either side.
- Concrete should not be suspended over vibrator crews.
- When using a **powered or rotating-type troweling machine**, the control switch will automatically shut off the power when the operator removes his hands from the handle - DO NOT USE "TIE-DOWNS" on the control switches.
- Riding concrete buckets for any purpose is prohibited.
- Vibrator crews should be kept out from under concrete buckets suspended from cranes or cableways.
- **When discharging on a slope**, make sure the ready-mix truck's wheels are blocked and the brakes set to prevent movement.
- **Wet concrete conducts electricity**; reference Master Construction Solutions's Electrical Safety Policy for guidelines.
- **Bull Float Handles** which could come into contact with energized electrical conductors, shall be constructed of non-conductive material or insulated with a non-conductive sheath whose electrical and mechanical characteristics provide the equivalent protection of a handle constructed of non-conductive material.
- Personal protective equipment shall be used as assigned by your immediate supervisor.
- If concrete splatters on the skin it must be washed off immediately.

Concrete Buckets/Working Under Loads

- Employees are **never** permitted to ride on or in a concrete bucket. A loaded bucket can weigh as much as a full-sized pick-up truck.
- Concrete buckets equipped with hydraulic or pneumatic gates require positive safety latches or equivalent.
- Employees must not be permitted to work under concrete buckets while the buckets are being elevated or lowered into position.
- To the extent practicable, elevated concrete buckets must be routed so that no employee (or the fewest employees possible) is exposed to the hazards associated with falling concrete buckets.

Personal Protective Equipment (PPE)

- Employees are not permitted to apply cement, sand, and water mixture through a pneumatic hose unless they are wearing protective head and face equipment.
- Hard hats must be worn when working near a load.
- All other PPE must be worn as assigned.

Post-Tensioning Operations

While it is the responsibility of the project design engineer to ensure that the building is designed and detailed so that it can be constructed as intended, the principal contractor, in association with the design engineer, the post-tensioning contractor, the formwork installation contractor, the pre-caster and erector (if applicable), should coordinate the planning of the complete construction sequence, inclusive of stressing.

Responsibilities:

- Any variations to the design specifications must be authorized by the project design engineer and included in the final drawings, issued for construction.
- Principal contractors must ensure that their employees and the employees of their subcontractors involved in all the post-tensioning stages are provided with the necessary information, instruction, training, and supervision to enable them to perform their work in a manner that is safe to themselves and other persons. The various subcontractors also share this obligation in relation to their own employees.
- A Job Hazard Analysis (JHA) shall be prepared by the post-tensioning contractor, in consultation with the employees and their Competent Person, to cover all stages of their work. The JHA will assist the principal contractor and the subcontractors to:

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- Identify and manage risks associated with the procurement, materials handling, installation of post-tensioning components, use of equipment and stressing operations.
- Keep abreast of the current state of knowledge within this specialized field.
- Identify general and specialized training needs for employees (regardless of status).
- Ensure the final approved drawings are followed and all health and safety concerns are dealt with.

➢ The direct supervision and coordination of the stressing operations is the responsibility of the post-tensioning contractor's designated Competent Person.

Work Platforms:

➢ The design and construction of working platforms shall comply with the relevant OSHA standards. For example, where scaffolds are provided, they shall be constructed in accordance with 29 CFR 1910.28, 29 CFR 1926.451, and 1926 Subpart L.

➢ To provide a safe working environment, working platforms need adequate working space, appropriate edge protection, and safe access and egress.

➢ They must also be designed and constructed to safely support all expected loads, including impact loads. Factors that will determine the selection of an appropriate working platform include:

- The type and number of items of stressing equipment that may be in use;
- In the case of cast in-situ concrete constructions, working platforms may be built integrally with the formwork;
- The number of people required, or likely to be, on the work platform at any one time; and
- The likely material storage (i.e., weight, dimensions) on the platform.

➢ The platform should be large enough to enable the operators to remain clear of anchorages during stressing, and it should be at a height which eliminates or minimizes risk of injury from over-reaching or awkward postures.

Prestressing Safety Considerations:

➢ Stressing operations and associated preparations for stressing involve a variety of tasks which, if appropriate precautions are not taken, could endanger the health and safety of employees carrying them out and/or those in the vicinity.

- The area where preparations and stressing are intended to take place must be fully barricaded with solid panels and signage prominently posted to keep unauthorized personnel clear of this area.
- All personnel involved in the tasks should wear the personal protective equipment identified in the JHA. This will generally include safety goggles, gloves, sturdy protective footwear, and hard hats.
- All personnel involved in the tasks shall be adequately trained in identifying the hazards of stressing and their associated risks.

Uncoiling, Cutting, & Placing Strands:

➢ Coils typically weigh 3 to 4 tons, and therefore the structural adequacy of the area where coils are to be placed must be verified by the Competent Person. Manual handling issues associated with handling coils shall be controlled in accordance with the JHA guidelines.

➢ Ensure that the coils are restrained with uncut restraining straps when placing them onto the strand frame. Uncontrolled release of the coil can result in whip-back with sufficiently high force to cause serious injury.

➢ Strands should not be cut by heat-type cutting equipment such as oxy-acetylene or LP gas torches, as this may compromise their load-bearing capacity under tension.

➢ When assembling tendons, thoroughly inspect each individual wire or strand for obvious flaws.

Pushing Strands into Ducts:

➢ All strands for each of the tendons should be pushed into place in accordance with the drawings, making sure all personnel are kept clear of the direct line of ducting to prevent injury from strands exiting from the other end of the duct.

➢ Once the specified number of strands is in place, ensure that a "dead end" is created for each strand by securing them at the end of the element.

- "Dead End" is the end of the tendon which is anchored in the concrete beam or slab whilst stressing takes place from the opposite (live) end. "Dead Ends" may be of a "swaged", "onion", or "H" type.

➢ In strand set-ups where ends will protrude above the face of the concrete element and may create a hazard, they should be boxed or barricaded to prevent injury.

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Concrete Pour:

- Concrete may be placed with either pumps or kibbles. When concrete is being pumped, "chairs" or other means to support concrete pump lines above the reinforcement and tendons should be in place and well secured. Where kibbles are used to place concrete, avoid dropping concrete in one place as tendons could be displaced. Concrete should always be allowed to flow in a controlled manner.
- During concrete pouring:
    - Ensure that the ducts and strands are not damaged during the pour. All damage should be promptly notified to the contractor's supervisor for repair. However, concrete around the anchorages needs adequate vibration to ensure safe and sound seating for the anchorage.
    - Concrete test cylinders should be taken at agreed intervals for storing and curing on site under conditions similar to those applying to the element being poured.

Barricades:

- Before final stressing commences, adequate barricades should be erected at all live ends of tendons being stressed. In the case of double live end tendons, barricades are needed at both ends, even if stressing is only occurring from one end.
- An adequate barricade is one that has been designed to restrain and reduce impact from strands or jacks if strands snap or release under tension or if the system fails in some other way. They are generally constructed from timber and two separated layers of 17 mm form ply sheets and are placed behind jacks during final stressing and de-tensioning.

Stressing Operations:

- **Prior to commencing stressing operations**, the post-tensioning supervisor should verify that:
    - Concrete around the anchorages has been examined. The principal contractor should be notified if the concrete is of poor quality.
    - All concrete test cylinders have achieved the specified strength.
    - The grips in the jacks on the stressing equipment are clean and free of dirt or grit and are in good condition.
    - The stressing equipment (i.e., jacks and their gauges) has appropriate service records and up-to-date calibration certificates. All jacks should have a durable tag securely attached which clearly shows the following information.
        - Final stressing pressure
        - Jack Number
        - Corresponding gauge number
        - Diameter and grade of the strand for which the jack is being used
        - Date calibration expires
    - The operator of the stressing equipment has documented evidence of appropriate training.
    - A "NO GO" area of at least a 2-meter radius is in place around the anchorages at the dead and live ends, with barricades behind the line of jacks and "Stressing in Progress – Keep Clear" signage prominently displayed at all appropriate locations.

During stressing operations:

- Tendons should be stressed in order from the furthest to the closest reachable to ensure that no person is standing in direct line of the jack or previously stressed strands.
- Ensure stress is applied gradually and evenly to tendons.
- Ensure that the specified initial and final stressing levels are not exceeded.

After stressing operations are completed*:*

- Gain the design engineer's approval prior to cutting off excess tendons.
- Seal anchorage recesses following approval and prior to grouting the ducts.
- Do not perform tasks requiring impact, such as hammering, drilling, or coring in the vicinity until the grouting of the ducts has been completed.

Grouting:

- Build-up of excessive pressure during grouting can result in "blow outs" of the concrete, which could injure employees in the vicinity.
- To prevent blowouts:
    - Ducts should be blown through to ensure there are no blockages.
    - Avoid non-continuous grouting to ensure that excessive pressure does not develop.

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- Retain barricades used during stressing operations and barricade at a lower level if formwork has already been removed.

Masonry Wall Construction

Whenever a masonry wall is being constructed, Master Construction Solutions shall establish a Limited Access Zone (LAZ) prior to the start of construction.

Limited Access Zone (LAZ)

- Entry shall be restricted to the mason contractor's employees (or subcontractor's employees) who are actively constructing the masonry wall.
- The LAZ must be equal to the height of the wall plus four feet (1.2meters) and must run the entire length of the wall.
- The LAZ must be protected either through warning tapes, ropes, wires, or chains. The entryway must have a warning sign posted.



- The LAZ must be set on the side of the wall that will be unscaffolded.
- It shall remain in place until the wall is adequately supported to prevent overturning and to prevent collapse.
- When the height of the wall is more than eight feet (2.4 meters), it must be adequately braced. The bracing shall remain in place until permanent supporting elements of the structure are in place.

Controlled Access Zone (CAZ)

- The area in which work such as overhand bricklaying may take place without the use of guardrail systems, personal fall arrest systems, or safety net systems and access to the zone is controlled by OSHA Subpart M, Fall Protection 1926.500 (b) Definitions.
- Controlled Access Zones shall only be allowed for the use of overhand brick laying operations. The following guidelines must be in place and strictly adhered to:
  - Bricklaying and related work only.
  - The controlled access zone will be cleared with the supervisor prior to being established.
- On floors and roofs where guardrail systems are not in place prior to the beginning of overhead bricklaying operations, controlled access zones shall be enlarged, as necessary, to enclose all points or access, material handling areas, and storage areas. On roofs and floors where guardrails systems are in place but need to be removed to allow overhead bricklaying work or leading-edge work to take place, only that portion of the guardrail necessary to accomplish that day's work shall be removed.
- **Overhand Bricklaying** means the process of laying bricks and masonry units such that the surface of the wall to be jointed is on the opposite side of the wall from the mason, requiring the mason to lean over the wall to complete the work. Related work includes mason tending and electrical installation incorporated into the brick wall during the overhand bricklaying process.
  - If workers must reach more than 10 inches below the level of the walking and/or working surface, the worker shall be protected from falling by use of a guardrail system, safety net system, or personal fall arrest system.
  - This applies particularly to laborers handling incoming material who work at the leading edge of the scaffold. When the gates open, a form of fall protection needs to be in place. Laborers working closer to the "fall zone" shall be protected with one (or a combination) of the above outlined systems.
  - When the CAZ is used to control access to areas where overhead brick laying and related work are taking place, it shall be defined by a control line erected not less than 10 feet (3 meters) nor more than 15 feet (4.6 meters) from the working edge. The control line shall extend for a distance sufficient for the CAZ to enclose all employees performing overhand bricklaying and related work and shall be approximately parallel to the working edge. Only employees engaged in overhand bricklaying or related work shall be permitted in the CAZ.
- **Personal Fall Protection Systems –** All employees on any Master Construction Solutions site who are required to wear a PFAS shall follow the guidelines as outlined in Master Construction Solutions's Fall Protection policy. These guidelines include but are not limited to the following:
  - Only a full body harness is allowed for fall arrest.
  - Only shock absorbing lanyards or retractable lanyards are acceptable.
  - All lanyards will have double locking snaphooks.
  - All personal fall arrest systems shall be inspected immediately prior to each use.

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Formwork

Formwork must be designed, fabricated, erected, supported, braced, and maintained so that it will be capable of supporting without failure all vertical and lateral loads that might be applied to the formwork. As indicated in the Appendix to the standard, formwork that is designed, fabricated, erected, supported, braced, and maintained in conformance with Sections 6 and 7 of the American National Standard for Construction and Demolition Operations – Concrete and Masonry Work (ANSI) A10.9-1983 also meets the requirements of this paragraph.

- **Drawings or Plans,** including all revisions for the jack layout, formwork (including shoring equipment), working decks, and scaffolds, must be available at the jobsite.
- **Shoring and Reshoring –** All shoring equipment (including equipment used in reshoring operations) must be inspected prior to erection to determine that the equipment meets the requirements specified in the formwork drawings.
    - Damaged shoring equipment must not be used for shoring. Erected shoring equipment must be inspected immediately prior to, during, and immediately after concrete placement. Shoring equipment that is found to be damaged or weakened after erection must be immediately reinforced.
    - The sills for shoring must be sound, rigid, and capable of carrying the maximum intended load. All base plates, shore heads, extension devices, and adjustment screws must be in firm contact and secured, when necessary, with the foundation and the form.
    - Eccentric loads on shore heads must be prohibited unless these members have been designed for such loading.
    - If single-post shores are used one on top of another (tiered), then additional shoring requirements must be met. The shores must be as follows:
        - Designed by a qualified designer and the erected shoring must be inspected by an engineer qualified in structural design;
        - Vertically aligned;
        - Spliced to prevent misalignment; and
        - Adequately braced in 2 mutually perpendicular directions at the splice level. Each tier also must be diagonally braced in the same 2 directions.
    - Adjustment of single-post shores to raise formwork must not be made after the placement of concrete.
    - Reshoring must be erected, as the original forms and shores are removed, whenever the concrete is required to support loads more than its capacity.
- **Vertical Slip Forms –** The steel rods or pipes on which jacks climb or by which the forms are lifted must be:
    - Specifically designed for that purpose; and
    - Adequately braced where not encased in concrete.
    - Forms must be designed to prevent excessive distortion of the structure during the jacking operation. Jacks and vertical supports must be positioned in such a manner that the loads do not exceed the rated capacity of the jacks.
    - The jacks or other lifting devices must be provided with mechanical dogs or other automatic holding devices to support the slip forms whenever failure of the power supply or lifting mechanisms occurs.
    - The form structure must be maintained within all design tolerances specified for plumbness during the jacking operation.
    - The predetermined safe rate of lift must not be exceeded.
    - All vertical slip forms must be provided with scaffolds or work platforms where employees are required to work or pass.
- **Reinforcing Steel** for walls, piers, columns, and similar vertical structures must be adequately supported to prevent overturning and collapse.
    - Master Construction Solutions shall take measures to prevent unrolled wire mesh from recoiling. Such measures may include, but are not limited to, securing each end of the roll, or turning over the roll.
- **Removal of Formwork –** Forms and shores (except those that are used for slabs on grade and slip forms) must not be removed until the employer determines that the concrete has gained sufficient strength to support its weight and superimposed loads. Such determination must be based on compliance with one of the following:
    - The plans and specifications stipulate conditions for removal of forms and shores, and such conditions have been followed; or

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- The concrete has been properly tested with an appropriate American Society for Testing and Materials (ASTM) standard test method designed to indicate the concrete compressive strength, and the test results indicate that the concrete has gained sufficient strength to support its weight and superimposed loads.

Reshoring must not be removed until the concrete being supported has attained adequate strength to support its weight and all loads placed upon it.

- **Precast Concrete** wall units, structural framing, and tilt-up wall panels must be adequately supported to prevent overturning and to prevent collapse until permanent connections are completed.
  - Lifting inserts that are embedded or otherwise attached to tilt-up wall panels must be capable of supporting at least 2 times the maximum intended load applied or transmitted to them; lifting inserts for other precast members must be capable of supporting 4 times the load.
  - Lifting hardware shall be capable of supporting at least 5 times the maximum intended load applied or transmitted to the hardware.
  - Only essential employees are permitted under precast concrete that is being lifted or tilted into position.
- **Lift-Slab Operations** must be designed and planned by a registered professional engineer who has experience in lift-slab construction. Such plans and designs must be implemented by the employer and must include detailed instructions and sketches indicating the prescribed method of erection. The plans and designs must also include provisions for ensuring lateral stability of the building/structure during construction.
  - Jacking equipment must be marked with the manufacturer's rated capacity and must be capable of supporting at least 2½ times the load being lifted during jacking operations and the equipment must not be overloaded. For the purposes of this provision, jacking equipment includes any load bearing component that is used to carry out the lifting operation(s). Such equipment includes, but is not limited to, the following: threaded rods, lifting attachments, lifting nuts, hook-up collars, T-caps, whearheads, columns, and footings.
  - Jacks/lifting units must be designed and installed so that they will neither lift nor continue to lift when loaded more than their rated capacity; and jacks/lifting units must have a safety device which will cause the jacks/lifting units to support the load at any position in the event of their malfunction or loss of ability to continue to lift.
  - No employee, except those essential to the jacking operation, shall be permitted in the building/structure while any jacking operation is taking place unless the building/structure has been reinforced sufficiently to ensure its integrity during erection. The phrase "reinforced sufficiently to ensure its integrity" as used in this paragraph means that a registered professional engineer, independent of the engineer who designed and planned the lifting operation, has determined from the plans that if there is a loss of support at any jack location, that loss will be confined to that location and the structure will remain stable.
  - Under no circumstances shall any employee who is not essential to the jacking operation be permitted immediately beneath a slab while it is being lifted.

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Warning!

Exposure To Wet Concrete Can Lead To Serious Injuries!

Working with concrete without proper use of the appropriate personal protective equipment can damage the skin. "Cement Burns" range from minor redness or irritation to serious chemical burns.

Concrete Mix & Pour Checklist

Concrete Safety Guidelines

- Cement contains alkali and is caustic.
- Prolonged contact with fresh, unhardened concrete can cause 3rd degree burns.
- Long sleeve shirts, full length pants, rubber gloves, and tall boots offer protection against contact with skin areas.
- Clothing contaminated with fresh concrete may result in skin burns.
- Immediately upon contact with wet concrete, skin areas should be washed with soap and water.

Steps To Avoid Cement Burns

- Always wear appropriate Personal Protective Equipment
- Immediately remove clothes that become saturated with wet concrete.
- Wash skin and clothes with fresh, clean water and pH Neutral Soap.
- If concrete gets into eyes, immediately flush with cool clean water for a minimum of 15 minutes and seek medical attention.

Checklist Item	Yes	No
All tools and equipment inspected.		
All workers have proper PPE.		
Is fresh water available for concrete removal from skin?		
Are dust control measures implemented?		
Are workers exposed to silica dust issued protective devices?		
Is adequate drinking water available?		
Are backup alarms installed on heavy equipment and functional?		
Is a trained signalman provided to guide mixing trucks and pumpers and cranes to prevent injury to personnel?		
Are workers forbidden to ride concrete buckets?		
Are overhead power lines marked and/or noted to prevent contact with float handles, pump booms, etc.		
Is a safety watch posted to prevent workers using bull floats within 20 feet of live electrical circuits from coming in contact?		
Are moving parts on batch plants, mixers, etc. adequately guarded to prevent hand injuries?		
Are GFCI's available and used for electrically powered hand tools?		
Is fall protection available and used for fall hazards over 6 feet?		
Are SDS sheets available and have they been reviewed with		
Are all pressurized air connections secured?		
Are all trench and excavations properly benched, sloped or shored?		
Is the work area secured to prevent onlookers from entering dangerous areas?		
Are ladders properly tied off and stairs secured?		

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Confined Spaces Policy

Many Master Construction Solutions work sites have confined spaces – enclosed spaces that are difficult to enter and exit, large enough to work in, but not designed to be occupied. The interior of a confined space may be relatively safe, or it may contain life-threatening hazards – such as equipment that starts without warning, toxic gases, corrosive chemicals, or flammable solvents. This policy outlines Master Construction Solutions' policy for confined spaces that may contain life-threatening hazards (Permit Required Confined Spaces).

Definition of Terms

Acceptable Entry Conditions: The conditions that must exist in a permit space to allow entry and to ensure that employees involved with a permit-required confined space entry can safely enter and work within the space.
Attendant: an individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the employer's permit space program.
Atmospheric Testing Equipment: Used to monitor levels of oxygen, and flammable, combustible, and toxic gases prior to and during work in confined space.
Authorized Entrant: A person who is approved or assigned by the Site Supervisor, in charge of the entry, to perform a specific type of duty or duties or to be at a specific location at the job site.
Body Harness: Part of a fall protection system to distribute the impact of a fall over a large area of the body. It has adjustable leg and shoulder straps and a D ring in the back for attaching a lifeline. It can be used to pull an unconscious or disabled employee from a confined space.
Confined Space:

- Is large enough and so configured that an employee can bodily enter and perform assigned work; and
- Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and
- Is not designed for continuous employee occupancy.

Confined Space Classification Table: For this plan, all confined spaces will be classified as follows:

Parameters	Class A	Class B	Class C
Characteristics	***Immediately dangerous to life.*** Rescue procedures require the entry of more than one individual fully equipped with life support equipment. Maintenance of communication requires an additional standby person stationed within the confined space.	***Dangerous, but not immediately life threatening.*** Rescue procedures require the entry of no more than one individual fully equipped with life support equipment. Indirect visual or auditory communication with workers.	***Potential hazard.*** Requires no modification of work procedures. Standard rescue procedures. Direct communication with workers from outside the confined space.
% of Oxygen Present	Less than 19.5%, or greater than 23.5%.	Less than 19.5%, or greater than 23.5%.	19.5% to 23.5%
Flammability Characteristics	10% or greater of LEL (Lower Explosive Limit)	10% or greater LEL (Lower Explosive Limit)	10% or less of LEL (Lower Explosive Limit)
Toxicity	Immediately Dangerous to Life or Health (IDLH)	Greater than contamination level listed in OSHA Standard 1910 Subpart Z, less than IDLH level, but more than the permissible level.	Less than P.E.L. listed in OSHA Standard 1910, Subpart Z.

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Engulfment: the surrounding and effective capture of a person by a liquid or finely divided (flowable) solid substance that can be aspirated to cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.
Entrant: An employee who is authorized by the employer to enter a permitted space.
Entry Permit: The written or printed document that is provided by the employer to allow and control entry into a permit space and that contains the information specified by this program.
Entry Supervisor: Designated representative (such as the employer, foreman or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this program.
NOTE: An **entry supervisor** may also serve as an attendant or as an authorized entrant if that person is trained and equipped as required by this program for each role he or she fills. Also, the duties of entry supervisor may be passed from one individual to another during entry operation.
Hazardous Atmosphere: means an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

- Flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit (LFL);
- Airborne combustible dust at a concentration that meets or exceeds its LFL;
    - **NOTE:** This concentration may be approximated as a condition in which the dust obscures vision at a distance of 5 feet (1.52 m) or less.
- Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;
- Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G, Occupational Health and Environmental Control, or in Subpart Z, Toxi Hazardous Substances, or this Part and which could result in employee exposure in excess of its dose or permissible exposure limit;
    - **NOTE:** An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health effects is not covered by this provision.
- Any other atmospheric condition that is immediately dangerous to life or health.
    - **NOTE:** For air contaminants for which OSHA has not determined a dose or permissible exposure limit, other sources of information, such as Safety Data Sheets that comply with the Hazard Communication Standard, section 1910.1200 of this Part, published information, and internal documents can provide guidance in establishing acceptable atmospheric conditions.

Immediately Dangerous to Life or Health: An atmosphere that poses an immediate threat of loss of life: May result in irreversible or immediate severe health effects; may result in eye damage/irritation; or other condition that could impair escape from a confined space.
Inerting: means the displacement of the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is noncombustible.

- *NOTE: This procedure produces an IDLH oxygen-deficient atmosphere.*

Lifeline: Line attached to the employee in a confined space to remove him or her if unconscious or disabled.
Manlift: Portable tripod with winch and lifeline to raise, lower, and position the employee in the confined space.
Non-Permit Required Confined Space: A confined space that does not contain, nor has the potential to contain, any hazard capable of causing death or serious physical harm (with respect to atmospheric hazards).
Oxygen Deficient Atmosphere/ Oxygen Deficiency: An atmosphere containing oxygen at a concentration of less than 19.5% by volume as measured by an oxygen-measuring device.
Oxygen Enriched Atmosphere/ Oxygen Maximum: An atmosphere containing oxygen at a concentration of more than 23.5% by volume as measured by an oxygen measuring device.
PEL, Permissible Exposure Level: Concentration of a substance to which an individual may be exposed repeatedly without adverse effects.
Permit Required Confined Space: A confined space that has one or more of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere;
- Contains a material that has the potential for engulfing an entrant;
- Has restricted entry or exit;
- Requires the use of hands or contortion of the body to enter or exit;
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section; or
- Contains any other recognized serious safety or health hazard.

Permit System: the employer's written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.

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Prohibited Condition: any condition in a permit space that is not allowed by the permit during the period when entry is authorized.
Rescue Service: the personnel designated to rescue employees from permit spaces.
Retrieval System: the equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.
Testing: the process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.

- **NOTE:** Testing enables employers both to devise and implement adequate control measures for the protection of authorized entrants and to determine if acceptable entry conditions are present immediately prior to, and during, entry.

Training Requirements

- **Employees designated to enter confined space work areas** will be trained prior to initial assignment, if a change in assigned duties occurs, if a new hazard has been created, or special deviations have arisen. Training will include (at a minimum) the following areas:
    - Emergency entry and exit procedures;
    - Applicable personal protective equipment (PPE);
    - Lockout/Tagout procedures;
    - Permit system;
    - Work practices
    - Hazards that may be faced upon entry
    - Communications
    - Warning signs and symptoms of exposure to dangerous situations
    - Prohibited conditions
    - All training shall be documented. The certification shall include employee name, trainer signature/initials, date(s) of training. Certification must be made available to employees & their authorized representative.
- **Employees designated to attend confined space work areas** will be trained prior to initial assignment, if a change in assigned duties occurs, if a new hazard has been created, or special deviations have arisen. Training will include (at a minimum) the following areas:
    - Emergency entry and exit procedures;
    - Applicable personal protective equipment (PPE);
    - Lockout/Tagout procedures;
    - Permit system;
    - Work practices
    - Hazards that may be faced upon entry
    - Communications
    - Warning signs and symptoms of exposure to dangerous situations
    - Prohibited conditions
    - Behavioral effects of overexposure
    - Non-entry Rescue equipment
    - Air monitoring equipment
    - Actions to take in an Emergency
    - All training shall be documented. The certification shall include employee name, trainer signature/initials, date(s) of training. Certification must be made available to employees & their authorized representative.
- **Employees designated to supervise confined space work areas** will be trained prior to initial assignment, if a change in assigned duties occurs, if a new hazard has been created, or special deviations have arisen. Training will include (at a minimum) the following areas:
    - Emergency entry and exit procedures;
    - Applicable personal protective equipment (PPE);
    - Lockout/Tagout procedures;
    - Permit system;
    - Work practices;
    - Hazard Recognition;
    - Communications;
    - Chemical hazards (mode, sign, & symptoms);
    - Prohibited conditions;
    - Behavioral effects of overexposure;

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- Non-entry Rescue equipment;
- Air monitoring equipment;
- Actions to take in an Emergency;
- Testing verification;
- Hazard Controls verification;
- Rescue service verification;
- Unauthorized individual removal;
- All training shall be documented. The certification shall include employee name, trainer signature/initials, date(s) of training. Certification must be made available to employees & their authorized representative.

➢ **Employees designated to rescue confined space work areas** will be trained prior to initial assignment, if a change in assigned duties occurs, if a new hazard has been created, or special deviations have arisen. Training will include (at a minimum) the following areas:

- Emergency entry and exit procedures;
- Applicable personal protective equipment (PPE);
- Lockout/Tagout procedures;
- Permit system;
- Work practices;
- Hazards that may be faced upon entry;
- Chemical hazards (mode, sign, & symptoms);
- Behavioral effects of overexposure ;
- Communications;
- Prohibited conditions;
- Non-entry Rescue equipment;
- Air monitoring equipment;
- First Aid/CPR;
- All training shall be documented. The certification shall include employee name, trainer signature/initials, date(s) of training. Certification must be made available to employees & their authorized representative.

Responsibilities

➢ **"Authorized Entrants"** (individuals trained to enter a confined space):

- Knowledge of the hazards that may be faced during the entry, including, the modes, signs or symptoms, and consequences of the exposure;
- Proper use of the equipment, which includes:
  - Atmospheric testing and monitoring equipment.
  - Ventilating equipment needed to obtain acceptable entry conditions.
  - Communication equipment necessary to maintain contact with standby person.
  - Personal protective equipment as needed.
  - Lighting equipment as needed.
  - Barriers and shields as needed.
  - Equipment, such as ladders, needed for safe ingress and egress.
  - Rescue and emergency equipment as needed.
  - Any other equipment necessary for safe entry into and rescue from permit spaces.
- Communication with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate the space if required.
- Alert the attendant (standby person) whenever:
  - The entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or;
  - The entrant detects a prohibited condition.
- Exiting the permit space as quickly as possible whenever:
  - An order to evacuate has been given by the attendant or the entry supervisor;
  - The entrant recognizes any warning sign or symptom of exposure to a dangerous situation;
  - The entrant detects a prohibited condition; or
  - An evacuation alarm is activated.

➢ Responsibilities of **"Attendants":**

- Knowledge of the hazards that may be faced during the entry, including, the modes, signs or symptoms, and consequences of the exposure;
- Knowledge of possible behavioral effects of hazard exposure in authorized entrants.

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- Continuously maintaining an accurate count of authorized entrants in the permit space and ensures that the means used to identify authorized entrants accurately identifies who is in the permit space.
- Remains outside the permit space during entry operations until relieved by another attendant.
- Attempting non-entry rescue if proper equipment is in place and the rescue attempt will not present further hazards to entrant or attendant.
- Communicating with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space when conditions warrant.

➢ Checking the atmosphere of a confined space and correctly reading and using the gas detection instruments.
➢ Documenting all confined space measurements.
- Monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space and ordering the authorized entrants to evacuate the permit space immediately under any of the following conditions:
  - If the attendant detects a prohibited condition;
  - If the attendant detects the behavioral effects of hazard exposure in an authorized entrant;
  - If the attendant detects a situation outside the space that could endanger the authorized entrants;
  - If the attendant cannot effectively and safely perform all the duties required by this program.
- Summoning the rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.
- Taking the following actions when unauthorized person(s) approach or enter a permit space while entry is underway:
  - Warn the unauthorized person(s) that they must stay away from the permit space;
  - Advise the unauthorized person(s) that they must exit immediately if they have entered the permit space;
  - Inform the unauthorized entrant(s) and the entry supervisor if unauthorized persons have entered the permit space.
- Performs no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants. If multiple spaces are to be monitored by a single attendant, include in the permit program the means and procedures to enable the attendant to respond to an emergency affecting one or more of the permit spaces being monitored without distraction from the attendant's responsibilities.

➢ **Entry Supervisor** (Person authorizing the permits):
- Knows the hazards that may be faced during entry, including information on the mode, signs, and symptoms of the exposure.
- Verifies, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin
- Terminates the entry and cancels the permit as required
- Verifies that rescue services are available and that the means for summoning them are operable;
- Ensuring that only employees who are trained are allowed to enter confined spaces.
- Ensuring proper permits and safety procedures are followed closely at the jobsite.
- Must be familiar with all hazards associated with the entry operation.
- Ensuring that all safety precautions, rescue procedures, and safety equipment needed for the operation are in place and functional at the time of the entry into the confined space.
- Removes unauthorized individuals who enter or who attempt to enter the permit space during entry operations.

Confined Spaces

At Master Construction Solutions all Confined Spaces shall be considered potentially dangerous and therefore "Permit-Required" until pre-entry procedures demonstrate otherwise.

➢ A Confined Space is any space that has the following characteristics:
- Large enough or so configured that an employee can bodily enter and perform assigned work.
- *Has limited or restricted means for entry or exit*. Confined Space openings are limited primarily by size and location. Openings may be small and may be difficult to move through easily. However, in some cases openings may be very large, i.e., open-topped spaces such as pits or excavations. Entrance and exit may be required from top, bottom, or side. Size or location may make rescue efforts difficult.
- *Is not designed for continuous employee occupancy*. Most confined spaces are not designed for employees to enter and work on a routine basis. They may be designed to store a product, enclose materials and processes, or transport products or substances. Therefore, occasional employee entry for inspection, maintenance, repair,

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cleanup, or similar tasks, is often difficult and dangerous. The danger associated with entry may come from chemical or physical hazards within the space.

- **Permit Required Confined Space (Permit Space)** means a confined space that has one or more of the following characteristics:
  - Contains or has the potential to contain a hazardous atmosphere.
  - Contains a material that has the potential for engulfing an entrant.
  - Requires the use of hands or contortion of the body to enter or exit;
  - Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section; or
  - Contains any other recognized serious safety or health hazard.

Evaluating Confined Spaces

- It is the responsibility of the Confined Space Supervisor to evaluate confined spaces at all Master Construction Solutions work site(s) or areas under his/her control and ensure that the proper precautions are taken for safety.
- Once all confined spaces have been identified, then those confined spaces must be evaluated to determine the hazards that may be present. This evaluation should include the potential for hazardous atmospheres and other safety and health hazards in the confined space.
- A Confined Space Evaluation form must be completed to assist and determine hazards and existing atmospheric conditions. This evaluation shall be performed by the Confined Space Supervisor.
- Employees, or their representatives, must be given an opportunity to request the space be re-evaluated.

Common Atmospheric Hazards		
Hazard	**How It Occurs**	**Why you should be concerned**
Oxygen deficiency (less than 19.5% oxygen)	Chemical or biological reactions consume oxygen. Inert/Other gases may displace oxygen.	Oxygen-deficient atmospheres affect heart rate, muscle coordination, and breathing. Eventually, they lead to death.
Oxygen enrichment (greater than 23.5%)	Results from welding tasks and from the improper use of oxygen for breathing air.	Oxygen-enriched atmospheres increase the risk of fire or explosions.
Flammable Atmospheres	Fuel, oxygen, and a source of ignition cause fires and explosions.	Flammable gases such as acetylene, butane, propane, hydrogen, and methane are common in permit spaces. Grain, nitrated fertilizers, and ground chemicals can produce combustible dusts.
Toxic Atmospheres	Accumulates through some manufacturing, biological, or chemical reactions. Released during work or tasks such as welding and cleaning.	Many manufacturing processes, stored materials, and work tasks produce toxic gases, vapors, or dusts.
Corrosive Atmospheres	Accumulates from some manufacturing processes, biological or chemical reactions.	Corrosive substances destroy living tissue. Some cause immediate damage to skin and eyes; some have no immediate effect, but cause cancer with prolonged exposure.

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A qualified person shall test spaces immediately prior to entry using the following guidelines:

- **Evaluation testing**. The atmosphere of a confined space should be analyzed using equipment of sufficient sensitivity and specificity to identify and evaluate any hazardous atmospheres that may exist or arise, so that appropriate permit entry procedures can be developed, and acceptable entry conditions stipulated for that space. Evaluation and interpretation of these data, and development of the entry procedure, should be done by, or reviewed by, a technically qualified based on evaluation of all serious hazards.
- **Verification testing**. The atmosphere of a permit space which may contain a hazardous atmosphere should be tested for residues of all contaminants identified by evaluation testing using permit specified equipment to determine that residual concentrations at the time of testing and entry are within the range of acceptable entry conditions. Results of testing (i.e., actual concentration, etc.) should be recorded on the permit in the space provided adjacent to the stipulated acceptable entry condition.
- **Duration of testing**. Measurement of values for each atmospheric parameter should be made for at least the minimum response time of the test instrument specified by the manufacturer.
- **Testing stratified atmospheres.** When monitoring for entries involving a descent into atmospheres that may be stratified, the atmospheric envelope should be tested approximately 4 feet (1.22 m) in the direction of travel and to each side. If a sampling probe is used, the entrant's rate of progress should be slowed to accommodate the sampling speed and detector response.
- **Order of testing**. A test for oxygen is performed first because most combustible gas meters are oxygen dependent and will not provide reliable readings in an oxygen deficient atmosphere. Combustible gases are tested for next because the threat of fire or explosion is both more immediate and more life threatening, in most cases, than exposure to toxic gases and vapors. If tests for toxic gases and vapors are necessary, they are performed last.

➢ General safety hazards should be assessed by physical observation. This physical observation should include a visual assessment of the following hazards *(the table below identifies common non-atmospheric hazards, describes how they occur, and explains why you should be concerned about them)*:

Common Non-Atmospheric Hazards		
Hazard	**How It Occurs**	**Why you should be concerned**
Engulfment	Loose materials drawn from the bottoms of storage bins can suffocate or bury an entrant. Liquids or materials are suddenly released into the space.	Liquid or loose materials can trap or bury a worker in seconds.
Mechanical & Hydraulic Energy	Mechanical and hydraulic equipment start or move unexpectedly.	Entrants servicing mechanical and hydraulic equipment can be seriously injured or killed if the energy isn't properly controlled.
Noise	Permit spaces amplify sounds produced by tools and equipment.	Noise interferes with essential communication between entrants and attendants.
Falling Objects	Topside openings are unguarded or improperly guarded.	Objects fall into the space and cause serious injury or death to the entrants.
Extreme Temperatures	The permit space's location and the equipment it contains make it very hot or very cold.	Hot environments put workers at risk for heat stress, especially if they're doing strenuous work or wearing protective clothing – cold environments make tasks more difficult to accomplish.

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Slippery Surfaces	Leaks, spills, and condensation make walking and working surfaces slippery.	Wet surfaces are usually slippery. They increase the risk of falls.
Corrosive Chemicals	Corrosive chemicals are stored in the space, or entrants use them to do tasks.	Corrosive chemicals can cause severe eye or skin irritation if exposed workers are not wearing the proper protective clothing.
Access Problems	Confined spaces are often difficult to enter or exit.	In an emergency, entrants may not be able to exit quickly.
Illumination Problems	Most permit spaces are dark places.	Poor lighting makes it difficult for workers to enter, exit, and work in a permit space.

The Assessment should be based on knowing the existing conditions, and the use of the confined space, along with the actual and potential hazards posed by materials and substances in the confined space. A "Confined Space Evaluation" form should be utilized during this evaluation.

- If any of the questions posed on the "Confined Space Evaluation" form are answered yes, then the confined space is a permit-required confined space.
- If a change in use or configuration of a non-permit-required confined space increases hazards to entrants, then the space must be reevaluated for possible reclassification to a permit-required confined space.
- When multiple employers are working in the same confined space procedures for coordinating entry operations shall be established by a site-specific Job Safety Analysis to ensure employees from another employer do not endanger Master Construction Solutions employees.

Permit-Required Confined Space Entry Requirements

Once all permit-required confined spaces have been identified, no employee can enter that space until several requirements are met. They are as follows:

- **Establishing the permit system**. The permit system for each worksite/structure shall include a listing of all permit-required confined spaces, a warning sign/label at each permit-required confined space, and permit issuance by Master Construction Solutions's Safety Manger or site-specific designated safety professional.
    - The Confined Space Supervisor must authorize entry, prepare and sign written permits, order corrective measures if necessary, and cancel permits when work is completed.
    - The entry permit is completed and posted in a conspicuous location near the entrance.
    - Permits must be available to all permit space entrants at the time of entry and should extend only for the duration of the task.
    - Master Construction Solutions's Confined Space Entry Permit must be completed prior to a permit-required confined space entrance.
    - If welding is to be performed in the confined space, a hot work permit must also be obtained, completed and posted at the entry to the applicable confined space.
    - Unauthorized entry of a confined space, a hazard not covered by the permit, the occurrence of an injury or near miss, or any employee complaints shall cause a review of entry operations prior to subsequent entries. These will be reported to and reviewed by the Confined Space Supervisor.
- **Pre-entry atmospheric testing** for the confined space shall be performed by the Entry Supervisor or otherwise Master Construction Solutions qualified person prior entry of the permit required confined space.
    - If unacceptable entry conditions are detected prior to entry, control measures must be taken. (i.e.- cleaning or ventilating of the confined space) must be performed.
        - **Atmospheric Hazards** affect the air in the space and can be flammable, toxic, corrosive, or asphyxiating. The table below identifies common atmospheric hazards, describes how they occur, and highlights why you should be concerned about them.
    - The entrants of the space must be informed of the potential hazards; they must participate in the permit review and signing. If there are atmospheric hazards present ventilation must be used & continuous air monitoring must be conducted before entry & during work.

- **Isolating Energy Sources (Lockout/Tagout).** Energy sources will be completely isolated by physical disconnection, double blocking, bleeding, or by lockout/tagout procedures.

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- **Ventilating and cleaning the confined space.** Ventilation and cleaning shall be performed to empty, flush, or purge spaces from the outside if feasible.
    - Master Construction Solutions still requires testing and monitoring of all confined spaces, even if documentation (i.e., Gas Free Certificate) is issued indicating that the space has been purged or cleaned. Such certifications should only be taken as an indication that a unit or space has been cleaned and should not be taken as a guarantee that the internal atmosphere will continue to be safe.
    - Indicate whether mechanical or natural ventilation will be used. Describe the procedures to be used.
        - Efficiency of ventilation shall be checked by re-testing the atmosphere (as outlined on the permit) prior to entry.
        - Where ventilation is used to improve the air in a confined space, Master Construction Solutions shall ensure that the toxic or flammable gases or vapors removed from the space do not pose a risk to other workers. Air ventilated from the space should not be discharged into another work area or near an ignition source.
        - In the case of explosive gases or vapors, mechanical ventilators should be bonded to the confined space or explosion-proof fans and/or ventilators utilized.
        - The ventilation equipment should be capable of providing an air change every 15 seconds and easily dilute or displace most dangerous atmospheres.
    - When a hazardous atmosphere is detected, ventilation will continue until the space has no harmful concentration of toxic gases or vapors and acceptable oxygen concentrations have been obtained.
    - Entry into the Confined Space will not be permitted until the atmospheric testing verifies that acceptable entry levels exist.
- **Safety Data Sheet Access:** Using hazardous materials during a confined space entry necessitates that Safety Data Sheets (SDSs) for the hazardous materials are made available to Attendants, Entrants, Rescuers and Supervisors prior to entry.
- **Having appropriate Personal Protective Equipment.** The appropriate PPE should be worn based on the hazard(s) of the space and include:
    - Eye and Face Protection
    - Head Protection
    - Foot and Leg Protection
    - Body Protection
    - Hearing Protection
    - Respiratory Protection
    - Hand and Arm Protection
    - Harness, Safety Belts, and Lifelines
- **Having Attendants in place.** A trained and qualified Attendant is mandatory for entry into any permit required confined space. The attendant shall be stationed immediately outside permit-required confined spaces and shall:
    - Remain outside the confined space at all times and should be easily and readily identifiable as the Attendant on duty;
    - Be within sight, or call, of all entrants unless other means of approved communication have been established, approved and outlined on the permit;
    - Assure that all personnel entering and leaving the confined space are accounted for as outlined in the space provided on the back of the confined space entry permit.
    - Have ultimate authority to stop work and evacuate the space if conditions change during the life of the permit (i.e., vapor cloud develops, air monitor alarm or a suspicious odor is detected), any prohibited conditions arise or entrants fail to meet the requirements of the permit (i.e., failure to wear assigned PPE).
    - Have means to summon assistance;
    - Have safety and non-entry rescue equipment on hand.
    - The Attendant shall be physically capable of assisting any employee inside the confined space in the event of an emergency. This individual will be responsible for alerting others that a rescue is in progress and for taking appropriate measures to ensure the safety of all co-workers in the area.
    - **No employee (other than the Master Construction Solutions Authorized Rescue Team) is to enter a confined space if another employee goes down!** The attendant shall always seek assistance as outlined and established on the permit.
    - Appropriate communications should be established such as radios or walkie-talkies if the employee gets out of "Line-of-Sight" or earshot.

- **Having Rescue Teams in place.** Rescue teams must be available for permit-required confined spaces are not feasible for non-entry rescue. The Rescue Team is responsible for rescuing any Confined Space Entrant, if necessary. Rescue Teams will:

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- Always follow Master Construction Solutions procedures;
- Have the same level of training as Entrants;
- Know and have current certification in First Aid/CPR;
- Be able to use all necessary rescue equipment and rescue techniques;
    - A Self-Contained Breathing Apparatus (SCBA) must be used.
    - Where practical all personnel entering a confined space should be equipped with a retrieval line secured at one end to the entrant by a full-body harness with its other end secured to a tripod lifting hoist.
    - Have a basket or stretcher readily available.
- Be able to understand the information given to Entrants. Rescue Team members will be required to participate in the pre-entry training and in preparing the confined space for entry. This applies to all employees, contractors, and vendors regardless of status.

➢ Once entry into a confined space has been planned, the Safety Manager, or his/her designated representative(s), must evaluate and train all employees who will be involved in the confined space entry. The training session will include, but not be limited to:

- **Clearly identifying the confined space** to all participants and the specific reason(s) for the entry into the designated confined space.
- **Identify the work detail**.
- Inform Attendants, Entrants, and Rescuers of **all known or suspected hazards.**
    - Inform personnel of the potential health effects of exposure to the toxic atmosphere or substance.
    - Inform personnel of the signs and symptoms of exposure to the toxic fume/vapor/particulates.
    - Inform personnel of any respiratory protection equipment that they will be required to wear prior to entering and while performing work within the confined space. These requirements shall be clearly listed on the Confined Space Permit.
- Inform the Affected Participants responsible for the **lockout/tagout** of all equipment that must be isolated.
- **Identify purging and/or ventilation procedures.**
- **Establish communication.** A dependable system is necessary to communicate everything from status reports to requests for assistance if the entrants are in trouble. The Confined Space Supervisor will decide on the means of communication to be utilized by the confined space entrants, attendant, and supervisor, and clearly outline the method(s) of communication on the applicable Confined Space Entry Permit.
- **Protect from external hazards.** Inform personnel where signs and barriers will be placed to prevent unauthorized entry and protect entrants from external hazards.
- **Pre-plan rescue procedures.** The designated attendant should be informed of the rescue procedures to be followed. In the event of an emergency the attendant should:
    - Immediately summon emergency services by dialing 911. If 911 is not to be utilized, supply the employee /contractor with a card displaying the number to be dialed in the event of an emergency.
    - Attempt to remove the victim by use of the retrieval line from outside the confined space if this can be accomplished without creating further hazard for the Entrant or the Attendant.
    - If the Attendant can remove the victim with the retrieval line, he/she should administer aid within the limits of his/her training until emergency medical services (EMS) arrive.
    - If the Attendant is unable to remove the victim by using the retrieval line, he or she must wait for help to arrive. The Attendant is not to enter the confined space for any reason.
    - Give EMS personnel any information they request.
- Place the confined space back into service.
    - Inform personnel of the steps to be taken to place the confined space back into service.

What To Do When Work Ceases

➢ When work ceases for breaks or end of shift, all sources of potential hazard must be removed from the space and the area rendered safe.

- Equipment such as spray-painting guns or potentially hazardous products such as paints or surface treatments must be removed.
- Gas lines for cutting and welding equipment must be turned off and removed.
- Electrical supplies shall be turned off. However, during short breaks low voltage electricity may be maintained for lighting, as would any equipment for the monitoring of the internal atmosphere.
- Upon completion of the confined space work, it is necessary for all personnel to be accounted for and entry permits to be signed off, closed, and submitted to the Confined Space Supervisor.

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Program Review

The permit required confined space program will be reviewed at least annually (every 12 months) to protect employees. The review will be done utilizing retained cancelled permits and revisions made as needed. If no entry is performed during the year no review is necessary.

Planning For Emergencies

Before authorizing workers to enter a permit space, you must be sure that experienced emergency responders will be available if an Entrant needs help. Responders must be able to reach the worksite promptly and know how to deal with the emergency effectively. **Most fire departments are not equipped to respond to permit-space emergencies.**

You can choose either an on-site or an off-site responder. Rescue services must be either:

- provided by the host facility, or
- provided by an outside service which is given an opportunity to examine the entry site, practice rescue, and decline as appropriate, or
- provided by the employer by selecting a rescue team that is equipped and trained to perform the needed rescue services. The following table is a guide for determination in choosing an Off-Site Emergency Responder:

Choosing An Emergency Responder	
Identify needs.	Do you anticipate emergencies requiring immediate action (i.e., if ventilation fails)? Or less-than-immediate action (if the most serious accident would cause a fracture or abrasion).
Interview them.	Meet with the responders to find out if they can provide the emergency service you need. Posting an emergency response number "911" for example isn't enough.
How quickly can they reach the work site?	The response time must be appropriate to the type of potential injury; responders must be standing by when employees are working under potential IDLH *(immediately dangerous to life and health)* conditions.
Will they be available when needed?	The responders must be available any time workers need to enter a permit space.
How will you contact the responders?	Is there a way for an authorized attendant or an entry supervisor to reach responders immediately?
Can they do technical rescues?	Do they have the technical knowledge and equipment to perform rope work or elevated-rescue work?
Can they do medical evacuations?	Do the responders have the skills and equipment for medical evacuation?
Are they trained as permit-space entrants?	Can the responders recognize the signs, symptoms, and consequences of exposure to a hazardous atmosphere in a permit space at the work site.
Do they know how to test the atmosphere in a permit space?	Do they know how to determine whether the atmosphere is IDLH *(immediately dangerous to life and health)?*
Will they understand the information on the entry permit?	Will responders understand the ventilation and atmospheric testing data on the entry permit?

Confined Space Entry Form

Confined Space Evaluation Form

Existing Facility/Worksite _____

Space _____ **Space Location** _____

Date _____ **Evaluator** _____

Answer the following questions about this confined space:

HAZARD DETERMINATION		
Yes	**NO**	
		Is there an engulfment potential?
		Does the internal configuration restrict entry or exit (converging walls or sloping and tapered floors or an overhanging edge that would prevent self-rescue?)
		Is working surface hazardous?
		Is there a recognized hazard that could cause, or is likely to cause, death or physical harm?
		Does the confined space contain, or have the potential to contain a hazardous atmosphere?
		Presence of oxygen displacing material (i.e., inerting gases such as argon, nitrogen, carbon monoxide)?
		Does the planned work (within the confined space) present a potential for any of the above described conditions?

ATMOSPHERIC TESTING		
Yes	**NO**	
		Is the measured oxygen content below 19.5% or above 23.5%? **If not, what's the measurement?** _____
		Are flammable gases, vapors, and mists equal to or above 10% of the lower flammable limit? **If not, what's the measurement?** _____
		Are airborne combustible dusts at or above 10% of the lower explosive limit? **If not, what's the measurement?** _____
		Are toxic contaminants in excess of the Permissible Exposure Limit (PEL)? And, are they capable of causing death, incapacitation, etc.?
		Are there any other atmospheric conditions that are immediately dangerous to life or health? If so, what are they? _____ _____ _____

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If any of the above questions were answered yes, then the confined space is a Permit-Required Confined Space.

Confined Space Entry Permit										
Space To Be Entered (i.e., Equip #, building located, etc.):							Date:		Time:	
Purpose Of Entry:										
Air Quality Test	**Fill in appropriate time frequency: Test Frequency: every _____ min(s) or _____ hr(s)**									
Type Test	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Tester (i.e., initials)										
Time of Sample										
Oxygen 19.5% – 23.5%										
Flammables < 10% of LEL/LFL										
Carbon Monoxide < 50 ppm										
Hydrogen Sulfide (Max – 10 ppm)										
Airborne Combustible Dust Vision > 5 Feet or = or > LFL										

Hazards	**Y**	**N**	**N/A**		**Y**	**N**	**N/A**
Oxygen Deficient				Heat Stress			
Oxygen Enriched				Entrapment			
Flammables				Corrosive Materials			
Combustible Dust				Physical Hazards in Space			
Toxic Gases/Vapors				Mechanical Hazards			
Engulfment				Other			
Electrical Shock				Other			
Skin Hazards				Other			
Anti-Hazard Methods	**Y**	**N**	**N/A**		**Y**	**N**	**N/A**
Barriers				Continuous Air Monitoring			
Rescue Equipment				Forced Ventilation			
Safety Glasses/Goggles				Ground Fault Circuit Interrupters			
Appropriate Gloves				Artificial Lighting – Low Voltage			
Safety Shoes/Boots				Mechanical Lift			
Safety Harness				Welding/Cutting Tools Outside Unless in Use			
Hearing Protection				Adequate Work Platform			
Hard Hat				Face Shields			
Scott Air Packs				Rubber Boots			
Fire Extinguisher				Safety Coveralls			
Respirator/Type:				Other:			
Permits	**Y**	**N**	**N/A**		**Y**	**N**	**N/A**
Lockout				Hot Work			
Method Of Communication	**Y**	**N**	**N/A**		**Y**	**N**	**N/A**
Line of Sight				Radio			

Authorization By Entry Coordinator – I certify that all required precautions have been taken and necessary equipment is provided for safe entry and work in this confined space.

Printed Name	**Signature**	**Company**	**Time**

Emergency Dial _____

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Confined Space Entry Log **Space Name:_____** **Date of Permit: _____**

My signature as an Entrant signifies that I have read this entry permit carefully and I understand the possible hazards and necessary precautions. I will maintain contact with the Attendant, and I have checked my escape route and will exit the area if ordered. I have followed all guidelines and procedures listed.

		1st Entry		2nd Entry		3rd Entry		4th Entry		5th Entry		6th Entry		7th Entry	
Name	**Company**	Time In	Time Out	Time In	Time Out	Time In	Time Out	Time In	Time Out	Time In	Time Out	Time In	Time Out	Time In	Time Out

My signature as an **Attendant** signifies that I have read this entry permit carefully and I understand the possible hazards and necessary precautions. I will maintain contact the Entrant(s) at all time and will order exit immediately if hazards occur. I understand that I am not to enter this space. I know where the nearest telephone is and I know how to summon rescue help if the need arises.

Attendant	Date	Company	From	To	Attendant	Date	Company	From	To	Comments

In the event of an Emergency Call _____. **Has the means of help been verified? ____ Yes ____ No**

If an emergency should occur – **first summon help**. Do not enter a confined space until qualified help arrives, and entry can be made safely. **If a person is down for no apparent cause,** you must assume that toxic gases or oxygen deficiency could exist – **do not allow any rescuer to enter without** full protective gear and self-contained breathing device.

Sampling Equipment	Type	Date Calibrated	Type of Calibration	Identification/Serial Number

I have inspected this confined space and acknowledge that all work has been completed, all equipment removed, and all employees accounted for.

Date/Time	Company	Entry Coordinator – Print Name	Entry Coordinator - Signature

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Confined Space Entry Checklist

Existing Facility/Worksite:	Space To Be Entered (i.e., Equip #, building located, etc.):	Date:

	Yes	No	N/A
Are confined spaces thoroughly emptied of any corrosive or hazardous substances, such as acids, caustics or asbestos before entry?			
Are all lines to a confined space, containing inert, toxic, flammable, or corrosive materials valved off and blanked or disconnected and separated before entry?			
Are all impellers, agitators, or other moving parts and equipment inside confined spaces locked-out if they present a hazard?			
Is either natural or mechanical ventilation provided prior to confined space entry?			
Are appropriate atmospheric tests performed to check for oxygen deficiency, toxic substances and explosive concentrations in the confined space before entry?			
Is adequate illumination provided for the work to be performed in the confined space?			
Is the atmosphere inside the confined space frequently tested or continuously monitored during conduct of work? Is there an assigned safety standby employee outside of the confined space when required, whose sole responsibility is to watch the work in progress, sound an alarm if necessary, and render assistance?			
Is the standby employee appropriately trained and equipped to handle an emergency?			
Is the standby employee or other employees prohibited from entering the confined space without lifelines and respiratory equipment if there is any question as to the cause of an emergency?			
Is approved respiratory equipment required if the atmosphere inside the confined space cannot be made acceptable?			
Is all portable electrical equipment used inside confined spaces either grounded and insulated, or equipped with GFCI ground fault protection?			
Before gas welding or burning is started in a confined space, are hoses checked for leaks, compressed gas bottles forbidden inside of the confined space, torches lighted only outside of the confined area and the confined area tested for an explosive atmosphere each time before a lighted torch is to be taken into the confined space?			
If employees will be using oxygen-consuming equipment-such as salamanders, torches, and furnaces in a confined space, is sufficient air provided to assure combustion without reducing the oxygen concentration of the atmosphere below 19.5 percent by volume?			
Whenever combustion-type equipment is used in a confined space, are provisions made to ensure the exhaust gases are vented outside of the enclosure?			
Has the confined space been checked for decaying vegetative or animal matter which may produce methane?			
Is the confined space checked for possible industrial waste which could contain toxic properties?			
If the confined space is below the ground and near areas where motor vehicles will be operating, is it possible for vehicle exhaust or carbon monoxide to enter the space?			
Do you know the location of the nearest campus phone?			
Is the confined space checked for possible industrial waste which could contain toxic properties?			
Are confined space entrants wearing proper personal protective equipment?			
Have the means of communication been verified and tested?			

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Hot Work Permit (Page 1 of 2)

This permit is good for one shift only.

Date Issued: _____ **From:** _____ **To:** _____
Time Time

Work to be done: _____

_____

_____

_____

_____

Work Performed by: _____ _____
Name Name

_____ _____
Name Name

Fire Watcher(s) assigned? Yes ☐ No ☐ Not Applicable ☐

Name of Fire Watcher(s): _____ _____

Safety Checklist

Yes	No	
		Have all flammable or combustible materials been removed from the work area (35-foot radius)?
		If any flammable or combustibles cannot be removed, have they been covered by fire resistant shields or tarpaulins?
		Is adequate firefighting equipment readily available?
		Have vulnerable areas of combustible floors and/or roofs been wet-down or properly covered?
		Have wall and/or floor openings been properly covered?
		Is the hot work equipment in good working condition?
		Is a Confined Space Permit required?
		If pressurized lines or lines containing hazardous gases or liquids must be broken or cut have the appropriate safety measures been taken?
		Are Lockout/Tagout Procedures required?
		Has the atmosphere been checked with a multigas meter for flammable/explosive gas levels or other atmospheric hazards?
		Is ventilation adequate?
		If no, has forced ventilation or supplied air been provided?
		Is adequate PPE (i.e., gloves, hearing protection, respiratory, special clothing, boots, etc.) provided for exposed workers?
		Are curtains or shields in place to protect others in the area?

Other Special Precautions Taken:

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Hot Work Permit (Page 2 of 2)

Signatures Required Before Beginning Work (all employees involved in the performing of work, as identified on page one of this form must sign):

I have been instructed and I understand the hazards as well as the precautions necessary to do this work safely.

_____ Signature of person performing work

_____ Signature of person performing work

_____ Signature of person performing work

_____ Signature of person performing work

Signatures Required After Completing Work (all employees involved in the performing of work, as identified on page one of this form must sign):

This work was completed: _____ Date _____ Time ☐ am ☐ pm

_____ Signature of person performing work

_____ Signature of person performing work

_____ Signature of person performing work

_____ Signature of person performing work

I have personally inspected the worksite after completion of the work and find the area to be in safe condition.

_____ Signature of Supervisor _____ Date _____ Time ☐ am ☐ pm

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Fire Watch Check-Sheet

Building or Adjacent Structure:		Site or Specific Location:
Prime Contractor	Subcontractor	Onsite Contractor

General Set-Up

	Yes	No	N/A	Remarks
Has a Hot Work Permit been issued?				
Has Hot Work equipment to be used been inspected?				
Potential for fumes/by-products to travel to other areas?				
Are all guards/barriers/barricades in place?				
Do detectors/suppression systems require deactivation?				

Precautions To Be Taken Within 35 Feet Of Hot Work Operations

	Yes	No	N/A	Remarks
All flammable liquids, dusts, lint and oil deposits removed?				
Explosive atmosphere in area eliminated?				
Floors swept clean?				
Combustible floors wet down or covered with fire blankets?				
All wall openings and floor openings/drains covered?				
Fire resistant tarpaulins suspended beneath work?				
Any adjacent combustible coverings/insulation present in area of hot work?				
Any heat transfer/condition potential to any combustible material through wall?				
Any enclosed equipment being worked on cleaned of all combustibles?				
Any enclosed container being worked on purged of flammable liquids/vapors?				

Safety Specialists

Area checked for explosive gases and low oxygen?				
Set-up and precautions verified?				

Fire Watch/Hot Work Monitoring

Nearest Location of Pull Station/Telephone:

Fire Extinguisher(s) at Work Site: **Type:** **Size:**

☐ Prime Contractor Supervisor Signature: _____

☐ Onsite/Other Supervisor Signature: _____

☐ Fire Watch Signature: _____

Hot Work Operation Started: _____ ☐am ☐pm **Hot Work Operation Ended: _____ ☐am ☐pm**

Return Original Permit and Daily Check-sheet(s) to Supervisor when operations are complete.

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Construction Demolition Safety Program Policy

Purpose/Scope

Demolition work involves many of the hazards associated with construction. However, demolition incurs additional hazards due to unknown factors such as: deviations from the structure's design introduced during construction, approved or unapproved modifications that altered the original design, materials hidden within structural members, and unknown strengths or weaknesses of construction materials. To counter these unknowns, all personnel involved in a demolition project must be fully aware of these types of hazards and the safety precautions to take to control the hazards.

Although a contractor may be concerned about employee safety, there should also be heightened awareness for the safety of the public and the property of others. All company employees, contractors and subcontractors must follow the requirements of this program during all demolition projects. This program outlines control measures contractors must implement as part of their existing program to plan for a successful and safe demolition project. Those supervising demolition activities should be familiar with the OSHA 29CFR1926, Subpart T, and all federal, state and local requirements that apply to demolition work.

Demolition is the dismantling, razing, destroying, or wrecking of any building or structure or any part thereof. Demolition work involves many of the hazards associated with construction. However, demolition involves **additional hazards due to unknown factors which makes demolition work particularly dangerous. These may include:**

- Changes from the structure's design introduced during construction;
- Approved or unapproved modifications that altered the original design;
- Materials hidden within structural members, such as lead, asbestos, silica, and other chemicals or heavy metals requiring special material handling;
- Unknown strengths or weaknesses of construction materials, such as post-tensioned concrete;
- Hazards created by the demolition methods used.

To combat these, everyone at a demolition worksite must be fully aware of the hazards they may encounter and the safety precautions they must take to protect themselves and their employees.

Building Demolition



Building demolition is achieved by a variety of means and methods, using many kinds of equipment and tools. Demolition experts can recommend which methods are appropriate for projects. For simplicity, demolition methods can be grouped under the categories of mechanical, implosion, and special.

Mechanical Demolition

The most widely used method of building demolition today involves the use of various specialized mechanized equipment and tools. While the crane and wrecking ball have long been the symbol of large, high-rise demolition projects, demolition contractors employ a variety of high-reach excavators equipped with tools for crushing concrete and shearing steel at heights up to 120 feet. These machines can operate in confined work areas and can separate the building materials as they “chew” the building apart. In the last twenty years, effective remote-controlled machines

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have been developed that can be used in hazardous environments, confined spaces, areas that have been damaged or are structurally weakened, and areas that are sensitive to noise or vibration. These machines are also being used for selective demolition in radioactive environments.

Implosion

Implosion methods are very effective for bringing down high structures that would be difficult to reach with equipment or too expensive to demolish one floor at a time. These methods use highly specialized explosives to undermine the supports of a structure, so it collapses either within its own footprint or in a predetermined path. The implosion process is especially suited for high-rise buildings (usually more than twelve stories) and a variety of special structures (e.g., cooling towers, nuclear reactor containments, space launch towers, smokestacks, boilers, steel mill furnaces, and so on). Common explosives—usually various forms of dynamite and ammonium nitrate—are frequently used to blast heavy concrete such as that in bridge piers and machinery foundations. Only a handful of companies are qualified in this demolition method, and they almost always work as a subcontractor to a conventional demolition contractor.

Special Demolition

Certain types of demolition require specialized handheld tools for cutting, chipping, drilling, and breaking small amounts of materials (e.g., removing concrete for a new door in an active hospital, cutting and removing a specified pipe in a rack containing piping that is in use, removing a terra-cotta arch for reinstallation, etc.). The tools for these tasks are mostly powered by hydraulic or pneumatic systems and can usually be moved by two men. Special demolition projects are various. A typical project might require the contractor to remove partitions and suspended ceilings in a building area that is partially occupied or cut new openings in concrete walls and floors for mechanical chases and doorways. Another special demolition type is careful removal of significant historic fabric in existing buildings. Often this is required when building systems are upgraded but the historic fabric (e.g., terra-cotta, windows, carved moldings, etc.) must appear to have been undisturbed afterwards. This process requires documentation prior to demolition and proper removal, cataloging, and storage of the historic building fabric.

Hazards

Employers must plan ahead to get the job done safely. Proper planning is essential to ensure a demolition operation is conducted with no accidents or injuries. This includes, but is not limited to:

- An engineering survey completed by a competent person before any demolition work takes place. This should include the condition of the structure and the possibility of an unplanned collapse.
- Locating, securing, and/or relocating any nearby utilities.
- Fire prevention and evacuation plan.
- First Aid and Emergency Medical Services.
- An assessment of health hazards completed before any demolition work takes place.

Employers must provide the right protection and equipment. The employer must determine what Personal Protective Equipment (PPE) will be required. In demolition operations, PPE may include:

- Eye, face, head, hand, foot protection
- Respiratory protection
- Hearing protection
- Personal Fall Arrest Systems (PFAS)
- Other protective clothing (for example, cutting or welding operations)

It is not enough to provide PPE. Employees must be trained in the selection, use, fitting, inspection, maintenance, and storage of PPE.

Employers must train all employees about hazards and how to use the equipment safely. Under the Occupational Safety and Health Act (OSH Act), Public Law 91-596, employers have a responsibility to provide a safe workplace for employees. Employers must instruct employees how to recognize and avoid or remove hazards that may cause an injury or illness based on their assigned duties. Certain OSHA construction standards require that employees

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receive training in specific topics. **Employers must provide this safety training in a language and vocabulary their workers can understand.**

OSHA Standards

Demolition work involves many of the hazards associated with construction; therefore, all of 29 CFR Part 1926 – Construction Standards apply at a demolition site. However, demolition involves additional hazards due to unknown hazards, which makes demolition work particularly dangerous. For this reason, OSHA created the Subpart T – Demolition standards specifically for these operations.

Demolition Standards That Are Most Frequently Cited

1926.850(a) – Preparatory operations. This standard accounts for up to three-fourths of the citations on a demolition worksite. 1926.850(a)(1), which requires an "engineering survey" to be completed prior to starting demolition, accounts for more than half these preparatory operations citations.

Primary Demolition Standards
(29 CFR 1926)

- 1926 Subpart T, Demolition.
- 1926.850, Preparatory operations.
- 1926.851, Stairs, passageways, and ladders.
- 1926.852, Chutes.
- 1926.853, Removal of materials through floor openings.
- 1926.854, Removal of walls, masonry sections, and chimneys.
- 1926.855, Manual removal of floors.
- 1926.856, Removal of walls, floors, and material with equipment.
- 1926.857, Storage.
- 1926.858, Removal of steel construction.
- 1926.859, Mechanical demolition.
- 1926.860, Selective demolition by explosives.

Engineering Survey Report

Master Construction Solutions, or the client shall prepare specific documentation that records the Engineering Survey results. The Engineering Survey Report shall be signed and dated by the person conducting the survey. At a minimum, the Engineering Survey Report must include:

- Building characteristics.
    - Construction type & structure size
    - Number of stories or height
    - Structural hazards
    - Basements & confined spaces
    - Party wall locations
    - Wall tie requirements & number
    - Shoring requirements for adjacent structures
    - Type of shoring & location
- Protection requirements for adjacent structures.
- Demolition methods that will be used.
- Public protection required.
    - Pedestrian walkways or roadways that may need to be relocated.
    - Walkways or roadways should be well lit & kept clear of equipment & debris.
    - Sidewalk sheds may be necessary to protect pedestrians from overhead hazards.
    - Special controls or procedures may be necessary if a portion of the structure is occupied.

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- If the project is entirely protected with security fencing, the gates should be kept closed at all times throughout the demolition work.

- Overhead & underground utility protection is required.
  - The location of all electric, gas, water, sewer & communications lines should be identified & the lines shut off before work is started.
  - The National Association of Demolition Contractors recommends that utility lines be color-coded: Red, if the lines are to stay. Green, if the lines are to be removed.
  - The local one-call system should be notified.
- Above & Below-ground tanks should be protected.
  - Purging & testing of these tanks should be completed.
  - Locations of pits or open holes should be identified and barricaded.
  - EPA requirements must be identified & complied with.
- If hazardous materials are found, responsibilities should be assigned to the appropriate contractor(s) for removal & disposal of the materials.
  - Asbestos & other materials may be in furnaces, reactors, boilers, insulation, other fire protection materials, certain types of floors and ceiling tiles.
  - Lead may be in pipe systems & with lead-based paints.
  - Polychlorinated biphenyls may be in electrical systems such as transformers & capacitors. ➢ Existing damage to nearby structures.
  - This damage should be documented. Photographs and/or videotape can be taken to supplement documentation.
  - The documentation should be dated & retained with the Engineering Survey Report.
- Blasting. If the use of explosives is required for the demolition project, the Competent Person must be familiar with the OSHA standard 29CFR1926, Subpart U, blasting safety requirements.

Safe Work Plan

The Safe Work Plan identifies and plans specific safe work procedures and practices and safety equipment that should be in place when demolition activities begin. The Safe Work Plan should be tailored to the specific demolition job tasks being undertaken.

- **ITEMS THAT MUST BE COVERED IN THE SAFE WORK PLAN INCLUDE:**
  - Confirmation that the Engineering Survey Report is read by jobsite supervisory personnel and reviewed by craft personnel.
  - Notification of medical personnel, fire department, utility companies & local authorities that their services are required for the demolition.
  - Posting of emergency telephone numbers for all these services at all telephone locations.
  - A comprehensive plan for confined space work and other identified hazards & exposures.
  - Appropriate personal protective equipment (PPE) is available on-site.
  - Securing the project site perimeter & posting warning signs.
  - Fire prevention & protection:
    - Fire can be a serious threat at demolition sites, potential sources of ignition should be identified.
    - The Fire Department must be able to gain access to any part of the jobsite, as well as fire hydrants.
    - Ample supplies of portable fire extinguishers must be available.
    - Restrict smoking, open flames and spark producing operations to specific, safe areas.
    - A fire warning system must be in place so that personnel can be quickly notified and evacuated in the event of a fire.

Demolition and Cleanup

- Before commencing demolition work:

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- Ensure approval has been granted from the owner to proceed and the owner has provided a report of any asbestos containing materials.
- Barricade area to prevent unauthorized persons to enter the work area. Barricades should be placed a minimum of 6 feet away from the work area.
- Review existing plans (if available) to identify structural systems. If plans are not available consult a structural engineer.
- Identify the plant and equipment to be used, safe means of access and egress to the site and adjoining buildings and any possible environmental impacts from the demolition process.
- Locating and disconnecting utilities such as gas, water, electrical, steam, and sewer is a vital step of demolition.
- When applicable, proper lockout/tagout must be performed before the start of any demolition.

➢ Before performing demolition work, also inspect available personal protective equipment (PPE), and select, wear, and use the PPE appropriate for the task. Demolition work involves many of the same hazards associated with construction work. However, demolition also poses additional hazards due to unknown factors such as:
- Deviations from the structure's original design;
- Approved or unapproved modifications that altered the original design;
- Materials hidden within structural members; and
- Unknown strengths or weaknesses of damaged materials.

To counter these unknowns, all personnel involved in a demolition project need to be fully aware of these types of hazards and the safety precautions available to control these hazards.

Other Preliminary Tasks

- ➢ A written engineering survey must be performed on each structure being considered for demolition to determine the condition of the framing, floors and walls, and to assess the possibility of an unplanned collapse of any portion of the structure.
- ➢ Brace or shore the walls and floors of structures which have been damaged and which employees must enter.
- ➢ Inspect and maintain all stairs, passageways and ladders.
- ➢ Properly illuminate all stairways.
- ➢ Shut off or cap all electric, gas, water, steam, sewer and other service lines outside the building line. Notify appropriate utility companies.
- ➢ Temporarily relocate and/or protect any essential power, water, or other utilities.
- ➢ Determine the types of hazardous chemicals, gases, explosives, and flammable materials which have been used in any pipes, tanks, or other equipment on the property.
- ➢ Test and purge hazardous chemicals, gases, explosives, or flammable materials.
- ➢ Survey for asbestos or other hazardous materials.
- ➢ For areas where engineering controls are not provided, such as open holes, guardrails uninstalled or removed, etc., 100% fall protection must be always utilized.
- ➢ Guard wall openings to a height of 42 inches.
- ➢ Cover and secure floor openings with material able to withstand the loads likely to be imposed.
- ➢ Debris dropped through holes in the floor without the use of chutes must be completely enclosed with barricades not less than 42 inches high and not less than 6 feet back from the projected edge of the opening above.
- ➢ Floor openings used for material disposal must not be more than 25% of the total floor area.
- ➢ When not being utilized, floor or wall openings must be hard barricaded.
- ➢ Use enclosed chutes with gates on the discharge end to drop material to the ground.
- ➢ Design and construct chutes that will withstand the loads likely to be imposed without failing.
- ➢ Post signs at each level of structures, warning of the hazard of falling materials.
- ➢ Protect entrances to multi-story structures with sidewalk sheds or canopies for a minimum of 8 feet.
- ➢ Canopies must be at least 2 feet wider than the structure entrance and be able to hold a load of 150 lbs./sq. ft.
- ➢ Storage of material and debris must not exceed the allowable floor load.

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Work Progression

- Except for cutting holes in the floors for chutes, holes to drop materials through, preparation of storage space & similar preparatory work, the demolition of floors and exterior walls shall begin at the top of the structure and proceed downward.
- Each story of exterior wall & floor construction shall be removed & dropped into the storage space before commencing the removal of exterior walls & floors in the next story below.
- Hazards to anyone from the fragmentation of glass shall be controlled.
- Mechanical equipment shall not be used on floors on working surfaces unless such floors or surfaces are of sufficient strength to support the imposed load.
- Employee entrances to multistory structures being demolished shall be protected by sidewalk sheds, canopies or both.
- Protection shall be provided from the face of the building for a minimum of eight (8) feet.
- All such canopies shall be at least two (2) feet wider than the building entrances or openings and shall be capable of sustaining a load of 150 psi.
- Only those stairways, passageways & ladders designated as means of access to the structure shall be used.
- The designated means of access shall be indicated on the demolition plan.
- Other access ways shall be indicated as Not Safe for Access & closed at ALL times.
- The stairwell shall be covered at a point no less than two (2) floors below the floor on which work is being performed.
- Access to a floor where work is in progress shall be through a separate lighted, protected passageway.
- During demolition, continuing documented inspections by a competent person shall detect hazards resulting from weakened or deteriorated floors, walls, or loosened material.
- NO employee shall be permitted to work where such hazards exist until they are corrected by shoring, bracing or other means.

Debris Removal

- When the debris is dropped through openings in the floors without chutes, the openings and the area onto which the material is dropped shall be enclosed with barricades not less than 42 inches high and not less than six (6) feet back from the projected edge of the opening above.
- Signs warning of the hazard of falling materials shall be posted on EACH SIDE of the debris opening at each floor level.
- Debris removal shall not be permitted in lower areas until debris handling ceases on the floors above.
- The openings shall not exceed 48 inches in height measured along the wall of the chute.
- Such openings, when not in use, shall be kept closed on all floors below the top floor.
- A competent employee shall be assigned to control the operation of the gate, and the backing & loading of trucks.
- The storage of waste & debris on any floor shall not exceed the allowable floor load.
- In buildings having wood floor construction, the floor joists may be removed from not more than one floor above grade to provide storage space for debris, provided falling material is not permitted to endanger the stability of the structure.
- When wood floor beams serve to brace interior walls or free-standing exterior walls, such beams can be left in place until other support can be installed to replace them.
- Floor arches, to an elevation of not more than 25 feet above grade, may be removed to provide storage area for debris provided such removal does not endanger the stability of the structure.
- Storage space to which material is dumped shall be blocked off, except for openings for the removal of materials, and such openings shall be kept closed when material is not being removed.
- Floor openings shall have curbs or stop-logs to prevent equipment from running over the edge.
- Any opening cut in the floor for the disposal of materials shall be no longer than in size than 25% of the aggregate total floor area, unless lateral supports of the removed flooring remain in place.
- Floors weakened or otherwise made unsafe by demolition shall be shored to carry safely the intended imposed load for demolition.

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Disposal Chutes

Disposal chutes are inclined channels or passages for disposing of scrap material from upper levels of buildings that are under construction, renovation or demolition. The bottom of the chute is usually positioned directly above a waste dumpster.

- Use a disposal chute any time you are dropping materials more than 20 feet to a point outside a building.
- Barricade the area underneath floor openings that are not equipped with chutes whenever you must drop materials through the openings to a lower level.
- Barricades should be at least 6 feet from the edges of the opening above and at least 42 inches high.
- Post signs on all sides of access to warn others about the overhead falling materials.
- All material chutes, and sections that are at an angle of more than 45 degrees from the horizontal shall be enclosed, except for openings equipped with closures at or about floor level for the insertion of materials.
- Any chute opening into which debris is dumped shall be protected by a guardrail 42 inches above the floor or other surface on which personnel stand to dump the material. This also applies to any space between the chute & the edge of openings in the floors through which the debris will pass.
- A substantial gate shall be installed in each chute at or near the discharge end.
- When operations are not in progress, the area surrounding the discharge end of a chute shall be closed.
- Where material is dumped from mechanical equipment or wheelbarrows, a toeboard or bumper, not less than 4 inches thick and 6 inches high, shall be attached at each chute opening.
- Chutes shall be designed & constructed of such strength as to eliminate failure due to impact of materials & debris loaded therein.

Removing Walls and Masonry Sections

- Demolition of exterior walls and floors must begin at the top of the structure and proceed downward.
- Masonry walls must not be permitted to fall on the floors of a building in masses that would exceed the safe carrying capacities of the floors.
- No wall section, one story in height or higher, shall be permitted to stand alone without lateral bracing, unless such a wall was originally designed and constructed to stand without such lateral support, and is safe enough to be self-supporting.
- All walls must be left in a stable condition at the end of each work shift.
- Employees shall not work on the top of a wall when weather conditions create a hazard.
- Structural or load-supporting members on any floor must not be cut or removed until all stories above such a floor have been removed.
- In buildings of “skeleton-steel” construction, the steel framing may be left in place during the demolition of masonry.
- Walkways or ladders must be provided to enable workers to safely reach or leave any scaffold or wall.
- Walls, which serve as retaining walls to support earth or adjoining structures, must not be demolished until the supporting earth has been properly braced or until adjoining structures have been properly underpinned.
- Walls, which will serve as retaining walls against which debris will be piled, must not be used unless they can support the imposed load.
- Dismantle steel construction column length by column length, and tier by tier.

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Mechanical Demolition (most common)



- No workers shall be permitted in any area when using a crane's headache ball or clamshell to remove debris.
- Only those workers necessary to perform such operations must be permitted in this work area at any time.
- The weight of the demolition ball must not exceed 50 percent of the crane's rated load.
- Company policy requires any Master Construction Solutions Companies, herein referred to as Master Construction Solutions, employee performing a lift with a crane to use the Master Construction Solutions Crane Pre-Lift Permit.
- The crane boom and load line must be as short as possible.
- The ball must be attached to the load line with a swivel-type connection to prevent twisting of the load line, and it must be attached by positive means in such a manner that the weight cannot become accidentally disconnected.
- When pulling over walls or portions thereof, all steel members affected must have previously been cut free.
- All roof cornices or other such ornamental stonework must be removed prior to pulling walls over.
- During demolition, continuing inspections by a competent person shall be made as the work progresses to detect hazards resulting from weakened or deteriorated floors, or walls, or loosened material.
- No employee shall be permitted to work where such hazards exist until they are corrected by shoring, bracing, or other effective means.

Demolition Safety Requirements

All contractors adhere to safe work practices. Before beginning any demolition work, an Engineering Survey Report is required. Once demolition work has started, there will be additional safety requirements for various activities. A Competent Person is required to conduct the Engineering Survey prior to beginning any demolition work. The purpose of the Engineering Survey is to thoroughly evaluate the project to identify potential hazards and develop controls to prevent accidents. Potential hazards include:

- Occupational Health Hazards.
- Cave-ins.
- Explosions.
- Premature Collapse.
- Fire.

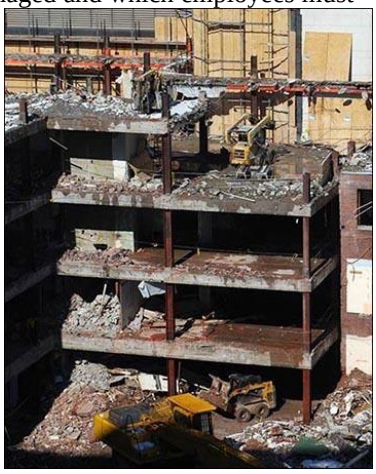
Contractors must have **written evidence** that an Engineering Survey was conducted and retain that report on-site. For contractors that perform demolition work on an infrequent basis, it is recommended that a Safety Consultant's services be contracted for the demolition work. All personnel involved in demolition work should be briefed on the ANSI A10.6. Safety Requirements for Demolition.

Demolition Safety Tips

Demolition work involves many of the same hazards that arise during other construction activities. However, demolition also involves additional hazards due to a variety of other factors. Some of these include lead-based paint, sharp or protruding objects and asbestos-containing material.

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- Brace or shore up the walls and floors of structures which have been damaged and which employees must enter.
- Inspect personal protective equipment (PPE) before use.
- Select, wear and use appropriate PPE for the task.
- Inspect all stairs, passageways, and ladders; illuminate all stairways.
- Shut off or cap all electric, gas, water, steam, sewer, and other service lines; notify appropriate utility companies.
- Guard wall openings to a height of 42 inches; cover and secure floor openings with material able to withstand the loads likely to be imposed.
- Floor openings used for material disposal must not be more than 25% of the total floor area.
- Use enclosed chutes with gates on the discharge end to drop demolition material to the ground or into debris containers.
- Demolition of exterior walls and floors must begin at the top of the structure and proceed downward.
- Structural or load-supporting members on any floor must not be cut or removed until all stories above that floor have been removed.
- All roof cornices or other ornamental stonework must be removed prior to pulling walls down.
- Employees must not be permitted to work where structural collapse hazards exist until they are corrected by shoring, bracing, or other effective means.



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Drug-Free Safety Program Policy

Purpose

It is the desire and intent of Master Construction Solutions to ensure that its customers receive safe and efficient services and that all employees, sub-contractors and/or leased employees are provided with a safe work environment. As a part of its commitment to safeguard the health of its employees, to provide a safe place for its employees to work and to promote a drug-free community, Master Construction Solutions has established this policy on the use or abuse of alcohol and drugs by its employees. This policy is set up pursuant to the Drug-Free Safety Program under Ohio Workers' Compensation Law.

Substance abuse, while at work or otherwise, seriously endangers the safety of employees, as well as the public, and creates a variety of workplace problems including increased injuries on the job, increased absenteeism, increased health care and benefit costs, increased theft, decreased morale, decreased productivity and a decline in the quality of products and services provided. We have established this policy to detect users and to remove abusers of drugs and alcohol. It is also our policy to prevent the use and/or presence of these substances in the workplace and to assist employees in overcoming any dependence on drugs and/or alcohol in accordance with the following guidelines.

The purpose of this policy is to communicate our position on drugs and alcohol in the workplace and provide guidance for the implementation of related programs.

This policy shall apply to all individuals who perform work for Master Construction Solutions, including but not limited to, management, supervision, subcontractors, engineering, craft workers, leased employees, and clerical personnel. As a condition of employment, are required to abide by the terms of this policy.

- For purposes of this policy "New Hire" means any person whom Master Construction Solutions has offered employment but has not completed 30 days of actual employment.
- "Drugs" as used in Master Construction Solutions's Drug and Alcohol Testing Policy means a controlled substance, which includes, but is not limited to, amphetamines, cocaine metabolite (including crack), opiates, phencyclidine (PCP), and marijuana metabolite (THC).
    - "Drugs" as used in Master Construction Solutions's Drug and Alcohol Testing Policy ***shall not*** mean a "Drug" obtained and taken under supervision by, and in accordance with, prescriptions or other instructions issued by a licensed health care professional and other drugs otherwise authorized to be used under the Controlled Substances Act.
    - Master Construction Solutions, or a designated representative, reserves the right to inspect Company property at any time and for any reason, whether locked or otherwise, and to inspect personal property while located on company premises or at any site where employees may be sent on company business. Company property includes, but is not limited to: Company owned or leased vehicles, lockers, desks, closets, cabinets, toolboxes, containers, any place where employees may travel on company business, etc.
- Any illegal substances found will be turned over to the appropriate law enforcement agency.

Alcohol/Drug Use Prohibitions

- Employees will not be allowed to work while under the influence of alcohol or with prohibited drugs in their system.
- Employees will not be allowed to work while under the influence of prescription drugs that may affect their ability to safely perform their work.
- Employees utilizing prescription or over-the-counter drugs which carry any precautions regarding side effects which might impair their concentration or affect their job performance in any way are required to report this fact to their immediate supervisor prior to starting work.
- Employees shall not use, possess, sell, manufacture, or distribute alcohol or prohibited drugs while performing company business, on company premises, or at company designated work sites.
- The consumption of alcohol on the property of the Company or while on duty is prohibited and will result in disciplinary action, up to and including discharge.

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- Off-duty abuse of alcohol which adversely affects an employee's job performance or adversely affects or threatens to adversely affect other interests of the Company is prohibited and may result in disciplinary action up to and including discharge.
- The personal possession (i.e., on the person, or in a desk or locker) of alcohol or drugs on Company property or on duty will result in disciplinary action, up to and including discharge.
- The possession of alcohol in a personal vehicle or Company-assigned vehicle on Company property is not prohibited provided such possession is in compliance with this policy as well as federal, state, and local laws.
- An employee who is perceived to be under the influence of alcohol or drugs will be removed immediately from the workplace and may be evaluated by medical personnel, if reasonably available. The Company will take further action (i.e., removal from service, referral to counseling and/or disciplinary action) based on medical information, work history and other relevant factors. The determination of what action is appropriate in each case rests solely with the Company.
- Attempts to adulterate or present bogus specimens will be considered a failure to comply with the testing process and a refusal to test.
- Individuals found to be in violation of any portion of this policy will be subject to disciplinary action up to and including possible termination of employment even for a first offense.

Definition Of Terms

Adulterated Specimen: shall mean a specimen that contains a substance that is not expected to be present in human urine, or contains a substance expected to be present but is at a concentration so high that it is not consistent with human urine.
After-Care-Program: A program of outpatient follow-up care and counseling to be designed by a licensed substance abuse counselor for any employee who completes a program of prohibited drug and/or alcohol rehabilitation.
Confirmed Positive Result: shall mean that analysis of the sample identifies the presence of one or more drugs and the Medical Review Officer has confirmed that the Drug(s) identified is an Illegal Drug(s).
Designated Employer Representative (DER): Employee who has been designated to serve as coordinator of Master Construction Solutions's drug and alcohol testing procedures and serves as a liaison between various parties such as the Employee Assistance Program (if applicable), the Medical Review Officer, Supervisory Personnel, etc. Master Construction Solutions may also designate an alternate representative to assist in answering questions on the policy and procedures.
Diluted Sample: shall mean a specimen with creatinine and specific gravity values that are lower than expected for human urine.
Follow up Testing: Required during the period covered by the Return-to-Work Agreement. Requires the employee to submit to drug and alcohol tests as requested without previous notice.
Medical Review Officer (MRO): A designated physician who is certified to review drug and alcohol test results. The MRO establishes the procedures and ensures the chain of custody is followed.
Negative Test Results: Any test result which is less than the cutoff level specified for the certified laboratories initial screening test, but less than the level specified for the GC/MS test, or a blood/alcohol level less than .02 percent.
Positive Test Result for Drugs: Any test result in which the presence of one or more drugs has been detected, identified, and which meets or exceeds the cutoff levels. A positive alcohol test result shall mean .02 mg. percent blood/alcohol level. A result would not be reported as positive until a confirmatory test is made.
Prohibited Drugs: Controlled substances include, but are not limited to; Amphetamines, Cannabinoids, Cocaine (including Crack), Opiates, Phencyclidine, Barbiturates, Benzodiazepines, Methadone, and Propoxyphene. Also, prescription or over-the-counter drugs that have not been specifically prescribed by a licensed physician or are not being used for the purpose in the manner directed.
Reasonable Cause: Dependent on the facts of each situation, reasonable cause or suspicion is based on physical, behavioral, or performance indicators, including, but not limited to, unusual behavioral patterns, errors, safety violations, an increase in absenteeism, accidents, safety risks to customers or co-workers and work-related incidents resulting in loss or damage of Company property or bodily injury. Documentation of the employee's actions, appearance, or conduct which indicate the use of or possession of controlled substances or alcohol will be prepared and signed by the witnessing supervisor within forty-eight (48) hours of the observation or before the employee's test results are released, whichever is earlier.
Return-to-Work Agreement: Letter signed by employee following a positive test result. This letter covers a period of no less than one year. It requires the employee to meet all recognized standards of performance, agree to submit to random and follow up testing without notice for a period of no less than one year, pay for the cost of the testing, and

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comply with all standards set forth in Master Construction Solutions's Substance Abuse Policy. The agreement also requires the employee to comply with all rehabilitative recommendations made by the employee's counselor (i.e., Employee Assistance Program Counselor, Licensed Health Care Professional, etc.), agree that failure to follow these recommendations or refusal to participate in full, including follow up testing, will result in actions up to and including termination of employment.

Safety Sensitive Position: Job classifications in which the performance of normal duties by an employee who is under the influence of alcohol or prohibited drugs could result in serious injury to the employee, other employees, the public, and/or major damage to equipment or facilities. These job classifications will be designed by and be changed at the discretion of Company management.

Verified Positive Result: shall mean a Positive Test Result that has been verified by gas chromatography/mass spectrometry.

Under The Influence: When drug test results from the gas chromatography/mass spectrometry (GC/MS) instrumentation analysis meet or exceed the defined cutoff levels in terms of nanograms per milliliter (ng/ml) of the metabolites detected in the urine or when blood alcohol content meets or exceed .02mg percent.

DRUG AND ALCOHOL TESTING: Procedures and Guidelines

Testing

- Applicants considered final candidates for a position will be tested for the presence of illegal drugs as a part of the application process.
- The Company may elect to only test applicants who apply for certain classifications or job positions based on a reasonable classification basis. A list of classifications will be developed by the Company and kept on file in the office of the manager of Human Resources.
- The Company may allow the job applicant to begin work pending the results of the drug/alcohol test. If the result is positive, the applicant will be subject to immediate discharge.
- Any job applicant who refuses to submit to drug/alcohol testing, refuses to sign the consent form, fails to appear for testing, tampers with the test or fails to pass the pre-employment drug/alcohol test will be ineligible for hire.
- An employee's refusal to test or failure to cooperate with the testing process in any way that would prevent completion of the test (i.e., dilution of specimen, tampering with specimen, etc.) will be considered as a positive test.
- If a decision is made to direct the employee for drug and/or alcohol testing, the supervisor will have the employee driven to a testing site accompanied by a management representative, or a Designated Employer Representative will perform the testing at an agreed upon location. The test will be administered in a location to protect the confidentiality of the person and the process to the extent possible.
- All test results are routinely forwarded to the Medical Review Officer (MRO). If an initial screen produces a positive result, a confirmatory test on the same sample will be conducted.
- The MRO will contact the applicant to discuss the results. If a plausible medical explanation for the positive test result is given by the applicant, the MRO will substantiate it with the applicant's physician or pharmacy. If the explanation is medically substantiated, the test result will be considered negative and shall be reported as negative.
- The MRO will report all positive and negative test results to the company's Designated Employer Representative (DER). The DER will inform the appropriate supervisor. If the results are positive, the DER will advise the appropriate parties of the action(s) to be taken. Under no circumstances is the employee to resume his/her duties until the test results are received.

Pre-Employment and New Hire Drug/Alcohol Testing

- All individuals who apply for employment shall be informed at the time of the submission of an application that, as a condition of an offer of employment, they will be tested for drugs and shall be given a copy of this policy. Master Construction Solutions makes all offers of employment subject to and conditioned on the applicants':

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- Consent to taking a drug test; and a Negative Test Result. The pre-employment test for the presence of drugs must be conducted within 30 days prior to an Applicant's expected first day of employment. No Applicant will be allowed to commence employment at Master Construction Solutions until after the conditions set forth above have been successfully completed.

- Applicants will be required to voluntarily submit to urinalysis for the presence of drugs and sign a voluntary consent form.
- At the time an offer of employment is extended, the potential employee will be instructed as to their testing time and place. Applicants are to complete the drug testing when scheduled.
- "New Hire Evaluation" drug testing may be performed as an unannounced test at any time during an employee's designated probation period, (30 calendar days from first date of employment). A confirmed positive test result (confirmed by the MRO) will result in immediate termination of employment.
- Candidates for hire and employees tested under the "New Hire Evaluation" process who have been subjected to drug screening tests that have produced a confirmed Positive result, may request to have the original sample retested at their own expense by a Company approved (DHHS/SAMHSA) certified laboratory.
- Applicants and employees who fall under the "New Hire Evaluation" drug testing are not entitled to participate in any Employee Assistance or Rehabilitation Program offered by Master Construction Solutions to its employees. Master Construction Solutions reserves all rights and shall maintain exclusive discretion with regards to withholding all offers for any employment opportunity.
- Master Construction Solutions will not hire individuals who test positive for prohibited drugs (as defined in this policy) or alcohol. All test results are routinely forwarded to the Medical Review Officer (MRO). If an initial screen produces a positive result, a confirmatory test on the same sample will be conducted.
- The MRO will contact the applicant to discuss the results. If a plausible medical explanation for the positive test result is given by the applicant, the MRO will substantiate it with the applicant's physician or pharmacy. If the explanation is medically substantiated, the test result will be considered negative and shall be reported as negative.
- The MRO will report all positive and negative test results to Master Construction Solutions's Designated Employer Representative (DER). In the event of a negative test the DER will inform all appropriate parties. If the results are positive, Master Construction Solutions or the DER will notify the applicant that the offer of employment is being withdrawn.

Drug/Alcohol Testing for Cause

- Employees must submit to a drug test if reasonable suspicion exists to indicate that their ability to perform work safely or effectively may be impaired. "Reasonable-suspicion testing" means drug testing based on a belief that an employee is using or has used drugs in violation of the policies of Master Construction Solutions drawn from those facts considering experience.
- Reasonable suspicion testing will occur when Master Construction Solutions management and/or supervision have reason to suspect that an employee may be in violation of this policy. The suspicion must be documented in writing within 24 hours of the event or prior to the release of the test findings. Reasonable suspicion testing may be based upon, among other things:
    - Observed behavior, such as direct observation of drug/alcohol use or possession and/or the physical symptoms of drug and/or alcohol use;
    - A pattern of abnormal conduct or erratic behavior;
    - Arrest or conviction for a drug-related offense, or the identification of an employee as the focus of a criminal investigation into illegal drug possession, use or trafficking. The employee is responsible for notification to Master Construction Solutions within three (3) days of any drug-related conviction;
    - Information provided either by reliable and credible sources or independently corroborated regarding an employee's substance use; or
    - Newly discovered evidence that the employee has tampered with a previous drug or alcohol test.
- Reasonable suspicion testing does not require certainty, but mere "hunches" are not sufficient to justify testing. To prevent this, all supervisory personnel will be trained in the recognition of drug and alcohol related signs and symptoms. Testing may be for drugs or alcohol or both.

Post-Accident Testing

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- Post-accident testing for drugs and/or alcohol will be conducted whenever an accident occurs as defined below. For purposes of this policy, an accident is considered to be an unplanned, unexpected or unintended event that occurs on Master Construction Solutions property, during the conduct of Master Construction Solutions's business, during scheduled working hours or which involves Master Construction Solutions-supplied motor vehicles or motor vehicles that are used in conducting Master Construction Solutions business, or is within the scope of employment, and which results in any of the six (6) situations listed below:
    - A fatality of anyone involved in the accident;
    - Bodily injury to the employee and/or another person that requires off-site medical attention away from the Master Construction Solutions's designated place of employment/work site;
    - Any accident in which the driver is cited and there is disabling damage to the vehicle(s) requiring tow-away;
    - Any accident in which the driver is cited, and off-site medical treatment is required;
    - Vehicular damage in apparent excess of $500.00; or
    - Non-vehicular damage to any Master Construction Solutions property (i.e., tools, materials, etc.) in apparent excess of $300.00.
- Drug and/or alcohol testing after an accident (as defined above);
    - Urine specimen collection (for a drug test) or breath/saliva (for an alcohol test) is to occur immediately after a need has been determined. At no time shall a drug specimen be collected after 32 hours from the time of an employment-related incident.
    - Breath or saliva alcohol testing will be performed within two (2) hours of the incident whenever possible, but always within eight (8) hours, or it will not be performed but will be documented.
    - If the employee responsible for an employment-related accident is injured, it is a condition of employment that the employee herein expressly grants unto Master Construction Solutions, its officers, management, and Designated Employer Representative (DER) the right to request that attending medical personnel obtain appropriate specimens (breath, blood and/or urine) for the purpose of conducting alcohol and/or drug testing. Further, all employees herein expressly grant unto Master Construction Solutions, its officers, management and DER, access to all other medical information that may be relevant in conducting a complete and thorough investigation of the employment-related accident, to include, but not be limited to, a full medical report from the examining Licensed Health Care Providers.
    - Post-accident tests conducted by federal, state, or local authorities can be a substitute for Master Construction Solutions's post-accident testing. Drivers involved in an accident which did not result in a loss of life, were not given a moving citation, nor met the criteria outlined above may still be tested under the terms of Reasonable Suspicion.
    - Employees subjected to screening tests that have produced a confirmed Positive result may request to have the original sample retested at their own expense by a Master Construction Solutions approved (DHHS/SAMHSA certified) laboratory.
- An employee's refusal to test or failure to cooperate with the testing process in any way that would prevent completion of the test (i.e., dilution of specimen, tampering with specimen, etc.) will be considered a positive test.
- A positive test or an employee's refusal to submit to a post-accident test may affect the employee's eligibility for compensation and benefits under Ohio's Workers' Compensation laws.
- Employee Responsibilities:
    - Employees (regardless of status) must immediately notify their immediate supervisor or Master Construction Solutions's DER about the accident (if medically able to do so), remain available for testing, and not consume any alcohol for eight (8) hours after the accident, or until an alcohol test has been administered, whichever occurs first. If an alcohol test cannot be performed, the collecting agent must document why the test was not done.
    - Post-accident tests for drug tests must be done as soon as possible after the accident, but never beyond 32 hours after the accident. If the drug test was not done within the hour time limit, the collecting agent must document why it was not done.

Random Testing

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- Each year up to 25% of Master Construction Solutions's total work force, and at least 50% of all CDL drivers and employees in Safety Sensitive Positions, will be tested for drug use on an unannounced basis spread throughout the calendar year. Since the selection process will be completely random, some employees may be tested more than once per state funded job site while others may go untested under this program.
- A Medical Review testing organization will utilize objective computer software that ensures a truly random selection process in which all employees in the testing pool have an equal statistical likelihood of being selected for testing. Master Construction Solutions forwards a list of names of employees to be tested to the designated agency representative. The random testing list will be maintained in the strictest confidence as outlined in this policy.
- Employees can be added or deleted from the random testing pool at any time during the testing year, but these changes must be made before the selection process in which the changes are to be effective.
- When the next random draw is conducted, all employees are again included in the pool with an equal chance of selection, regardless of whether an employee was previously selected.
- An employee's failure to comply with the request for a specimen (as outlined in this policy) for random testing will result in immediate termination of employment.
- An employee's refusal to test or failure to cooperate with the testing process in any way that would prevent completion of the test (i.e., dilution of specimen, tampering with specimen, etc.) will be considered as a positive test.
- Employees subjected to drug screening tests that have produced a confirmed Positive result may request to have the original sample retested at their own expense by a Master Construction Solutions approved laboratory.
- Availability of Employee to be tested:
    - Testing can be ordered at any time during the employee's work shift.
    - If the employee is unavailable (illness, vacation, etc.) when the random testing roster is received by the authorized agent, the employee must be tested prior to the next random selection drawing.
    - If the employee selected for random drug testing is off for more than 60 days (illness, vacation, layoff, etc.), a re-employment drug test is required before the employee can return to work.

Follow-Up Testing After Return to Work from Assessment or Treatment

- Every employee who as returned to duty after receiving treatment/assistance for substance abuse as a result of testing positive will be subject to unannounced follow-up alcohol and/or controlled substance testing as directed by the substance abuse professional in charge of the employee's treatment/assistance.
- There will be a minimum of six (6) unannounced follow-up tests during the first 12 months after the employee returns to duty. Testing may continue for up to sixty (60) months after the employee returns to duty if ordered by the substance abuse professional.
- The first follow-up test will serve as a "return-to-duty" test and occurs before the employee resumes work activities and following a "leave" associated with a policy violation.
- Any such employee refusing to participate in a return-to-duty test or an after-care-testing program (testing as ordered by the substance abuse professional in charge of the employee's treatment/assistance) or testing positive in these situations will be terminated.
- The employee will be responsible for paying for all follow-up tests as ordered by the substance abuse professional in charge of the employee's treatment/assistance.

Arrest or Conviction for Drug-Related Crime

- Employees who are convicted of a drug or alcohol related offense will be considered in violation of this Policy while at work. In addition, employees who are convicted of a drug or alcohol related offense, occurring in the workplace, must report such conviction to their appropriate Designated Employer Representative (DER) within three (3) days of the conviction. Please note that for purposes of this policy a conviction includes a plea of guilty or no contest.

Confidentiality

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- Specimens will be collected in accordance with specific procedures, which insure privacy, confidentiality, and integrity of test results.
- All drug test results reported to Master Construction Solutions's DER shall be considered confidential information and shall be appropriately labeled.
- The Designated Employer Representative (DER) will be notified of test results in a confidential manner.
- All records of the drug and alcohol testing program are strictly confidential, and access to records will be strictly controlled. Substance Abuse Testing records will be kept in a secure location and will not be part of the individual's personnel file.
- Test results will not be released to other parties without the signed consent of the employee, unless required by law (i.e., DOT Enforcement Office).
- Only those administrators or supervisors with a business "need-to-know" will be informed of the test results, and if applicable, any disciplinary action taken.
- Master Construction Solutions ***does*** have the obligation to report positive drug screens to the appropriate licensing/certifying boards as required by statute.

Substances Tested for and the Methods of Testing

Systems presence testing is the procedure that is used to identify the presence of the following controlled substances or alcohol that may be present:

Code	Drug	EMIT Screen	GC/MS Confirmation
AMPHS	Amphetamines	1000 ng/ml	500 ng/ml
BE	Cocaine Metabolite	300 ng/ml	150 ng/ml
OPA	Opiates	2000 ng/ml	2000 ng/ml
PCP	Phencyclidine	25 ng/ml	25 ng/ml
THC	Cannabinoids (Marijuana/THC)	50 ng/ml	15 ng/ml

For each of the tested drugs there is an initial test used to screen the urine specimen. If the initial screen is positive (at or higher than a cut-off level that comes from the Federal Department of Health & Human Services), a second or confirmatory test is done. This is a different test and is considered 100% accurate. Detection thresholds (or cut-off levels) are standards that have been established by the DHHS for each of the above drugs after years of research. These levels will be used to interpret all drug screens/tests, whether for a pre-employment examination, new hire, reasonable suspicion test, post-accident test, random test, or follow-up test.

- Breath alcohol testing will be conducted by a testing contractor that uses only certified equipment and personnel. A breath alcohol concentration exceeding .02 will be considered a verified positive result. In the event of an accident where an employee has a "whole blood" alcohol drawn at a medical treatment facility, a result equal to or greater than .02 shall be considered a verified positive result. An Evidentiary Breath Test (EBT) is used to confirm any initial positive test result. Master Construction Solutions also expressly reserves the right to add substances on the list above, especially if mandated by changes in existing federal, state, or local regulations or legislation, or to meet a specific customer's testing criteria.
- Urine, hair, or blood will be used for the initial testing for drugs and alcohol. Samples shall be collected with due regard for the privacy of the individual providing the sample.
- Master Construction Solutions will pay the cost of the initial and confirmation drug tests it requires of employees and job applicants. An employee or job applicant will pay the cost of any additional drug tests not required by Master Construction Solutions.

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- Master Construction Solutions will utilize a collection site designated by an approved laboratory which has all necessary personnel, materials, equipment, facilities, and supervision to provide for the collection, security, chain-of-custody procedures, temporary storage and shipping or transportation of urine and blood specimens to an approved drug testing laboratory. Master Construction Solutions may also utilize a medical facility as a collection site which meets the applicable requirements. Security of the collection site, chain-of-custody procedures, privacy of the individual, collection control, integrity and identity of the specimen, and transportation of the specimen to the laboratory will meet state and federal rules and guidelines.

Sample Collection and Criteria, Testing and Results

- Master Construction Solutions's Designated Employee Representative (DER) will perform the administration, collection, testing, verification and reporting of urine samples for all drug testing purposes and shall comply with the terms of this policy as well as all applicable federal and state laws and regulations.
- All urine samples shall be collected in compliance with DHHS guidelines.
- All drug testing will be performed at a U.S. Department of Health & Human Services/Substance Abuse & Metal Health Services Administration (DHHS/SAMHSA)-certified laboratory and shall be forwarded to a licensed physician with knowledge of substance abuse disorders a "Medical Review Officer" (MRO).
    - The MRO shall be chosen by the DER and shall only report the results to the DER. The results shall be reported in writing and in a confidential manner and shall be limited only to the Illegal Drugs for which the Applicant receives a Confirmed Positive Test Result or a Negative Test Result.
- For Pre-Employment Drug Screens, prior to the collection of any sample, the Applicant will be required to read and sign a Pre-Employment Drug Testing Consent Form. All signatures to the consent form shall be voluntary.
- Strict privacy will be provided during the specimen collection. Any observation of Applicants/Employees providing specimens shall be in strict compliance with Department of Transportation (DOT) published guidelines.
- Samples shall be collected using a "split sample" method to provide a second separate specimen for independent testing in the event an Applicant/Employee requests a retest.
- If the urine sample is quantitatively acceptable, the containers holding the samples will be sealed with security tape. The Applicant/Employee will initial and date the sealing tape on each container. Each sample will then be placed in a sealed package for delivery to the appropriate testing facility. The third-party services supplier shall ensure that the sample is maintained and labeled in a proper manner for the purposes of establishing a chain of custody.
- The collection agent will be required to send the sample to a DHHS-certified laboratory for testing. All test results will be forwarded to the MRO. The MRO (or designee) will inform Master Construction Solutions's DER of Negative Test Results within 24 hours of receipt of the Negative Test Results. All Positive Test Results must be verified by a federally certified laboratory utilizing gas chromatography/mass spectrometry.
- For all Verified Positive Results, the MRO will contact the Applicant/Employee directly within the legally applicable time limitation, which may vary by state, from the MRO's receipt of a Verified Positive Test Result. The MRO shall inform the Applicant/Employee in writing of their test result, as well as the consequences and options available to the Applicant/Employee, including but not limited to information related to the Applicant/Employee's right to request a retest of the original sample. Applicants/Employees who receive notification of a Verified Positive Test Result will then have five (5) working days from the receipt of such written notification to explain or contest the Verified Positive Test Result and/or request a retest. The MRO will also provide the Applicant/Employee with a copy of any Verified Positive Result.
- All Applicant/Employees with a Verified Positive Result have the right to request a retest. All retests shall be performed on the untested portion of the split-sample of their original specimen. Only one retest shall be performed. A DHHS certified laboratory shall perform the retest. The Applicant/Employee must request a retest in writing within five (5) days of receiving notice of a Verified Positive Result. In the Applicant/Employee's request for a retest the Applicant/Employee must state that he/she is consenting to the release of the sample. If the retest does not show a Verified Positive Result, Master Construction Solutions shall pay the cost of the retest.
- Applicant/Employees shall have the opportunity to provide to the MRO information related to the use of prescription or nonprescription medications or other relevant medical information. If the information regarding the explanation of the Positive Test Result provided to the MRO by an Applicant/Employee is,

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based upon the MRO's professional medical opinion, unsubstantiated or irrelevant, and the Applicant/Employee does not request a retest within five (5) days from receiving notice of the Verified Positive Result, the MRO will report a Confirmed Positive Result to the DER. A Negative Test Result shall be reported to the DER. A Negative Test Result shall be reported to the DER if the Applicant/Employee provides medical information that is determined by the MRO to be valid, substantiated, or relevant based on the MRO's professional medical opinion and/or the Positive Test Result was not caused by an Illegal Drug.

- Negative Test Results will be forwarded directly to Master Construction Solutions's DER. Confirmed Positive Results will be sent to the DER only and shall be marked as "Confidential Information". Upon receipt of any test result from the third-party service supplier, the DER will promptly notify the Applicant/Employee of its receipt of the test results. Master Construction Solutions shall rely on the test results and shall take appropriate action based on such results, in accordance with this policy.

Counseling and Rehabilitation

- Master Construction Solutions's goal is rehabilitation, not punishment. Employees who have a substance abuse problem and who voluntarily inform Master Construction Solutions of their problem will be granted unpaid leave to participate in a rehabilitation program.
    - No employee who voluntarily informs Master Construction Solutions that he/she has a substance abuse problem – before he/she tests positive for drug or alcohol use – shall be subject to disciplinary action because of that voluntary disclosure.
    - Instead of leave without pay, employees who participate in a rehabilitation program may use accrued vacation or personal days to compensate them for some or all the time they are in rehabilitation.
    - Such employees shall be retained if the employee successfully follows the treatment program (as outlined in the employee's individual "Return-to-Work" agreement). If the employee fails to successfully follow the program, they must be discharged.
    - The rights granted in this section shall be available to an employee only once during a three-year period and shall not apply to an employee who has been asked to provide a sample for cause, or an employee who has refused a drug test, or tested positive for alcohol, controlled substance, marijuana, or a dangerous drug.
- Employees participating in an inpatient substance abuse program of rehabilitation will be required to enter the program within 72 hours or a time to be determined by management or Master Construction Solutions's DER. Employees treated on an outpatient basis will be expected to perform the regular duties of their job except as modified by Master Construction Solutions management for safety consideration.
- Return-to-Work and/or possible reassignment will be dependent upon the employee's ability to safely resume normal or modified duties as determined by the employee's substance abuse profession, Master Construction Solutions's DER and Master Construction Solutions management.
- Employees who test positive for alcohol or drugs are subject to disciplinary action up to and including termination of employment.
    - In assessing punishment following a positive test, Master Construction Solutions may consider the nature of the offense, whether it was a first offense, and other mitigating circumstances, including the employee's work history and his/her substance abuse.

Compliance and Consent

- Compliance with the terms of the policy and written consent to undergo testing as described herein are conditions of continued employment with Master Construction Solutions. Any employee or applicant may refuse to undergo drug and/or alcohol testing but such refusal is grounds for termination of employment or denial or employment. Similarly, other conditions of employment include:
    - Consent to inspection of Master Construction Solutions property and personal property located on Master Construction Solutions premises.
    - Consent to be driven to a medical facility of Master Construction Solutions's choice if Master Construction Solutions management, or their designated representative, has reasonable cause to believe the employee may be under the influence of alcohol or prohibited drugs.
    - Completion of release forms for drug testing and medication history prior to testing.

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- Consent to participate in and complete a prescribed program of alcohol and/or drug rehabilitation if referred to by Master Construction Solutions.
- Successful completion of any aftercare program recommended by a substance abuse professional following completion of a rehabilitation program.
- Failure to comply with the terms and conditions of these policies can result in disciplinary action up to and including termination of employment, even for a first offense.

Communication/Notification/Education

- Notices will be posted in normal posting places advising all applicants and employees of Master Construction Solutions's policy to provide a drug and alcohol-free workplace.
- Application forms will contain a statement regarding compliance with this policy as a condition of employment and will inform all applicants of the requirement to take and pass a drug test.
- All existing employees (regardless of status) and "New Hires" are required to attend a training session. This session will include, but not be limited to:
    - A copy of Master Construction Solutions's policy and acknowledgement form, showing receipt of policy (this form will be maintained as part of the employee's personnel file);
    - How and why substance abuse is a workplace problem;
    - Effects, signs & symptoms of use;
    - Effects of commonly used drugs in the workplace;
    - How to seek help and what type of help is available (i.e., getting a referral for employee assistance);
    - The importance of recognizing a potential substance abuse problem the employee may have;
    - Supervisory Personnel's direct role and responsibilities in Master Construction Solutions's own DFSP program;
    - Question and Answer session.

Conclusion

Master Construction Solutions's drug-free safety program policy has been prepared so as not to conflict with public policy and, further, not to be discriminatory or abusive. A drug-free workplace should be the goal of every employer in America. Drug and alcohol testing is only one of the several steps that must be taken to achieve this objective. When incorporated into a comprehensive anti-drug effort, testing can go a long way in combating drug and alcohol abuse in the workplace.

This policy supersedes any information provided to applicants and/or employees, either written or oral. Master Construction Solutions reserves the right to change the provisions of this policy and testing program at any time in the future.

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Electrical Safety Policy

Master Construction Solutions' Electrical Safety program is designed to prevent electrically related injuries and property damage. This program also provides for proper training of maintenance employees to ensure they have the requisite knowledge and understanding of electrical work practices and procedures. Only employees qualified in this program may conduct adjustment, repair or replacement of electrical components or equipment. Electricity has long been recognized as a serious workplace hazard, exposing employees to such dangers as electric shock, electrocution, fires, and explosions. *References: NFPA 70E, Electrical Safety Requirements for Employee Workplaces, National Electrical Code (NEC) and OSHA Standard (Electrical Safety) 29 CFR 1910.331 through 1910.339.*

Responsibilities

Management:

- Provide training for qualified and unqualified employees.
- Conduct inspections to identify electrical safety deficiencies.
- Guard and correct all electrical deficiencies promptly.
- Ensure all new electrical installations meet codes and regulations.

Employees:

- Report electrical deficiencies immediately.
- Not work on electrical equipment unless authorized and trained.
- Properly inspect all electrical equipment prior to use.

Hazard Control

Engineering Controls:

- All electrical distribution panels, breakers, disconnects, switches, junction boxes shall be completely enclosed.
- Watertight enclosure shall be used where there is possibility of moisture entry either from operations or weather exposure.
- The electrical distribution area will be guarded against accidental damage by locating in specifically designed rooms, use of substantial guard posts and rails and other structural means.
- A clear approach and 3-foot side clearance shall be maintained for all distribution panels.
- All conduit shall be fully supported throughout its length. Non-electrical attachments to conduit are prohibited.
- All non-rigid cords shall be provided strain relief where necessary.
- "Overhead lines." If work is to be performed near overhead lines, the lines shall be deenergized and grounded, or other protective measures shall be provided before work is started. If the lines are to be deenergized, arrangements shall be made with the person or organization that operates or controls the electric circuits involved in deenergizing and grounding them. If protective measures, such as guarding, isolating, or insulating, are provided, these precautions shall prevent employees from contacting such lines directly with any part of their body or indirectly through conductive materials, tools, or equipment.

Administrative Controls:

- Only trained and authorized employees may conduct repairs to electrical equipment.
- Safe work practices shall be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contact when work is performed near or on equipment or circuits which are or may be energized.
- Contractors performing electrical work must hold a license for the rated work.
- Conductors and parts of electrical equipment that have been deenergized but have not been locked or tagged out shall be treated as live parts.
- Areas under new installation or repair will be sufficiently guarded with physical barriers and warning signs to prevent unauthorized entry.
- Access to electrical distribution rooms is limited to those employees who have a need to enter.
- All electrical control devices shall be properly labeled.
- Work on energized circuits is prohibited unless specifically authorized by Senior Management.
- All qualified employees will follow established electrical safety procedures and precautions.
- Employees may not enter spaces containing exposed energized parts unless illumination is provided that will enable the employees to work safely.

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- When an unqualified person is working in an elevated position near overhead lines, the location shall be such that the person and the longest conductive object he or she may contact cannot come closer to any unguarded, energized overhead line than the following distances: For voltages to ground 50kV or below - 10 feet (305 cm); For voltages to ground over 50kV - 10 feet (305 cm) plus 4 inches (10 cm) for every 10kV over 50kV.

Protective Equipment:

- Qualified employees will wear electrically rated safety shoes/boots.
- All tools used for electrical work shall be properly insulated.
- Electrical rated gloves shall be available for work on electrical equipment.
- Electrically rated matting will be installed in front of all distribution panels in electric utility rooms.

Electrical Equipment

Examination: Electrical equipment shall be free from recognized hazards that are likely to cause death or serious physical harm to employees. The safety of equipment shall be determined using the following criteria:

- Suitability for installation and use in conformity with the provisions of this subpart. Suitability of equipment for an identified purpose may be evidenced by listing or labeling for that identified purpose.
- Mechanical strength and durability, including parts designed to enclose and protect other equipment, the adequacy of the protection thus provided.
- Electrical insulation.
- Heating effects under conditions of use.
- Arcing effects.
- Classification by type, size, voltage, current capacity, and specific use.
- Other factors which contribute to the practical safeguarding of employees using or likely to come in contact with the equipment.

Identification of Disconnecting Means and Circuits:

Each disconnecting means for motors and appliances shall be legibly marked to indicate its purpose. Each service, feeder, and branch circuit, at its disconnecting means or overcurrent device, shall be legibly marked to indicate its purpose. These markings shall be of sufficient durability to withstand the environment involved.

A disconnecting means is a switch that is used to disconnect the conductors of a circuit from the source of electric current. Disconnect switches are important because they enable a circuit to be opened, stopping the flow of electricity, and thus can effectively protect workers and equipment.

Each disconnect switch or overcurrent device required for a service, feeder, or branch circuit must be clearly labeled to indicate the circuit's function, and the label or marking should be located at the point where the circuit originates. For example, on a panel that controls several motors or on a motor control center, each disconnect must be clearly marked to indicate the motor to which each circuit is connected.

All labels and markings must be durable enough to withstand weather, chemicals, heat, corrosion, or any other environment to which they may be exposed.

Definition of Terms

Qualified Worker – An employee trained and authorized to conduct electrical work.
Unqualified – Employees who have not been trained or authorized by management to conduct electrical work.

Training

Training For Unqualified Employees:
Training for Unqualified Employees in general electrical safety precautions to provide an awareness and understanding of electrical hazards. Training shall include, but is not limited to:

- Electrically related safety practices
- Safety related work practices that pertain to their respective job assignments.
- Clearance distances.

Electrical Safety Rules for Non-Qualified Workers:

- Do not conduct any repairs to electrical equipment.
- Report all electrical deficiencies to your supervisor.
- Do not operate equipment if you suspect any electrical problem(s).
- Water and electricity do not mix.

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- Even low voltages can kill or injure you.
- Do not use cords or plugs if the ground prong is missing.
- Do not overload electrical receptacles.

Training For Qualified Employees:
Training for Qualified Employees includes specific equipment procedures and requirements of:
Electrical Safety, 29 CFR 1910.331 to 1910.339.

TABLE S-5 - APPROACH DISTANCES FOR QUALIFIED EMPLOYEES - ALTERNATING CURRENT

Voltage range (phase to phase)	Minimum approach distance
300V and less	Avoid Contact
Over 300V, not over 750V	1 ft. 0 in. (30.5 cm).
Over 750V, not over 2kV	1 ft. 6 in. (46 cm).
Over 2kV, not over 15kV	2 ft. 0 in. (61 cm).
Over 15kV, not over 37kV	3 ft. 0 in. (91 cm).
Over 37kV, not over 87.5kV	3 ft. 6 in. (107 cm).
Over 87.5kV, not over 121kV	4 ft. 0 in. (122 cm).
Over 121kV, not over 140kV	4 ft. 6 in. (137 cm).

Personal Protective Equipment (PPE)

Employees working in areas where potential contact with exposed electrical sources is present and likely will be provided (at no cost) and will use Personal Protective Equipment (PPE). The following rules apply to the use and care of PPEs.

- PPE shall be used where contact with exposed electrical sources is present and likely.
- PPE shall be designed for the work being performed and the environment in which it is used.
- PPE shall be visually inspected and/or tested before use. Any defects or damage shall be replaced, repaired, or discarded.
- In cases where the insulating capabilities of the PPEs may be damaged during the work, a protective outer cover, such as leather, must be used.
- Employees shall wear non-conductive head protection wherever there is a danger of injury from electrical burns or shock from contact with exposed energized parts.
- Employees shall wear protective eye/face equipment whenever there is a danger from electrical arcs or flashes or from flying objects resulting from an electrical explosion.

Electrical PPE Inspection Schedule:

Type of Equipment	When to Test
Rubber Insulating Line Hose	Upon indication that insulating value is suspect.
Rubber Insulating Covers	Upon indication that insulating value is suspect.
Rubber Insulating Blankets	Before first issue and every 12 months.
Rubber Insulating Gloves	Before first issue and every 6 months.
Rubber insulating Sleeves	Before first issued and every 12 months.

Working at Elevated Locations

Any person working on electrical equipment on a crane or other elevation must take necessary precautions to prevent a fall from reaction to electrical shock or other causes. A second person, knowledgeable as a safety watch, must assume the best possible position to assist the worker in case of an accident. Portable ladders shall have non-conductive siderails if they are used where the employee or the ladder could contact exposed energized parts.

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Vehicular and Mechanical Equipment

Any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines shall be operated so that a clearance of 10 ft. (305 cm) is maintained. If the voltage is higher than 50kV, the clearance shall be increased 4 in. (10 cm) for every 10kV over that voltage. However, under any of the following conditions, the clearance may be reduced:

- If the vehicle is in transit with its structure lowered, the clearance may be reduced to 4 ft. (122 cm). If the voltage is higher than 50kV, the clearance shall be increased 4 in. (10 cm) for every 10 kV over that voltage.
- If insulating barriers are installed to prevent contact with the lines, and if the barriers are rated for the voltage of the line being guarded and are not a part of or an attachment to the the vehicle or its raised structure, the clearance may be reduced to a distance within the designed working dimensions of the insulating barrier.
- If the equipment is an aerial lift insulated for the voltage involved, and if the work is performed by a qualified person, the clearance (between the uninsulated portion of the aerial lift and the power line) may be reduced to the distance given in Table S-5.
- Employees standing on the ground may not contact the vehicle or mechanical equipment or any of its attachments, unless:
    - The employee is using protective equipment rated for the voltage; or
    - The equipment is located so that no uninsulated part of its structure (that portion of the structure that provides a conductive path to employees on the ground) can come closer to the line than permitted in paragraph (c)(3)(iii) of this section.
- If any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines is intentionally grounded, employees working on the ground near the point of grounding may not stand at the grounding location whenever there is a possibility of overhead line contact. Additional precautions, such as the use of barricades or insulation, shall be taken to protect employees from hazardous ground potentials, depending on earth resistivity and fault currents, which can develop within the first few feet or more outward from the grounding point.

General Protective Equipment and Tools for Working on or Near Energized Parts

- Only qualified persons may work on electric circuit parts or equipment that have not been deenergized. Such persons shall be familiar with the use of special precautionary techniques, PPE, insulating and shielding materials and insulated tools.
- General Protective Equipment and Tools shall be used when in the proximity of, or working on, exposed energized parts. The following rules apply:
- When working on or near exposed energized parts, Qualified Employees shall use insulated tools or handling equipment suitable for the voltage present and working environment. In cases where the insulation may be damaged, a protective outer layer should be employed.
- Fuse handling equipment, insulated for the circuit voltage, shall be used to remove, or install fuses when the terminal is energized.
- Ropes and other hand lines used near exposed energized equipment shall be non-conductive.
- Conductive items of jewelry or clothing shall not be worn unless they are rendered non-conductive by covering, wrapping or other insulating means.
- When working in a confined or enclosed space (such as a manhole or vault) that contains exposed energized parts, protective shields, protective barriers, or insulating materials shall be used as necessary to avoid inadvertent contact with these parts. Doors, hinged panels, and the like shall be secured to prevent their swinging into an employee and causing the employee to contact exposed energized parts.

Warnings and Barricades

- Warnings and barricades shall be employed to alert Unqualified Employees of the present danger related to exposed energized parts. The following rules apply:
- Safety signs, warning tags, etc., must be used to warn Unqualified Employees of the electrical hazards present, even temporarily, that may endanger them.
- Non-conductive barricades shall be used with safety signs to prevent Unqualified Employees access to exposed energized parts or areas.
- Where barricades and warning signs do not provide adequate protection from electrical hazards, an Attendant shall be stationed to warn and protect Employees.

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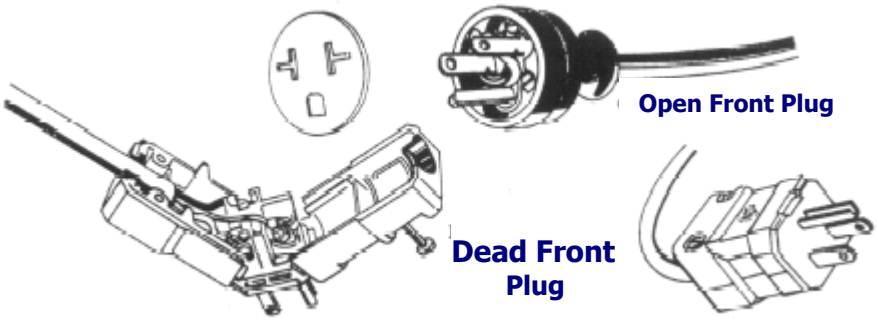
Portal Electrical Equipment (PEE) Safety Rules

Electric Tools - Basic Safety:

- The tool must be properly grounded or double-insulated.
- "Properly Grounded" means an approved three-wire cord with a three-prong plug. You should only use the tool in a three-pole outlet or receptacle.
- Never cut off or bend back the ground pin on a three-prong plug to make it fit in a two-pole receptacle. Never use a two-prong cheater or adapter.
- If the tool is double insulated, it will be labeled. There are different labels in use, below are examples of the three most common symbols:

D **D**

- Make sure that the casing of a double-insulated tool is not cracked, split, or broken.
- Replace open front plugs with dead front plugs. Dead front plugs are sealed. They present less danger of shock or short-circuit.



- Electrical equipment is defined as cord or plug-type electrical devices that include the use of flexible or extension cords. Examples of portable electrical equipment include power hand tools, powered bench tools, fans, radios, etc. The following safety rules apply to portable electrical equipment (PEE):
- PEE shall be handled in such a manner to not cause damage. Power cords may not be stapled or otherwise hung in a way that may cause damage to the outer jacket or insulation.
- PEE shall be visually inspected for damage, wear, cracked or split outer jackets or insulation, etc., before use each shift. PEE that remains connected once put in place need not be inspected until relocated. Any defects: such as cracked or split outer jackets or insulation must be repaired, replaced, or placed out of service.
- Always check the compatibility of cord sets and receptacles for proper use.
- Ground type cord sets may only be used with ground type receptacles when used with equipment requiring a ground type conductor.
- Attachment plugs and receptacle may not be altered or connected in a way that would prevent the proper continuity of the equipment grounding conductor. Adapters may not be used if they interrupt the continuity of the grounding conductor.
- Only portable electrical equipment that is double insulated or designed for use in wet areas or likely to contact conductive liquids may be used.
- Employees that are wet or have wet hands may not handle PEE's (i.e., plug-in, un-plug, etc.). Personal Protective Equipment must be used when handling PEE's that are wet or covered with a conductive liquid.
- Locking-type connectors shall be properly secured after connection to a power source.

Electrical Circuit Safety Procedures

- While any employee is exposed to contact with parts of fixed electric equipment or circuits which have been deenergized, the circuits energizing the parts shall be locked out or tagged or both.
- Electrical power and lighting circuits are defined as devices specifically designed to connect, disconnect, or reverse circuits under a power load condition. When these circuits are employed, the following rules apply:
- Cable connectors (not of load-break type) fuses, terminal plugs or cable splice connectors may not be used, unless in an emergency, to connect, disconnect or reverse in place of proper electrical circuits.

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- After a protective circuit is disconnected or opened, it may not be connected or closed until it has been determined that the equipment and circuit can be safely energized.
- Overcurrent protectors of circuits or connected circuits may not be modified, even on a temporary basis, beyond the installation safety requirements.
- Only Qualified Employees may perform test on electrical circuits or equipment.
- Test equipment and all associated test leads, cables, power cords, probes and connectors shall be visually inspected for external damage before use. Any damage or defects shall be repaired before use or else the equipment will be tagged and removed from service.
- Test equipment shall be rated to meet or exceed the voltage being tested and fit for the environment for which it is being used.
- If employees are required to handle long dimensional conductor objects (ducts or pipes), steps for safe work practices shall be listed in a site-specific Job Safety Analysis.
- Where flammable or ignitable materials are stored, even occasionally, electrical equipment capable of igniting them may not be used unless measures are taken to prevent hazardous conditions from developing.
- Whether the tool is grounded or double-insulated, test it with a continuity tester or a GFCI before use.
- Inspect tool cords and extension cords daily for damage.
- Keep cords clear of the tool during use.
- Check extension cords and outlets with a circuit-tester before using them.
- Inspect tool cords and extension cords for kinks, cuts, cracked or broken insulation, and makeshift repairs.
- Don't use the cord to lift, lower, or carry an electric tool. Don't disconnect the tool by yanking or jerking on the cord. You'll damage the cord, loosen connections, and run the risk of shocks and short-circuits.
- Protect tool cords and extension cords from traffic. Run them through conduit or between plans along either side. If necessary, run cords overhead above work or travel areas.
- Report any shocks from tools or cords to your supervisor. Minor shocks can be a warning of fatal shocks later if tools and cords are not checked.
- Master Construction Solutions requires ground fault circuit interrupters to be used with all electrical tools regardless of location. GFCIs detect any current leaking to ground from a tool or cord and quickly cut off power before damage or injury can occur.
- Never plug several power cords into one outlet by using single-to-multiple outlet adapters or converters ("cube taps").

Extension Cords

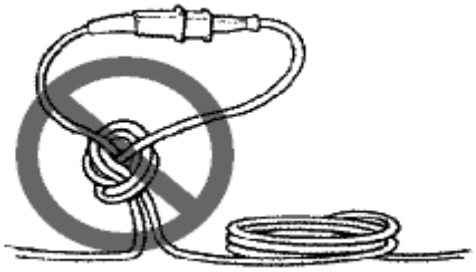
- Extension cords shall be listed by the Underwriters' Laboratory (U.L.) and bear the U.L. label.
- Flexible extension cords shall be of the grounding type (three wire) and shall be constructed from type S, hard usage material. When cords are used with heating appliances, a type-HS cord is required.
- Flexible extension cords shall not be used more than their rated capacity.
- Extension cords shall be used only in continuous lengths without splice or tap. Terminals and insulation shall be free of defects such as cracked, split, or nicked insulation; exposed wires; knots; burn marks; loose connectors; or other damage that may present a fire or electrocution hazard. All extension cords showing defects shall be immediately turned over to the Site Foreman who will promptly destroy them.

Extension Cord Use and Maintenance:

- Extension cords shall not be used as a substitute for the fixed/permanent wiring on any Master Construction Solutions worksite.
- Extension cords shall not be tacked, stapled, or otherwise affixed in semi-permanent or permanent manner.
- Multiple outlet adapters (octopus adapters) are not permitted for use on a/an Master Construction Solutions worksite.
- Extension cords shall not be used on stationary equipment or equipment drawing more than 15 amps, such as power tools, refrigerators, television, etc.
- Do not connect or splice extension cords together to make a longer connection: the resulting extension cord may not be able to provide sufficient current or power safely.
- Extension cords shall not run through behind or in walls, ceilings or floors or other concealed space. Nor shall they be run in or through ventilation ducts.
- Extension cords shall not be placed under carpets, under doors, or other locations that subject the cord to abrasion or other damage and which would prevent adequate air circulation and cooling of the cord.
- Avoid creating a tripping hazard; do not place extension cords across walkways.
- Where hazardous atmospheres may exist, due to the presence of flammable gases or vapors or explosive dusts, extension cords shall not be used.

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- The combined length of the appliance cord and extension cord that is used on very portable equipment, such as a floor sander, floor scrubber, hand tools, etc. shall not exceed 105 feet.
- Extension cords used outside, in bathrooms, kitchens, or in wet or damp areas shall be connected to a ground fault interrupter device or GFCI circuit only.
- Do not tie power cords in knots. Knots can cause short circuits and shocks. Loop the cords or use a twist lock plug.



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Fifteen Things to Remember When Working With Electricity

1. Keep water & electricity far apart.
2. Make sure all equipment is properly grounded and plugged into grounded circuits.
3. Inspect all electrical equipment, tools, cords and outlets for defects. Only use equipment that is in good working order. Report any unsafe conditions you may find.
4. Never wear metal jewelry or headgear when working with electrical parts.
5. Always wear protective equipment such as rubber gloves, sleeves and boots.
6. Use nonconductive or double-insulated tools.
7. Keep electrical cords and cables clean and free from kinks. Never carry equipment by its cord.
8. Never use worn or frayed extension cords.
9. Be aware of flammable or corrosive chemicals and follow your company's procedures for operating electrical equipment in their vicinity.
10. Use ground fault circuit interrupter (GFCI) outlets.
11. Keep clear of energized parts.
12. Keep conductive materials, such as steel wool, metallic cleaning cloths and some chemical solutions, away from sources of electricity.
13. Be aware of lockout/tagout procedures to keep electrical equipment turned off during maintenance and repairs.
14. Never fasten extension cords with staples or hang them from nails or wire; it can damage the cord's insulation.
15. Use a wooden or nonconductive fiberglass ladder, never metal.



15 Things Electricity.pub

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Power Line Clearance Distances



Power Line Clearance Distances	
Voltages	**Distance From Power Lines**
≤ 50 kV	10 Feet
200 kV	15 Feet
350 kV	20 Feet
500 kV	25 Feet
650 kV	30 Feet
800 kV	35 Feet

Rule of Thumb:

If the overhead power line is 50 kV or less, then stay at least 10 feet away.

For everything else, keep at least 35 feet away.

Preventive Measures

General
- Move equipment/activity to the safe working distance from power lines.
- Have utility de-energize and visibly ground power lines.
- Have utility move power lines to the safe working distance.
- Have utility install insulated sleeves on power lines.*
- Install flagged warning lines to mark horizontal and vertical power line clearance distances.
- Use non-conductive tools and materials.

Cranes & Other High Reaching Equipment
- Use an observer.*
- Use an insulated link, if applicable.*
- Use a boom cage guard, if applicable.*
- Use a proximity device, if applicable.*

Mobile Heavy Equipment
- Install rider posters or goal posts under power lines.
- Install warning signs at driver's eye level.

Ladders
- Use non-conductive ladders.
- Don't carry or move extension ladders fully extended. Retract before moving.
- Get help moving ladders to maintain control.

Material Storage
- Don't store any materials under power lines.
- Use caution tape and signs to cordon off area under power lines.

Excavations
- Call local one-call service several days before you dig to locate all underground cables.
- Hand dig within three (3) feet of cable location.
- Be aware that more than one underground cable may be buried in area of locator markings.

These options do not allow the operator to work closer than the line clearance distance.

Remember:

The only safe power lines are the ones that don't exist.

Power Line ClearanceL
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Preventative measures listed below must be taken before work is started. Applicable clearance distances must be maintained (see chart).

Emergency Action Plan Policy

Policy

The objective of the Emergency Action Plan is to comply with OSHA's Emergency Action Plan Standard (29 CFR 1910.38) and to prepare employees for dealing with emergencies. This plan outlines the steps and procedures to be followed. It contains details on who to contact, evacuation routes, emergency meeting locations, and emergency equipment locations. It is designed to minimize injury, loss of human life, and company resources by assigning responsibilities during an emergency, ensuring that employees are properly trained, and that the needed equipment is available and maintained. This plan applies to all emergencies that may reasonably be expected to occur at Master Construction Solutions.

Responsibilities

Emergency Plan Manager

- Manage the Emergency Action Plan for Master Construction Solutions.
- Maintain all training records regarding this plan.
- Schedule routine tests of the company's emergency notification system with the appropriate authorities.
- Coordinate with local public resources, such as the fire department and emergency medical personnel, to ensure that they are prepared to respond as detailed in this plan. This includes allowing emergency responders to perform a walkthrough of the facility to familiarize themselves with the layout of the structures, types, and volume of hazardous chemical storage, and other hazards they might encounter when responding to an emergency. Emergency-responder input will be incorporated into this Emergency Action Plan.

Emergency Plan Coordinators

Bld. Number/ Section/Dept.	Primary Name and Position	Primary Phone #	Alternate Name and Position	Alternate Phone #

- Implementing the procedures in this plan in their designated areas in an emergency. (**Note:** Coordinators may also be given the responsibility of accounting for employees or visitors after an evacuation.)

The following people will be responsible for assisting employees who have disabilities or who do not speak English during evacuation:

Bld. Number/ Section/Dept.	Primary Name and Position	Primary Phone #	Alternate Name and Position	Alternate Phone #

Management

- Provide adequate controls and equipment that, when used properly, will reduce or eliminate the risk of injury to employees in an emergency.
- Review this plan regularly to ensure proper adherence.

Supervisors

- Follow and ensure that their employees are trained in the procedures in this plan.

Employees

- Follow the procedures in this plan.

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Contractors

- Comply with this plan and will be given the training described in the plan by an authorized representative of Master Construction Solutions.

Plan Implementation

- **Reporting Fire and Other Emergency Situations**
  - All fires and other emergencies will be reported as soon as possible to a supervisor by one of the following means:
    - Verbally, as soon as possible during normal work hours; or
    - Telephone, after normal work hours, or on weekends.
  - To eliminate confusion and false alarms, the following responsible person(s) are authorized to contact community emergency response personnel:

Type of Emergency Responder	Person(s) Responsible for Contacting Emergency Responders	Contact Info for Responsible Person(s)
Fire		
Police		
Ambulance/EMS		

  - If the responsible person(s) cannot be reached, any individual with knowledge of a fire or other emergency may then contact emergency responders.
  - Under no circumstances will an employee attempt to fight a fire after it can no longer be put out with a fire extinguisher, nor will any employee attempt to enter a burning building to conduct search and rescue. These actions must be left to emergency services professionals (such as the fire department or emergency medical professionals) who have the necessary training, equipment, and experience to do so. Untrained people might endanger themselves or those they are trying to rescue.

- **Informing Employees of Fires and Other Emergencies**
  - In the event of a fire or other emergency, the supervisor will ensure that all employees are notified as soon as possible using the building alarm system (which includes audible and visual alarms, 24 hours a day).
  - The supervisor will provide special instructions to all employees via the public address system.
  - If a fire or other emergency occurs after normal business hours, the supervisor will contact all employees no on shift to provide future work status, depending on the nature of the situation.

- **Corporate Notification**
  - The supervisor will contact the Master Construction Solutions public relations department as soon as possible if media coverage of the situation is expected.
  - The supervsor will also contact the Master Construction Solutions Corporate Official(s) as soon as possible with information on employee injuries, loss of life, cargo loss, or property damage or theft.

- **Emergency Contact Information**
  - The supervisor will maintain a list of all employees' personal emergency contact information and will keep the list in DESIGNATED AREA for easy access in an emergency.

- **Evacuation Routes**
  - Emergency evacuation escape route plans (see Appendix A) are posted in DESIGNATED AREA(S) throughout Master Construction Solutions.
  - If a fire or emergency alarm is sounded or instructions for evacuation are given, all employees (except those responsible for securing property and equipment) must immediately exit the building(s) at the nearest exits as shown in the escape route plans and must meet as soon as possible at the DESIGNATED ASSEMBLY AREA. Employees with offices must close the doors (unlocked) as they exit the area.

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- Mobility-impaired employees and their assigned assistants will gather at the DESIGNATED AREA within the building to ensure safe evacuation in a pre-determined fashion.

➢ **Securing Property and Equipment**

- If evacuation of the premises is necessary, some items may need to be secured to prevent further danger to the facility and personnel on hand (such as securing confidential or irreplaceable records or shutting down equipment to prevent the release of hazardous materials). **NOTE:** Only the following people may remain in the building for the prescribed amount of time to secure the property and equipment to which they have been assigned:

Name	Property or Equipment to Secure	Location of Property or Equipment	Estimated Time to Complete Security Process

- **NOTE:** All people remaining behind to shut down critical systems or utilities must be capable of recognizing when to abandon the operation or task.
- Once the property or equipment has been secured, or the situation becomes too dangerous to remain, those who remained behind must exit the building by the nearest escape route as soon as possible and meet the remainder of the employees at the DESIGNATED ASSEMBLY AREA.

➢ **Advanced Medical Care**

- Under no circumstances may an employee provide advanced medical care and treatment. These situations must be left to emergency services professionals, or designated people, who have the necessary training, equipment, and experience. Untrained people might endanger themselves or those they are trying to assist.

➢ **Accounting for Employees and Visitors After an Evacuation**

- Once an evacuation has occurred, the responsible person(s) will account for each employee or visitor assigned to them at the DESIGNATED ASSEMBLY AREA.
- Each employee is responsible for reporting to the appropriate responsible person(s) so an accurate head count can be made. Depending on the size of the company, a physical or digital checklist should be used to account for all workers on any given shift. **NOTE:** If a facility or site has multiple designated assembly areas, employees may report to a different responsible person for accountability depending on where the employee is when the evacuation begins. If this occurs, relay the changes in accountability to the normal responsible person to avoid confusion and panic.
- All employee counts will then be reported to the Emergency Action Plan Manager as soon as possible.

➢ **Re-entry**

- Once the building has been evacuated, no one may re-enter the building for any reason, except for designated and properly trained rescue personnel (such as fire department or emergency medical professionals). Untrained people might endanger themselves or those they are trying to rescue.
- All employees must remain at the designated assembly area until the fire department or other emergency response agency notifies the supervisor(s) that either:
    - the building is safe for re-entry, in which case personnel will return to their workstations; or
    - the building or assembly area is not safe, in which case the supervisor(s) will instruct personnel on how or when to vacate the premises.

➢ **Sheltering in Place**

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- If chemical, biological, or radiological contaminants are released into the environment in such a quantity or proximity to Master Construction Solutions authorities or the supervisor(s) might determine that it is safer to remain indoors rather than evacuate. The Emergency Action Plan Manager will announce shelter-in-place status through a public address system or other means or immediate notification available at the worksite.
    - Supervisor(s) will immediately close the business. If customers, clients, or visitors are in the building, they will be advised to stay in the building for their safety.
    - Unless there is an imminent threat, employees, customers, clients, and visitors will call their emergency contacts to let them know where they are and that they are safe.
    - Supervisor(s) will turn on call-forwarding or alternative telephone answering systems or services. The recording for voicemail or an automated attendant will be changed to indicate that the business is closed, and that staff and visitors will be remaining in the building until authorities advise that is safe to leave.
    - Supervisor(s) will quickly lock exterior doors and close windows, air vents, and fireplace dampers. Supervisor(s) familiar with the building's mechanical systems will turn off, seal, or disable all fans, heating and air conditioning systems, and clothes dryers, especially systems that automatically exchange inside air with outside air. If there is a danger of explosion, Supervisor(s)must close window shades, blinds, or curtains.
    - Supervisor(s) will gather essential disaster supplies (for example, nonperishable food, bottled water, battery-powered radios, first aid supplies, flashlights, batteries, duct tape, plastic sheeting, and plastic garbage bags), which are stored in DESIGNATED AREA(S) and will take them to the SHELTER-IN-PLACE LOCATION(S) within the building. **NOTE:** Select interior room(s) above the ground floor, with fewest windows or vents. The room(s) should have adequate space for everyone to sit. Avoid overcrowding by selecting several rooms if necessary. Large storage closets, utility rooms, pantries, and copy and conference rooms without exterior windows work well. Avoid selecting rooms with mechanical equipment, such as ventilation blowers or pipes, which may be impossible to seal from the outdoors. It is ideal to have a hardwired telephone in the room(s) selected. Cellular telephone equipment may be overwhelmed or damaged during an emergency. Call emergency contacts and have the telephone available if needed to report a life-threatening condition).
    - All employees, customers, and visitors will move immediately to SHELTER-IN-PLACE LOCATION(S) within the building. Supervisor(s) will seal all windows, doors, and vents with plastic sheeting and duct tape.
    - Supervisor(s) will write down the names of everyone in the room and will call DESIGNATED EMERGENCY CONTACT to report who is in the room, and their affiliations with Master Construction Solutions (employee, visitor, client, customer, etc.)
    - Supervisor(s) will monitor telephone, radio, television, and internet reports for further instructions from authorities to determine when it is safe to leave the building.

➢ **Severe Weather**

- The Emergency Action Plan Manager will announce severe weather alerts (such as tornados) by public address system or other means of immediate notification available at the worksite. All employees will immediately retreat to DESIGNATED AREA until the threat of severe weather has passed as communicated by the Emergency Action Plan Manager.

Training

➢ **Employee Training**

All employees will receive instruction on this Emergency Action Plan as part of new-employee orientation. Additional training must be provided:

- when there are any changes to the plan or facility;
- when an employee's responsibilities change; and
- annually, as refresher training.
- Items for review during training include:

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- proper housekeeping;
- fire-prevention practices;
- fire extinguisher locations, usage, and limitations;
- threats, hazards, and protective actions;
- means for reporting fires and other emergencies;
- names of Emergency Action Plan manager and coordinators;
- individual responsibilities;
- alarm systems;
- escape routes and procedures;
- emergency shutdown procedures;
- procedures for accounting for employees and visitors;
- closing doors;
- sheltering in place;
- severe weather procedures; and
- Emergency Action Plan availability.

➢ **Fire/Evacuation Drills**
- Fire/evacuation drills must be conducted at least annually and in coordination with local police and fire departments.
- Additional drills will be conducted if the physical properties of the business change, processes change, or it is otherwise deemed necessary.

➢ **Training Records**
- The supervisor will document all training for this plan and will maintain records at DESIGNATED AREA.

Plan Evaluation

➢ This Emergency Action Plan must be reviewed annually, or as needed if changes to the worksite are made, by the supervisor.
➢ Following each fire drill, RESPONSIBLE MANAGEMENT OR EMPLOYEE REPRESENTATIVES will evaluate the drill's effectiveness and any weaknesses in the plan and will implement improvements.

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Appendix A:

Emergency Action Plan Checklist		
General Issues		
☐	Does the plan consider all natural or human-made emergencies that could disrupt your workplace?	Common sources of emergencies identified in emergency action plans include fires, floods, hurricanes, tornadoes, toxic material releases, radiological and biological accidents, civil disturbances, active shooter, and workplace violence.
☐	Does the plan consider all potential internal sources of emergencies that could disrupt your workplace?	Conduct a hazard assessment of the workplace to identify any physical or chemical hazards that might exist and cold cause an emergency.
☐	Does the plan consider the impact of these internal and external emergencies on the workplace's operations and is the response tailored to the workplace?	Brainstorm worst-case scenarios. Ask yourself what you would do, what the likely impact on your operation would be, and what the device-appropriate responses would be.
☐	Does the plan contain a list of key personnel with contact information as well as contact information for local emergency responders, agencies, and contractors?	Keep your list of key contacts current and make provisions for an emergency communications system, such as a cellular phone or a portable radio unit, so that contact with local law enforcement, the fire department, and others can be swift.
☐	Does the plan contain the names, titles, departments, and telephone numbers of people to contact for additional information or an explanation of duties and responsibilities under the plan?	List names and contact information for people responsible for implementing the plan.
☐	Does the plan address how rescue operations will be performed?	Unless you are a large employer handling hazardous materials and processes, or you have employees regularly working in hazardous situations, you will probably rely on local public resources, such as the fire department, which is trained, equipped, and certified to conduct rescues. Make sure any external department or agency identified in your plan is prepared to respond as outlined in your plan. Untrained people may endanger themselves and those they are trying to rescue.
☐	Does the plan address how medical assistance will be provided?	Most small employers do not have a formal internal medical program and instead make arrangements with nearby medical clinics or facilities to handle emergencies. If an infirmary, clinic, or hospital is not close to your workplace, ensure that the onsite person(s) has adequate training in first aid. The American Red Cross, some insurance providers, local safety councils, fire departments, or other resources may be able to provide this training. Treatment of a serious injury should begin within three to four minutes of the accident. Consult a physician or supplier to order appropriate first-aid supplies for emergencies. Establish a relationship with a local ambulance service so that transportation is readily available for emergencies.
☐	Does the plan identify how or where personal information on employees can be obtained in an emergency?	In an emergency, it could be important to have ready access to important personal information about your employees. This includes their home telephone numbers, names,

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Evacuation Policy and Procedures		
☐	Does the plan identify the conditions under which an evacuation would be necessary?	The plan should identify situations that will require an evacuation of the workplace. This might include a fire, earthquake, or chemical spill. The extent of evacuation needed may be different for different types of hazards
☐	Does the plan identify a clear chain of command and designate a person authorized to order an evacuation or shutdown of operations?	It is common practice to select a responsible person to lead and coordinate your emergency plan and evacuation. It is critical that employees know who the coordinator is and that they understand that this person has the authority to make decisions during emergencies. The coordinator is responsible for assessing the situation to determine whether an emergency exists requiring activation of the emergency procedures, overseeing emergency procedures, notifying and coordinating with outside emergency services, and directing the shutdown of utilities or plant operations if necessary.
☐	Does the plan address the types of actions expected of various employees for the types of potential emergencies?	The plan may specify different actions for employees depending on the emergency. For example, employers may want to have employees assemble in one area of the workplace if it is threatened by a tornado or earthquake but evacuate to an exterior location during a fire.
☐	Does the plan designate who, if anyone, will stay to shut down critical operations during an evacuation?	Consider including locations where to shut down utilities, such as electrical and gas utilities, for all or part of the facility. All people remaining behind to shut down critical systems or utilities must be capable of recognizing when to abandon the operation or task and evacuate themselves.
☐	Does the plan outline specific evacuation routes and exits, and are these posted in the workplace where they are easily accessible to all employees?	Most employers create maps from floor diagrams with arrows that designate exit route assignments. These maps should include locations of exits, assembly points, and equipment (such as fire extinguishers, first-aid kits, and spill kits) that may be needed in an emergency. Exit routes should be clearly marked and well-lit, wide enough to accommodate the number of evacuating personnel, unobstructed and clear of debris at all times, and unlikely to expose evacuating personnel to additional hazards.
☐	Does the plan identify one or more assembly areas (as necessary for different types of emergencies) where employees will gather and a method for accounting for all employees?	Accounting for all employees following an evacuation is critical. Confusion in the assembly areas can lead to delays in rescuing anyone trapped in the building, or to unnecessary and dangerous search-and-rescue operations. To ensure the fastest, most accurate accounting of your employees, consider taking a head count after the evacuation. The names and last known locations of anyone not accounted for should be passed on to the official in charge.
☐	Does the plan address procedures for assisting people during evacuations, particularly those with disabilities or who do not speak English?	Many employers designate evacuation wardens to help move employees from dangerous to safe areas during an emergency. Generally, one warden for every 20 employees is adequate, and the appropriate number of wardens should always be available during working hours. Wardens may be responsible for checking offices and bathrooms before being the last person to

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		exit an area as well as for ensuring that fire doors are closed when exiting. Employees designated to assist in emergency evacuation procedures should be trained in the complete workplace layout and alternative escape routes. Employees designated to assist in emergencies should be made aware of employees with special needs (who may require extra assistance during an evacuation), how to use the buddy system, and any hazardous areas to avoid during an emergency evacuation.
☐	Does the plan address how visitors will be accounted for and assisted in evacuation?	Some employers have all visitors and contactors sign in when entering the workplace. The hosts or area wardens, if established, are often given the task of helping visitors and contractors evacuate safely.
Reporting Emergencies and Alerting Employees in an Emergency		
☐	Does the plan identify a preferred method for reporting fires and other emergencies?	Dialing 911 is a common method for reporting emergencies if external responders are used. Internal numbers may be used and are sometimes connected to intercom systems so that coded announcements may be made. In some cases, employees are requested activate manual pull stations or other alarm systems.
☐	Does the plan describe the method used to alert employees, including disabled workers, to evacuate or take other action?	Make sure alarms are distinctive and recognized by all employees. Sequences of horn blows or different types of alarms (such as bells or horns) can be used to signal different responses or actions from employees. Consider making an emergency communications system available, such as a public address system, for broadcasting emergency information to employees. Ideally, alarms will be able to be heard, seen, or otherwise perceived by everyone in the workplace, including those who are blind or deaf. Otherwise, floor wardens or others must be given the task of ensuring that all employees are notified. Consider providing an auxiliary power supply in an electrical failure.
Employee Training Drills		
☐	Does the plan address if and how often drills will be conducted?	Once you have reviewed your emergency action plan with your employees and everyone has had the proper training, it is a good idea to hold practice drills as often as necessary. Include outside resources, such as fire and police departments, when possible. After each drill, gather management and employees to evaluate the effectiveness of the drill. Identify the strengths and weaknesses of your plan and work to improve it.
☐	Does the plan identify how and when employees will be trained so that they understand the types of emergencies that may occur, their responsibilities, and their actions?	Train employees when you develop your initial plan and when new employees are hired. Retrain employees when your plan changes due to a change in facility layout or design of the facility, when new equipment, hazardous materials, or processes are introduced that affect evacuation routes, or when new types of hazards are introduced that require special actions. General training for your employees should address: - individual roles and responsibilities; - threats, hazards, and protective actions; - notification, warning, and communications procedures;

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		- emergency response procedures; - evacuation, shelter, and accountability procedures; - location and use of common emergency equipment; - emergency shutdown procedures. You may also need to provide additional training to your employees (for example, first-aid procedures, and portable fire extinguisher use) depending on the responsibilities in your plan.
☐	Does the plan address how and when retraining will be conducted?	If training is not reinforced, it will be forgotten. Consider retraining employees annually.

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Emergency Instructions

Building _____

The following people are responsible in the event of an emergency:

Area of Responsibility	Name	Phone & Extension

Emergency Response Phone Numbers Are:

Fire Department 	
Police Department 	
Hospital and Ambulance Service 	
Universal Emergency	

First Aid Stations & First Aid Providers Are:

First Aid Areas Are Located At:		
Designated First Aid Providers Are:		

No Employees are to remain during emergency evacuations. When an emergency evacuation is announced:

1. Walk rapidly, **DO NOT RUN**, to the nearest "EXIT".
2. Wait in designated meeting area for further instructions.

Do not operate a fire extinguisher unless you have been properly trained.
Each site supervisor is responsible for taking a head count of all site workers.

Our Designated Meeting Area (except during a Tornado) is:

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Fall Protection Policy

Maintenance and construction operations often require manual labor at dangerous heights and on steeply pitched working surfaces. The possibility of lost footing, decreased stability, and objects falling from such heights is great, not only to the employee(s) who is working at such heights, but to the employee(s) who are working directly under or passing through the elevated worksite.

Falls and subsequent injury occur because of:

- Lack of fixed, guarded, work platforms.
- Inadequate lighting or space to conduct tasks.
- Difficult access because of the proximity of other equipment.
- Lack of a solid base for portable ladders.
- Carrying tools and equipment to elevated locations.
- Poor housekeeping and equipment storage procedures.
- Inadequate training.
- Improper use of fall protection equipment.

The OSHA Walking and Working Standards establish uniform requirements to ensure that the associated hazards (i.e., slips, trips, falls) in workplace and at construction sites are evaluated, safety procedure implemented, and the proper hazard information is transmitted to all "Affected" workers, regardless of status.

In recognition of these hazards, Master Construction Solutions has created the following plan to evaluate all walking, working surfaces within their facilities. This policy is intended to address comprehensively the issues of:

- Evaluating and identifying potential deficiencies;
- Evaluating the associated potential hazards;
- Communicating information concerning these identified hazards; and
- Establishing appropriate procedures, corrective measures and training for employees.

At Master Construction Solutions all employees, and the general public, must be protected from fall hazards and falling objects whenever:

- An affected employee is (4) four feet or more above the lower level.
- When workers could fall into or onto dangerous equipment from (4) four feet or less.

Unprotected falls from elevation usually result in debilitating injury or death. Falls from elevations can be prevented through the use of proper prevention and arrest systems. All work from elevated work surfaces will be accomplished without any risk of falling to a lower level. This goal can be achieved by:

- Removing the hazard: avoid working at heights. When possible, bring the work down to ground level.
- If work at heights is unavoidable, secure the elevated work area with a passive fall prevention barrier system, such as guardrails with toeboards.
- When a barrier system Is not feasible because of the physical characteristics of the work environment or the infrequency of access, use an approved fall restrain system.
- If no other option is feasible, a properly engineered and approved fall arrest system can be used in conjunction with a rescue plan.

Scope

This fall protection policy and its requirements apply to all employees who access unprotected elevated work areas (over 4 feet.)

- Fall protection relating to ladders, scaffold erection, articulating boom type aerial lifts, scissor lifts, excavations, motor vehicles or personnel hoists are not addressed in this policy. Please refer to their individual sections located in this manual for specific fall protection requirements.

The requirements of this policy address many situations at Master Construction Solutions where personnel work at elevated locations, including, but not limited to:

- Climbing onto or working from unprotected elevated work locations such as the top of tanks, transformers, heating, ventilation, and air conditioning (HVAC) equipment, and cranes.
- Accessing roof-mounted equipment such as HVAC units, silos, etc.
- Repairing leaks on rooftops.
- Pulling in hoisted equipment at elevated levels.

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- Installing or repairing elevated plumbing lines, electrical conduit, lighting fixtures, and exhaust ductwork.

Definition of Terms

Anchorage Point: A secure point of attachment for workers' lifelines, lanyards, or deceleration devices. Anchors must be capable of supporting a minimum load of 5,000 pounds per worker (or designed, installed, and used under the supervision of a qualified person as part of a complete personal fall-arrest system which maintains a safety factor of at least two.)
Authorized Person: A person at Master Construction Solutions who has successfully completed required training and is also authorized to wear and use fall protection equipment.
Barricade: An obstruction to deter the passage of persons or vehicles.
Body Harness: Straps that an individual wears to distribute fall-arresting forces over the thighs, waist, chest, shoulders, and pelvis. Attaches to other components of a personal fall-arrest system. The maximum safe arresting force for a body harness is 1,800 pounds.
Competent Person: One who can identify 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. The designated Master Construction Solutions Competent Person has completed required training and has appropriate experience.
Construction Work: Any activity involving the construction, alteration, painting, repairing, construction maintenance, renovation, removal, or wrecking of any fixed structure or its parts. This includes roofing work.
Controlled-Access Zone (CAZ): An area designated for overhand bricklaying operations or leading-edge construction. Conventional fall-protection systems – guardrail systems, personal fall-arrest systems, or safety-net systems – are not required in a CAZ; access is restricted to all workers except those performing overhand-bricklaying and leading-edge construction tasks.
Conventional Fall Protection: A guardrail system, safety-net system, or personal fall-arrest system.
Cover: A rigid object used to overlay openings in floors, roofs, and other walking and working surfaces.
Elevated Surface Work Plan (ESWP): A document which examines, and addresses fall hazards associated with a particular job on an unprotected elevated work platform or area. Incorporates elements of a rescue plan if fall arrest systems are in use.
Fall-Protection Plan: Enables workers doing *leading-edge work, precast concrete erection work, or residential-type construction* work to use alternative fall-protection systems or methods when conventional fall-protection systems are not practical or that they add to worker risk.
Fall Restraint System: A fall-protection system designed to physically prevent a worker from free falling. Components include a body harness, a rope or web lanyard, connectors, and an anchor.
Floor Hole: An opening measuring less than 12 inches but than 1 inch in its least dimension, in any floor, platform, pavement, or yard, through which materials but not persons may fall, such as a belt hole, pipe opening, or slot opening.
Floor Opening: An opening measuring 12 inches or more in its least dimension, in any floor, platform, pavement, or yard through which persons may fall, such as a hatchway, stair, or ladder opening, pit, or large manhole. Floor openings occupied by elevators, dumb waiters, conveyors, machinery, or containers are excluded.
Free Fall: Falling before fall protection begins to arrest the fall.
Free Fall Distance: The vertical distance a worker falls before a personal fall-arrest system stops the fall; measure from the attachment point of the personal fall-arrest system immediately before and after the fall, excluding deceleration distance and lanyard and lifeline elongation, but including deceleration device slide distance or self-retracting lifeline-lanyard extension before fall-arrest forces occur.
Frequent Access: (Any other elevated work platforms or areas that are not roofs.) More than 12 times per year.
General Industry Work: Activities such as equipment maintenance, calibrations, inspection, plumbing repair, running electrical cabling. Does not involve construction work as previously defined.
Guardrail System: Vertical barriers erected to prevent workers from falling to a lower level.
Handrail: A single bar or pipe supported on brackets from a wall or partition, as on a stairway or ramp, to furnish persons with a handhold in case of tripping.
Leading Edge: The edge of a floor, roof, formwork, or other walking and working surface that changes location as additional sections are placed. Leading edges not actively under construction are considered unprotected sides and edges.
Lifeline: A flexible line that attaches directly to a person's body harness, lanyard, or deceleration device at one end to an anchor at the other end. A lifeline that hangs vertically and is connected to one anchor is a vertical lifeline. A lifeline that stretches horizontally between two anchors is a horizontal lifeline. All lifelines must be protected against cuts and abrasions. They cannot be made of natural fiber rope.
Midrail: A rail midway between the guardrail and platform, secured to the uprights erected along the exposed sides and ends of platforms.
Personal Fall-Arrest System: A conventional fall-protection system designed to stop a single worker from free falling to a lower level. Components include an anchor, connectors, a body harness, and may include a lanyard, deceleration device, or lifeline.

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Platform: A working space for person, elevated above the surrounding floor or ground, such as a balcony or platform for the operation of machinery and equipment.
Qualified Person: A person who by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated the ability to resolve problems relating to a specific subject, operation, or project.
Roofing Work: Includes hoisting, storing, applying, and removing roofing materials and equipment.
Runway: A passageway for person, elevated above the surrounding floor or ground level, such as a footwalk along shafting or a walkway between buildings.
Standard Railing: A vertical barrier erected along exposed edges of a floor opening, wall opening, ramp, platform, or runway to prevent falls of persons.
Standard Strength and Construction: Any construction of railings, covers, or other guards, that meets the requirements of 29 CFR 1910.23.
Stair Railing: A vertical barrier erected along exposed sides of a stairway to prevent falls of persons.
Toeboard: A standard toeboard shall be 4 inches nominal in vertical height from its top edge to the level of the floor, platform, runway, or ramp. It shall be securely fastened in place with not more than ¼ inch clearance above floor level. It may be made of any substantial material, either solid or with openings not over 1 inch in dimension. Where material is stored to such height that a standard toeboard does not provide protection, paneling from floor to intermediate rail, or to top rail shall be provided.
Walking and Working Surface: Any surface (except on ladders, vehicles, or trailers) on which workers perform tasks or jobs.
Wall Hole: An opening less than 30 inches but more than 1 inch high, of unrestricted width, in any wall or partition, such as a ventilation hole or drainage scupper.
Wall Opening: An opening at least 30 inches high and 18 inches wide, in any wall or partition, through which person may fall, such as a yard-arm doorway or chute opening.
Warning-Line System: A barrier erected on a roof to warn workers they are approaching an unprotected edge; designates an area for roofing work without conventional fall-protection systems (guardrail, safety net, and PFAS.)
Warning/Barrier Lines and Barricades: A warning line or barrier erected or installed on a flat elevated surface to designate a safe work area. Workers are not allowed outside the designated safe work area without adequate fall protection.
Work Area: The portion of a walking-working surface where workers perform job tasks.

General Requirements

Authorization

Work in unprotected elevated areas requires identification of hazards and controls, documented in an Elevated Surface Work Plan (ESWP), generated and/or approved by a Competent Person.

- Authorization through an ESWP shall be noted in the routine or non-routine Job Hazard Analysis document (see Master Construction Solutions's Personal Protective Equipment policy), which shall reflect any fall hazard(s) regardless of severity.

Preferred Controls

Administrative controls (such as Personal Fall Arrest Systems and Fall Restraint) shall be the last solutions considered to protect persons from falling from heights. The following Engineered controls will be used by Master Construction Solutions as its primary means of providing effective fall prevention:

- **Roofs** – Engineered guardrails designed in accordance with applicable standards, or 42-inch height minimum parapets are required at roof edges when "frequent" access is required.
- **Other Elevated Work Surfaces** – Engineered guardrails designed in accordance with applicable standards are required on elevated fixed platforms, mezzanines, catwalks, and balconies when "frequent" access is required.

For infrequent access at these locations or if guardrails are infeasible, fall protection equipment may be used in conjunction with an ESWP (and rescue plan if fall arrest systems are used).

For construction related activities exposing employees to unprotected heights over 4 feet, acceptable means to reduce fall hazards include:

- Bringing the work down to ground level.
- Using ladders properly, according to manufacturers' instructions and applicable regulations.
- Scaffolding.
- Using elevating work platforms and aerial devices.
- Using fall restraint, work positioning, and fall arrest systems only if other methods are infeasible.

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Procedures and Specific Requirements

Accessing Unprotected Elevated Work Locations

- Prior to accessing an unprotected elevated work area, either
  - An established procedure must be in place and the Affected Personnel trained in it or
  - An ESWP must be developed and/or approved by a Competent Person, who will ensure the Affected Personnel understands all its requirements.

Established Procedure

- A well developed and approved procedure that makes use of permanently installed fall protection equipment is an acceptable work authorization, precluding the need for individual work authorization. Such procedures must be developed and implemented by a Competent Person.

Established Procedure (cont.)

- Line management is responsible for ensuring that employees utilizing the fall protection system have been trained in the proper use of and access to that system. Line management is also responsible for developing, documenting, and ensuring the effectiveness of this controlled access, reporting any deficiencies to the Competent Person.

Elevated Work Surface Plan (ESWP)

- An ESWP must be developed and/or approved by a Competent Person, then approved by the company designated Safety Representative and building/area/facility Manager or designees, along with the specific associated work activities. This ESWP will address associated fall hazards and provide a rescue plan as required.

Fall Protection Plan (FPP)

- When the use of conventional fall protection (guardrails, fall arrest or restraint equipment) is impractical or creates a greater hazard during construction activities, a fall protection plan (FPP) may be developed by a company designated Qualified Person or by the contractor's Competent Person (for contractor performed construction). A FPP may not be applied to general industry work. FPP's must be approved by Company designated Competent Person.

Transit from Ladders

Until barriers or other effective methods of fall protection can be installed, transit to and from ladders at roof edges will be permitted when all the following conditions exist:

- The roof being accessed is a low sloped roof (a maximum pitch of 4 vertical to 12 horizontal).
- There are no current adverse environmental conditions affecting ability to see or move safely over the roof (such as high wind, extreme heat or sun glare, heavy rain).
- Safe ladder usage:
  - A fixed ladder is used that has proper grab rails over the roof edge or parapet, conforms to regulations, has been inspected and labeled by a Competent Person, and is deemed safe for climbing; or
  - A portable straight ladder is used that has been set up on a stable base, is properly secured to prevent movement, and extends at least (3) three feet above the roof landing surface.
- Immediately upon reaching the roof, the employee immediately walks away from the edge to the location on the roof where the work is to be done.
- Neither the location of the work nor the work itself will require the person to approach within (6) six feet of the roof edge at any time except when accessing the ladder.
- To descend, the employee approaches the ladder at an angle perpendicular to the roof edge to maximize the distance from the edge during access.

Non-Conforming Fixed Ladders

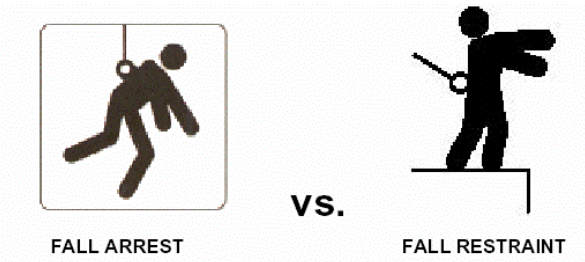
Pre-engineered fall arrest equipment (such as an approved ladder climbing system or self-retracting lifeline) must be used on fixed ladders over 20 feet in height that do not have required landing platforms and compliant cages. Such fall arrest equipment must be installed under the supervision of a Competent Person.

Use of Fall Protection Equipment

When an elevated work location cannot be accessed safely from a ladder or protected work platform or when the installation of guardrails is infeasible, fall restraint or fall arrest systems may be used. A Project Specific ESWP will be developed, and a Competent Person will make the appropriate equipment selection based on a complete evaluation of the work site, conditions, and nature of work to be performed.

- Employees using fall restraint or fall arrest equipment will work in teams of (2) two or more ("two - person rule").

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- **Fall Restraint Systems** consisting of the following minimum components may be used to prevent free fall:
  - All equipment must meet applicable OSHA standards.
  - Rated anchorage points with a capacity at least (4) four times the intended load or 800 pounds, whichever is greater.
  - Lanyard (length must be limited to prevent access to edges where fall could occur).
  - Connecting hardware (double-looking snap hooks, carabiners, D-ring).
  - Full body harness.
- **Fall Arrest Systems** consisting of the following components are:
  - All equipment must meet applicable OSHA standards.
  - Rated anchorage points of at least 5,000 pounds.
  - Lanyard that is shock absorbing or self-retracting.
  - Connecting hardware (double-locking snap hooks, carabiners, D-rings).
  - Full body harness (body belt is strictly prohibited).
- **Fall Distance Calculation**
  - When using a fall arrest system, the fall distance calculation must account for the length of lanyard, connecting hardware, deceleration distance, deployment of shock absorbers, the height of the person wearing the equipment (or the height of the D-ring attached to the back of the harness), one foot of slack in the harness, the position of the anchorage point, lanyard or rope elongation, and a safety factor.
  - A Competent Person must perform the fall distance calculation, or at a minimum verify that it was performed properly if calculated by an Authorized Person.
  - Depending on the above variables, the minimum height required for a fall arrest system to be effective in preventing contact with a lower level may be as much as 18 feet. Fall arrest systems should not be used at heights with less than 18 feet clearance to a lower level unless it can be proven by a Competent Person that the employee will not contact the lower level in a fall. Where vertical clearance is inadequate, another way to gain access to the elevated work location must be found (i.e., scissor lift or ladder).
  - The area below and to the sides of the individual must be free of obstructions that could cause injury during a fall. Fall arrest systems must be rigged to that a person cannot free fall for more than (4) four feet so that the arresting forces on the body do not exceed 1,800 pounds.
  - Fall arrest systems should not be used to protect personnel working near vertical drop-offs such as roof edges and hoist areas due to the potential for a swing impact injury, and the difficulty of rescue. Instead fall restraint systems should be used in these situations.
- **Self-Retracting Lifelines (SRLs)**
  - SRLs should be installed directly above the user's head, or at shoulder height directly adjacent to the work area at a minimum. Extreme care should be taken to ensure that person will not be exposed to a swing hazard, strike objects below, or exceed the maximum permissible free fall distance or arresting forces on the body after a fall involving an SRL (such as might be the case if the SRL is mounted below shoulder level).
  - A Competent Person must inspect and approve all SRL installations prior to use.
  - Exceptions to installing an SRL at or above shoulder level near the work zone must be approved by a Competent Person when no other fall protection option is feasible, and when the installation complies with applicable regulations and manufacturers' requirements addressing free-fall distance, arresting forces on the body, and swing fall hazards.
- **Anchorage Points**
  - Rated and approved anchorage points will be easily distinguishable from other structural features so that personnel may readily identify them. One method is to mark them with bright yellow or orange, fluorescent paint, or identify them with weatherproof labels or tags. Only anchorage points that have been approved by a designated Qualified Person (i.e., engineer), or that are known to hold at least 5,000 pounds (such as structural I-beams or properly installed pre-manufactured points) will be used for fall protection purposes.

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- Under no circumstances will personnel tie-off to piping, Unistrut, racks, bracing, ventilation fan housings, or any other non-approved anchorage points.

- **Design of Fall Protection Systems**
  - Only Master Construction Solutions designated Qualified Persons may engineer and design fall protection systems such as anchorage points and/or horizontal lifeline systems.
  - If commercially available systems are pre-engineered and certified to provide fall protection and comply with regulatory requirements, they may be installed and used under the direction of a Competent Person and do not require a separate design by a Qualified Person.
- **Rescue Plan**
  - When fall arrest systems are in use, a Competent Person will develop an effective rescue plan specific to the work location and the job being performed prior to the commencement of work activity.
  - Although not required in writing by OSHA, all Master Construction Solutions rescue plans shall be documented in the ESWP. A written plan, prepared in advance, facilitates the training of rescue personnel by increasing their familiarity with specific areas difficult to access.
  - Alternatively, the Competent Person must ensure employees are trained and capable of self-rescue to a safe location when applicable.
- **Equipment Inspection, Marking & Storage**
  - Before each use, the user will inspect harnesses, lanyards, self-retracting lifelines, and connecting hardware for wear, damage, contamination, and other deterioration according to manufacturer's instructions and checklists. Equipment not meeting inspection criteria will immediately be tagged "Danger – Out of Service" and will not be used. Once tagged the equipment shall be given to the Competent Person immediately for proper disposal.
  - Twice annually, a Competent Person will inspect personal fall protection systems according to manufacturers' instructions and checklists. Such systems may include fixed, installed fall protection systems such as self-retracting reels, anchorages, lifelines, or personal systems such as harnesses, connectors, and lanyards. Ensuring the completion of inspections and required documentation is the responsibility of line management.
  - Line management must designate a Competent Person as custodian of inspection records. The Competent Person will retain documentation of the semi-annual inspection for (3) three years. Documentation will include the name of the inspector, the date equipment was inspected, and the results of the inspection. The documentation will be made available upon request. The equipment itself will also be labeled with proof of inspection.
  - Any equipment exposed to in-use loading or potential damage will be promptly removed from service, tagged and sent back to the manufacturer for complete inspection, rebuild if necessary, and recertification before being returned to service by a Competent Person.
  - All fall protection system components will be labeled by the manufacturer according to 29CFR1910 Subpart D and I. Only designated Competent Persons are authorized to mark harnesses and lanyards with other information (i.e., department name) to ensure proper ink is used to prevent material deterioration.
  - Fall protection system components will be stored away from corrosive materials, oils and solvents, moisture, heat, or any other substance that may cause damage. Harnesses, straps, and lanyards will be hung by the D-ring or other connecting means to keep straps in a natural and untangles position when not in use.
- **Training:** A Competent Person must provide training that ensures workers will recognize fall hazards and use appropriate procedures to minimize exposure to the hazards. In addition, employees who use personal fall-arrest systems must know:
  - How to wear the equipment;
  - The proper hookup and attachment methods for the equipment;
  - Appropriate anchoring and tie-off techniques;
  - How to estimate free-fall distances;
  - Inspection and storage procedures for the equipment; and
  - Self-rescue procedures and techniques.

Retraining: Employees who do not recognize fall hazards or fail to follow established policy and procedure must be retrained. Other reasons for retraining include changes at a workstation or task that make earlier training obsolete, changes in the types of fall-protection equipment used by workers, or a worker's failure to use fall-protection equipment effectively.

Documenting Training: Master Construction Solutions will maintain a written record of each employee's fall-protection training. The record must document the employee's name, the date the employee was trained, and the trainer's signature.

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Fall Protection Monitor

- A system where a "Competent Person" (designated as the "Safety Monitor") who has been chosen, approved and listed on the "Fall Protection Work Plan" form by the Foreman, is responsible for recognizing fall hazards and warning employees when they appear to be unaware of a fall hazard or are acting in an unsafe manner.
- To be an effective means of "fall protection" the designated Safety Monitor should be easily identifiable by wearing a high visibility vest or hardhat. He/she will perform the following duties;
    - Be on the same walking/working surface as the monitored employees and within visual unobstructed sighting distance of the monitored employees;
    - Be close enough to communicate orally with the monitored employees;
    - Be competent in recognizing fall hazards;
    - Warn monitored employees, by voice, when they appear to be unaware of a fall hazard;
    - Make the monitored employees aware when they are in a dangerous area;
    - Warn monitored employees, by voice, when they are approaching an open edge in an unsafe manner;
    - Warn monitored employees, by voice, if there is a dangerous situation developing which cannot be seen by another person involved with product placement, such as a truss getting out of control;
    - Not allow other responsibilities to encumber monitoring. If the safety monitor becomes too encumbered with other responsibilities, the monitor shall (1) put an immediate stop to the work being done; and (2) turn over other responsibilities to a designated "Competent Person" (3) turn over the safety monitoring function to another designated "Competent Person."
    - See Master Construction Solutions's Fall Protection Monitor Sub-Policy.
- The Safety Monitoring System shall not be used when the wind is strong enough to cause loads with large surface areas to swing out of radius, or result in loss of control of the load, or when weather conditions cause the walking-working surfaces to become icy or slippery.
- Do not use mechanical equipment on low-sloped roofs where a Safety Monitoring System is the method of protection.
- Only employees performing low-slope roofing work or employees covered by a fall protection plan should be in areas guarded by a Safety Monitoring System.
- Employees who are being protected by the Safety Monitoring System shall be instructed to comply with the warning(s) from the Safety Monitor(s). Violators will be immediately removed from the work area and subject to Master Construction Solutions's Disciplinary Program. Each employee who is to be protected by the Safety Monitoring System will receive his/her instructions verbally as well as in writing *(See Master Construction Solutions's Fall Protection Monitor Sub-Policy)*.

Falling Objects (Overhead Work)

- If work is being done in a location overhead where others may be working or walking below, access to that lower area must be restricted if any items could be dropped or fall from the higher work level. This can be accomplished using barricade tape, signs, rigid barriers. Signs and barricades will be removed when the work is completed.
- Tools and material being used over an occupied area must be secured (tethered) to the structure or person if they might be dropped to the lower level. Toeboards must be provided on working platforms and scaffolds over (6) six feet in height.

Housekeeping General Facility Policy

- All offices, workstations, work areas, passageways, storerooms, restrooms, and service rooms shall be kept clean, orderly, sanitary, and free of known hazards.
- The floor of every workroom and workstations shall be maintained in a clean and so far as possible, dry condition. Where wet processes are used, drainage shall be maintained, and false floors, platforms, mats, or other dry standing places will be provided where practicable.
- To facilitate cleaning, every floor, working place, and passageway shall be kept free from protruding nails, splinters, holes, or loose boards or other hindrances that would prevent efficient maintenance.
- **Sufficient illumination** shall be always provided in all areas. Employees discovering lighting deficiencies will report them to the Maintenance Department for correction.
    - Reference Master Construction Solutions's electrical safety policy for correct illumination levels for specific areas and tasks.
- **Work areas.** All employees are responsible for maintaining their immediate work areas in a clean and orderly manner, and for notifying their supervisor of conditions beyond their control.

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- **Machines and equipment**. Supervisors will ensure that machines and equipment under their control are maintained in a clean and orderly manner. Crowding should be avoided where possible.
- **Aisles.** All employees are responsible to ensure that aisles are kept clean, free of material, finished parts, scrap, or any type of debris.
- **Floors**. Maintenance will ensure that all floor spaces are maintained in a clean and orderly manner.
- Walls and ceilings. Maintenance will ensure that all wall spaces are properly maintained in a clean and orderly manner. Postings will be confined to bulletin boards and other appropriate areas.
- **Machines and equipment**. Supervisors will ensure that machines and equipment under their control are maintained.
- **Spills.** Spills of non-hazardous materials will be cleaned up immediately by the employee responsible for such or reported immediately to the appropriate supervisor. If the spill cannot be removed immediately, then warning signs or barricades sufficient to warn personnel will be installed.

Aisles and Passageways

- Where mechanical handling equipment is used, sufficient safe clearances will be maintained for aisles, at loading docks, through doorways and wherever turns or passage must be made.
- Aisles and passageways shall be kept clear and in good repair, with no obstruction across or in aisles that could create a hazard.
- Emergency Exit corridors and doors. The Life Safety Code NFPA 101 and OSHA require that buildings designed for human occupancy must have continuous and unobstructed exits to permit prompt evacuation of the occupants and allow necessary access for responding emergency personnel. The intent of the code is to keep exits free from obstructions and clear of combustible materials.
    - "Temporary" storage of furniture, equipment, supplies, or anything else is not permitted in exit ways. Combustibles, including recyclable wastepaper, are not permitted in exit ways.
    - Exit lights and signs will also be always maintained in proper condition, and immediately reported if deficient.
- Permanent aisles and passageways shall be appropriately marked.

Covers and Guardrails

Covers and/or guardrails shall be provided to protect personnel from the hazards of open pits, tanks, vats, ditches, etc.

- **Supervisory responsibilities**. Work area under their direct control will be properly guarded, covered, cordoned off, or marked to prevent injury. Supervisors will ensure the following are properly secured and reported immediately to maintenance for corrective action:

- Stairways unguarded/containing holes
- Ladderway floor openings unguarded
- Hatchway & chute floor opening unguarded
- Skylight floor openings unguarded
- Pit & trapdoor floor openings unguarded
- Manhole floor openings unguarded
- Temporary floor openings unguarded
- Floor holes/openings unguarded
- Chute wall openings unprotected
- Window wall openings unprotected
- Temporary wall openings unprotected
- Open-sided floor or platforms unguarded
- Runways unprotected
- Stairways unprotected

Floor Loading Protection

- Whenever loads or single items exceeding 350 lbs. are to be placed on floor areas or roofing structures, employees will determine the safe load capacity before taking this action.
- Safe floor loading capacities (loads approved by the appropriate building official) will be marked on plates of approved design which shall be supplied and securely affixed in a conspicuous place in each space to which they relate.
- Such plates will not be removed or defaced. If lost, removed, or defaced they will be reported to the Maintenance Department and replaced immediately.
- All employees must be trained that it is in direct violation of OSHA regulations (as well as local and state laws) to place, or cause, or permit to be placed, on any floor or roof of a building or other structure a load greater than that for which such floor or roof is approved by the appropriate building official.

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Guarding Floor and Wall Openings and Holes

- **Stairway Floor Openings** shall be guarded by a standard railing constructed in accordance with 29 CFR 1910.23(e). The railing shall be provided on all exposed sides (except at entrances to stairways). For infrequently used stairways where traffic across the opening prevents the use of a fixed standard railing (as when located in aisle spaces, etc.), the guard shall consist of a hinged floor opening cover of standard strength and construction and removable standards railings on all exposed sides (except at entrance to stairway).
- **Ladderway Floor Openings** or platforms shall be guarded by a standard railing with standard toeboard on all exposed sides (except at entrance to opening), with the passage through the railing either provided with a swinging gate or so offset that a person cannot walk directly into the opening.
- **Hatchway and Chute Floor Openings** shall be guarded by one of the following:
    - Hinged floor opening cover of standard strength and construction equipped with standard railings or permanently attached thereto to leave only one exposed side. When the opening is not in use, the cover shall be closed, or the exposed side shall be guarded at both top and intermediate positions by removable standard railings.
    - A removable railing with toeboard on not more than two sides of the opening and fixed standard railings with toeboards on all other exposed sides. The removable railings shall be kept in place when the opening is not in use. Where operating conditions necessitate the feeding of material into any hatchway or chute opening, protection shall be provided to prevent a person from falling through the opening.
- **Skylight Floor Openings** shall be guarded by a standard skylight screen or a fixed standard railing on all exposed sides.
    - Skylight screens shall be of such construction and mounting that they are capable of withstanding a load of at least 200 pounds applied perpendicularly at any one area on the screen. They shall also be of such construction and mounting that under ordinary loads or impacts they will not deflect downward sufficiently to break the glass below them. The construction shall be of grill work with openings not more than 4 inches long or of slat work with openings not more than 2 inches wide with length unrestricted.
- **Pit and Trapdoor Floor Openings,** infrequently used, shall be guarded by a standard manhole cover which need not be hinged in place. While the cover is not in place the manhole opening shall be constantly attended by someone or shall be protected by removable standard railings.
- **Temporary Floor Openings** shall have standard railings or shall be constantly attended by someone (appointed and trained by a Competent Person) until properly covered or guarded.
- **Floor Holes** into which persons can accidentally walk shall be guarded by either:
    - A standard railing with standard toeboard on all exposed sides.
    - A floor hole cover of standard strength and construction. While the cover is not in place, the floor hole shall be constantly attended by someone or shall be protected by a removable standard railing.
    - Every floor hole into which persons cannot accidentally walk (on account of fixed machinery, equipment, or walls) shall be protected by a cover that leaves no openings more than 1 inch wide. The cover shall be securely held in place to prevent tools or materials from falling through.
- **Floor Hole/Opening Covers** may be of any material that meets the following strength requirements:
    - Trench or conduit covers and supports, when located in roadways, shall be designed to carry a truck rear-axle load of at least 20,000 pounds.
    - Manhole covers and their supports, when located in roadways, shall comply with local standard highway requirements if any; otherwise, they shall be designed to carry a truck rear-axle load of at least 20,000 pounds.
    - The construction of floor opening covers may be of any material that meets the strength requirements. Covers projecting not more than 1 inch above the floor level may be used providing all edges are chamfered to an angle with the horizontal of not over 30 degrees. All hinges, handles, bolts, or other parts shall set flush with the floor or cover surface.
- **Stairway Doors**. Where doors or gates open directly on a stairway, a platform shall be provided, and the swing of the door shall not reduce the effective width to less than 20 inches.
- **Wall Openings (including Chute Wall Openings)** from which there is a drop of more than 4 feet shall be guarded by one of the following:
    - Rail, roller, picket fence, half door, or equivalent barriers. Where there is exposure below to falling materials, a removable toe board or the equivalent shall also be provided. When the opening is not in use for handling materials, the guard shall be kept in position regardless of a door on the opening. In addition, a grab handle shall be provided on each side of the opening with its center approximately 4 feet above floor level and of standard strength and mounting.
    - Extension platforms onto which materials can be hoisted for handling, will have side rails or equivalent guards of standard specifications.

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- Wall opening barriers (rails, rollers, picket fences, and half doors) shall be of such construction and mounting that, when in place at the opening, the barrier is capable of withstanding a load of at least 200 pounds applied in any direction (except upward) at any point on the top rail or corresponding member.
- Wall opening grab handles shall be not less than 12 inches in length and shall be so mounted as to give 3 inches clearance from the side framing of the wall opening. The size, material, and anchoring of the grab handles shall be such that the completed structure is capable of withstanding a load of at least 200 pounds applied in any direction at any point of the handle.
- Wall opening screens shall be of such construction and mounting that they are capable of withstanding a load of at least 200 pounds applied horizontally at any point on the near side of the screen. They may be of solid construction, of grillwork with openings not more than 8 inches long, or of slat work with openings not more than 4 inches side with length unrestricted.

➢ **Window Wall Openings** at a stairway landing, floor, platform, or balcony, from which there is a drop of more than 4 feet, and where the bottom of the opening is less than 3 feet above the platform or landing, shall be guarded by standard slats, standard grill work, or standard railing. Where the window opening is below the landing, or platform a standard toe board shall be provided.

➢ **Temporary Wall Openings** shall have adequate guards, but these need not be of standard construction.

➢ **Where there is a hazard of materials falling through a wall hole,** and the lower edge of the near side of the hole is less than 4 inches above the floor, and the far side of the hole more than 5 feet above the next lower level, the hole shall be protected by a standard toeboard, or an enclosing screen of solid construction.

Protection of Open-Sided Floors, Platforms, and Runways

➢ **Open sides floor or platforms** 4 feet or more above adjacent floor or ground level shall be guarded by a standard railing on all open sides except where there is entrance to a ramp, stairway, or fixed ladder. The railing shall be provided with a toeboard, beneath the open sides where:
- Persons can pass.
- There is moving machinery.
- There is equipment with which falling materials could create a hazard.

➢ **Runways** shall be guarded by a standard railing on all open sides 4 feet or more above floor or ground level. Wherever tools, machine parts, or materials are likely to be used on the runway, a toeboard shall also be provided on each exposed side. Runways used exclusively for special purposes (i.e., oiling, shafting, or filling tank cars) may have the railing on one side omitted where operating conditions necessitate such omission, providing the falling hazard is minimized by using a runway of not less than 18 inches wide.

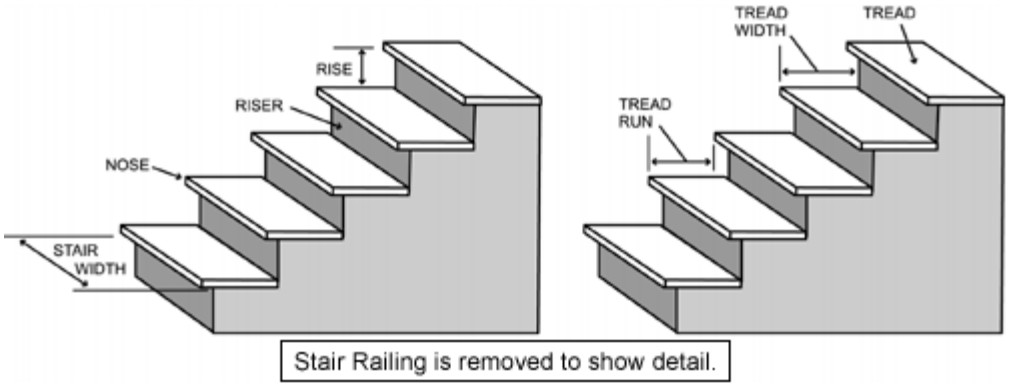
➢ **Open sided access ways.** Regardless of height, open-sided floors, walkways, platforms, or runways above or adjacent to dangerous equipment, pickling or galvanizing tanks, degreasing units, and similar hazards shall be guarded with a standard railing and toeboard.

Stairs, Railings, and Guards

➢ Flights of stairs having four or more risers shall be equipped with standard stair railing or standard handrails. The width to be measured clear of all obstructions except handrails:

Stairways less than 44 inches wide having both sides enclosed	▪ At least one handrail, preferably on the right-side descending.
Stairways less than 44 inches wide one side open	▪ One stair railing on open side.
Stairways less than 44 inches wide having both sides open	▪ One stair railing on each side.
Stairways more than 44 inches wide, but less than 88 inches wide	▪ One handrail on each enclosed side & one stair railing on each open side.
On stairways 88 or more inches wide	▪ One handrail on each enclosed side. ▪ One stair railing on each open side. ▪ One intermediate stair railing located approximately midway of the width.
Winding Stairs	▪ A handrail offset to prevent walking on all portions of the treads having width less than 6 inches.

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- **Provide stairs that minimize hazards**
  - All guards and handrails must be free of anything that might cut a worker or snag a worker's clothing and capable of withstanding a load of at least 200 pounds applied in any direction at any point on the top rail.
  - Guardrail system must have a vertical height of 42 inches above the surface to which it is attached. The intermediate rail is to be halfway between the top rail and the floor.
  - A stair railing shall be of construction similar to a standard railing, but the vertical height shall be not more than 34 inches nor less than 30 inches from upper surface of top rail to surface of the tread in line with face of riser at forward edge of tread.
  - Fixed stairs shall be installed at angles to the horizontal of between 30˚ and 50˚. Any uniform combination of rise/tread dimensions may be used that will result in a stairway at an angle to the horizontal within the permissible range as outlined in 29 CFR 1910.24(e).
  - Work platform needs top and midrail (these should be constructed in accordance with 29 CFR 1910.23)
- Temporary stairways shall have a stair railing of construction similar to a standard guard railing (as outlined in this Plan), except that the vertical height shall be no more than 34 inches and no less than 30 inches from the upper surface of the top rail to the surface of the tread in line with the face of the riser at the forward edge of the tread.
- Temporary stairways shall have a handrail of construction similar to a standard guard railing (see "Guardrail" section of this Plan) except that it is mounted to a wall or partition and does not include an intermediate rail. It shall have a smooth surface along the top and both sides of the handrail. Ends of the handrail shall be constructed so as not to constitute a projection hazard.
  - The height of handrails shall be no more than 34 inches and no less than 30 inches from the upper surface of the handrail to the surface of the tread, in line with the face of the riser or to the surface of the ramp.
  - Handrails and railings shall be provided with a clearance of approximately 3 inches between the handrail or railing and any other object.
- Stairways having four or more risers more than 30 inches, whichever is less, must be protected by standard stair railings on each unprotected side.
- Ladders, secured in place, should be provided when stairways are not in place. If the distance between elevations is greater than 20 feet, rest platforms need to be installed in increments approximately every 20 feet. These rest platforms must include guard railing and toeboards (as outlined in the "Guardrail" section of this Plan).
- Fixed ladders, straight ladders and extension ladders must extend three (3) feet above the landing surface. If this is not possible, a ***"grabrail"*** must be put in place to assist in mounting and dismounting the ladder. When erecting one of these ladders the base should be out one (1) foot for every four (4) feet of height. Both siderails need to rest securely against the top support. The ladder should be secured to prevent slippage.
- Fixed ladders where the top of the ladder is in excess of twenty-four (24) feet must be provided with cages, wells, ladder safety climbing device, or self-retracting lifelines.
- When personnel are working off portable ladders and their work positions the employees adjacent and above standard guardrail protection, personal equipment or equivalent must be utilized.

Protection from Falling Objects

- When toeboards are used, erect them along the edge of the working surface for a distance sufficient to protect employees below. Toeboards should be at least 3.5 inches high and capable of withstanding a force of 50 pounds in a downward or outward direction.
- When tools, equipment or materials are piled higher than the toeboards, use screening pr paneling erected from the toeboard to the top of the guardrail system to protect employees below.
- Openings in screen should be small enough to prevent objects from falling through.

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- Canopies used to protect employees from falling objects should be strong enough to prevent collapse or penetration by any object falling onto the canopy.
- When overhand bricklaying operations are taking place, do not store material or equipment within four (4) feet of the working edge. Remove excess mortar, broken masonry units and debris at regular intervals.
- During roofing, do not store work materials and equipment within six feet of the roof edge unless a guardrail system is installed. Materials piled or stacked near the roof edge should be stable and self-supporting.

Use of Hoisting Lines

- When hoisting lines are used to raise tools or materials to a roof greater than sixteen (16) feet from ground to eaves without a parapet (or with a parapet less than 30 inches in height), the employee on the roof shall be secured by an approved safety belt attached to a lifeline.
- The safety belt lanyard shall be a minimum of ½ inch nylon, or equivalent, with a maximum length to provide for a fall of no greater than 6 feet. The rope shall have a nominal breaking strength of 5400 pounds.

Housekeeping and Safe Work Practices

- Good housekeeping will help to prevent a majority of the slips, trips, and falls from occurring. Some general good housekeeping guidelines include:
- Place "walkoff" mats at building entrances. These mats should be cleaned as necessary to prevent materials from being tracked into the building. Mats should be secured to the floor using adequate materials to ensure that they will not move when stepped on. All edges should be taped or fastened down to prevent the edges from creating a tripping hazard.
- Hard surface floors and walkways should be swept on a regular basis, adequate for the amount of traffic, to prevent the build-up of dust, dirt, or other materials that could make the floor surface slick.
- Any surface which poses a temporary slipping hazard, such as newly washed, waxed, or cleaned floors, wet entry ways, or spills should have barriers and/or signs placed in a manner which clearly indicates the hazards present to all employees until the hazard is removed. If possible, these areas should be isolated so that traffic will not pass through the unsafe area.
- Spills should be cleaned up immediately.
- NOTE: *Any spills involving chemicals or biological agents should be cleaned up by personnel who are trained in the handling and cleanup of such materials. If in doubt, contact your Site Supervisor.*
- Any tripping hazard such as uneven pavement, fixed objects, excess materials, improper storage, broken stairs, etc. should be immediately reported to your Site Supervisor.
- Do not rush, especially in inclement weather or on slick surfaces.
- Be aware of changes in surface heights (a projection of even ¼ inch could cause a fall.)
- Do not run wires, cables, or other materials across a walkway without proper protection. If you do, make sure to:
    - Use cable chases and/or duct tape to secure the wires to the ground;
    - Provide a highly visible sign which indicates the hazards and can be seen from all approaches;
    - Minimize the height of the cable chases or hazards to less than 1 ½ inch.
    - NOTE: *Wires cannot be run across the main path to or from a fire exit or in such a way as to block a fire door;*
    - Wires should never be run under a mat or other floor covering that was not specifically designed for such purpose due to the potential fire hazard that this practice may create.
- All walking areas should be provided with adequate lighting. Take special care in walking through dimly lit areas.
- When walking up or down stairs, always use the handrails provided for support, especially in dark or inclement weather conditions.
- Special care should be taken whenever the walking surface is very smooth, such as with marble or similar flooring materials. Under certain conditions these floors can be slippery as ice!

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Training/Re-Training Form
Fall Protection
Construction Industry 29 CFR 1926. 501 through 1926.503

Physical Site Location of Training:		Time of Training:
Instructor Name (please print):	Instructor's Signature:	Date of Training:

Training Roster

Employee I.D. #	Name (Please Print)	Signature	Job Title

Summary of Training Session
(Check all categories presented during training/retraining)

	Nature of fall hazards
	Erecting, maintaining, disassembling, & inspection of the fall protection system;
	Use & operation of fall-protection systems;
	Role of employees in a Safety Monitoring Systems;
	Use of mechanical equipment during low-sloped roofing work;
	Handling & storage of equipment & material & erection of overhead protection;
	Safety Nets;
	Scaffolds;
	Floors, stairways, railings, over-head protection & guarding of open-sided floors, platforms & runways;
	Role of employees in Fall Protection Plan;
	General Housekeeping & good work practices;
	Standards contained in subpart "M";
	The "Fall Protection Work Plan" form;
	Questions and answers.

Please list materials passed out, media and video presented, and any pertinent lectures or materials:

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Fall Protection Work Plan (Part 1)

Job Name	Job Location
Job Supervisor	Job Dates (Start Date/End Date)

Potential Fall Hazards

Methods to be used for fall protection/restraint

Description of Procedures	
Assembly of Protective Equipment	
Maintenance of Protective Equipment	
Inspection of Protective Equipment	
Disassembly of Protective Equipment	
How Tools & Materials Are to Be Stored & Secured	
Method For Providing Overhead Protection of Ground Workers	
Rescue Procedures for Injured Workers	

Post On Job Site

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Fall Protection Work Plan (Part 2)

Use this checklist to identify the fall protection system training each employee received at a worksite:

Fall-Protection Systems Checklist					
Employee Name:	**Worksite/Location of Training:**			**Date:**	
Fall-Protection System	**Training Received**				
	N/A	**Installation**	**Maintenance**	**Inspection**	**Disassembly**
Guardrail Systems					
Personal Fall-Arrest Systems (PFAS)					
Safety-Net Systems					
Controlled-Access Zones (CAZ)					
Roof Brackets					
Covers					
Fences and Barricades					
Safety-Monitoring Systems					
Other:					
Other:					
Notes:					
Name of Trainer:	**Signature of Trainer:**			**Date:**	

Post At Job Site

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Fall Protection Monitor
Sub-Policy

In accordance with USDOL – OSHA CFR Standard 1926.500/501/502/503 regarding fall protection for low-slope roofs – due to prevailing circumstances, fall protection engineering cannot be achieved to provide 100% fall protection. Therefore, a "Monitor" has been assigned.

As "Monitor," it shall be your responsibility to observe all workers who are not capable of being provided 100% fall protection. A "Monitor" shall be competent to recognize fall hazards. The "Monitor" shall warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner. The following criteria shall be followed:

1. Stay close enough to communicate orally with all employees.
2. Stay on the same walking/working surface and within visual sighting distance of all employees.
3. You shall not have other responsibilities which could take your attention away from monitoring.
4. As monitor, it is your responsibility to exercise all safety efforts possible to eliminate potential falls.
5. Use of a warning line system is mandatory on roofs greater than 50 feet in width. Roof widths smaller than 50 feet may use monitor only.
6. Be specific regarding safety instructions to employees working without 100% fall protection.
7. Wear all provided Personal Protective Equipment (PPE).

The following are recommendations for safe practice:

1. Be always very visible. Wear a high visibility vest or hardhat.

I agree to fulfill the job requirements of Fall Protection Safety Monitor and have received written and verbal instructions of such responsibility.

_____	_____	_____
Employee Name	Employee Signature	Date

_____	_____	_____
Witness Name	Witness Signature	Date

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Employee Fall Protection
Work Agreement

In accordance with USDOL – OSHA CFR Standard 1926.500/501/502/503 regarding fall protection – due to prevailing circumstances, fall protection engineering cannot be achieved to provide 100% fall protection. Therefore, a "Monitor" has been assigned.

The "Monitor" shall observe all workers who are not capable of being provided 100% fall protection and warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner.

The following are requirements of the employees:

1. Any orders or directions given by the Monitor must be followed. If orders are not followed Superintendent/Foreman may remove you from the job.
2. All provided Personal Protective Equipment (PPE) shall be worn.

I shall accept and obey all the monitor's direction and instruction while in this particular job assignment.

I have received these instructions, both in writing and verbally.

_____	_____	_____
Employee Name	Employee Signature	Date

_____	_____	_____
Witness Name	Witness Signature	Date

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Personal Fall Arrest System

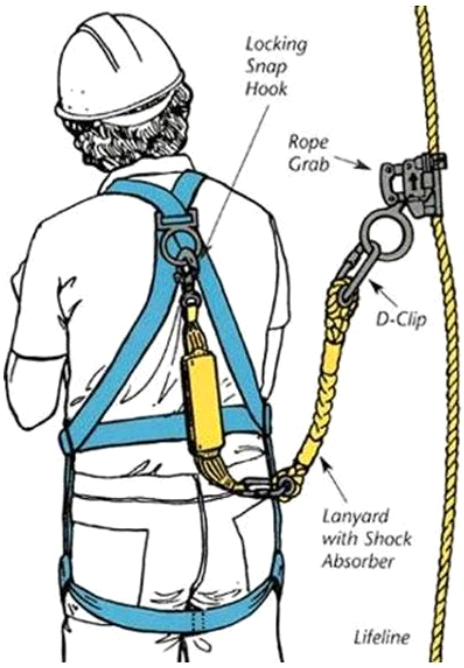
Inspection Report
(Complete Prior To Usage)

User/Inspector Name:			
Harness Serial No.:			
Deceleration Lanyard Serial No.:			
Check Appropriate Box (✓)		Yes	No
1.	Are fibers and stitching in good condition?		
2.	Are buckles and metal hardware free of corrosion and in good condition?		
3.	Are manufacturer's labels attached and in good condition?		
4.	Is the deceleration device intact and in good condition?		
5.	Are the locking snap hooks in good condition?		
6.	Is the equipment free of corrosion, burn marks, deterioration, or chemical damage?		
NOTE: Any "NO" answers require that the equipment be discarded & replaced.			
Comments:			
Signature:		Date:	

INSPECTION STEPS

1. Inspect harness hardware (i.e. buckles, D-rings, back pad, keepers, etc.); these items must not be damaged, broken, distorted, or have any sharp edges, burrs, cracks, worn parts, or corrosion. Check any PVC coated hardware for cuts, rips, tears, holes, etc. in the coating. Make sure buckles work freely.
2. Inspect webbing; material must be free of frayed, cut, or broken fibers; check for tears, abrasions, mold, burns, discoloration, etc. Inspect stitching; check for pulled or cut stitches. Broken stitches may be an indication that the harness has been impact loaded and must be removed from service.
3. Inspect labels; all labels should be present and fully legible. Labels must be replaced if illegible or missing.
4. Inspect each system component or subsystem per associated manufacturer's instructions.
5. Record the inspection date and results on the above form. If inspection reveals a defective condition, remove unit from service immediately and destroy or contact factory authorized service center for repair.

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Fall Arrest

In construction eliminating the risk of falls may not be possible. It then becomes essential to select the proper form of fall protection. Fall arrest is the most common system. It stops a fall within a few feet of the worker's original position. A full body harness is required with a fall-arrest system

A typical system consists of the following parts connected together:

- Full body harness;
- Lanyard (with locking snap hooks or D-clips);
- Rope grab;
- Lanyard;
- Shock absorber;
- Lifeline;
- Lifeline Anchor

Fire Protection and Prevention Policy

Fire protection and prevention is important to Master Construction Solutions to minimize loss of life and property. The cost of fire protection is small compared to potential costs of incalculable human suffering and lost property.

Because every employee and/or outside contractor on a Master Construction Solutions work site or work area is expected to help minimize the potential for fires and to maintain the equipment necessary to control fires, every person performing work for, or at, Master Construction Solutions will be affected by these safety policies and procedures.

Because it is unsafe for employees who have not been properly trained to use a fire extinguisher to control a fire, personnel who have not been trained in the use of fire extinguishers ***must not*** attempt to use them.



Actual fires will be reported immediately to the local fire department before any attempts are made to extinguish the fire.

Employees *will not* attempt to extinguish fires beyond the incipient stage.

Training

Employee fire protection and prevention training will include, but not be limited to:

- Notification of the Fire Department immediately upon learning of a fire;
- Evacuation Procedures and designated meeting area(s);
- Classification, Ratings, and Performance of Fire Extinguishers;
- Classification of Hazards;
- Location of Fire Extinguishers;
- Proper operation of the fire extinguisher before attacking the fire;

Additionally, the "Company's" Supervisory Personnel and Designated Employees will be trained in:

- Selection and Distribution of Extinguishers;
- Inspection, Maintenance, and Recharging of Extinguishers.

Employees will be trained upon initial employment and annually thereafter.

- **Outside Personnel (subcontractors, vendors, etc.)** – Will be trained as a "Company" Affected Employee or Designated Employee (level of training and qualification to be determined by the President) as deemed appropriate to the individual situation(s). The "Company's" Authorized Employee may be assigned to oversee all activities of Outside Personnel to ensure compliance with the scope and applicability of this policy.
- **Travel Distances –** Travel distances to extinguishers should follow the guidelines below (at a minimum):
  - **In fixed facilities:**
    - Class A – 75'
    - Class B – 50'
    - Class C – 50'
  - **On Construction Sites**
    - Class A – 100'
    - Class B, C – 50'
- Extinguishers must be located within these distances at each working level. Additional requirements may apply for high-risk activities.

Portable Fire Extinguishers

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- Fire extinguishers are manually operated, portable devices that will discharge an extinguishing agent when properly activated. They are designed as a method of controlling a fire during the time between discovery and arrival of the Fire Department.
- Master Construction Solutions shall provide portable fire extinguishers that are:
  - Consistent with the hazard.
  - Properly mounted and located.
  - Inspected, maintained, and tested.
- Portable fire extinguishers will be selected and distributed based on the classes of anticipated fires, and the size and degree of hazard. Most fires in the "Company's" operations will include materials found in Classes A, B, and C. Thus, the most common type of extinguisher Master Construction Solutions will provide will be designed to effectively suppress these conditions. However, fire extinguishers for Class D fires will be provided when hazards associated with Class D fires exist. The chart below gives a brief outline of the type of fire extinguishers:

Effective Extinguishers for Burning Materials

CLASS OF FIRE	CHARACTERISTICS OF BURNING MATERIALS	EXTINGUISHER
Class A	**Ordinary combustible materials** such as cellulose products, wood, paper, cloth, plastics, or rubber	Water, multipurpose dry chemical (ABC)
Class B	**Flammable and combustible liquids** such as oils, gasoline, alcohol, and solvents (See Safety Note 1 below)	Carbon dioxide, dry chemical (BC or ABC) (See Safety Note 1 Below)
Class C	**Electrical equipment and wire installation** while electrical current is on (See Safety Note 2 below)	Carbon dioxide, dry chemical (BC or ABC) (See Safety Note 2 Below)
Class D	**Burning magnesium, thorium, uranium, potassium, and sodium metals.**	G-1 powder (special graphite) or Metl-X (sodium chloride)
Safety Note 1: Do not use water on a flammable or combustible liquid fire because it will spread and accelerate the fire. An explosion may result if water is used.		
Safety Note 2: do not use water on energized electrical equipment. Many electrical fires can be controlled by safely turning off the power for equipment such as personal computers and photocopiers.		

- Portable fire extinguishers will be mounted conspicuously, located, and identified so they are readily accessible. Extinguisher locations will be carefully selected to ensure extinguishers are adequately spaced and are not in danger of being damaged by vehicles, weather, or storage materials.
- Employees will be informed of the location of the fire extinguishers. Extinguishers will be visible from a distance of at least 3 feet. Wall markings for fire extinguisher locations (see example on following page) will be visible from a distance of at least 25 feet.





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- Fire Extinguishers shall be located along normal paths of travel, including exits from an area. All paths to fire extinguishers must remain clear to provide easy access.
- Fire Extinguishers in Master Construction Solutions vehicles shall be firmly secured and readily accessible.

Inspection, Maintenance, and Recharging of Extinguishers

- Portable fire extinguishers shall be visually inspected monthly. The monthly inspection is a quick check intended to give reasonable assurance that the extinguisher is accessible, fully charged, and operable. The following shall be checked at a minimum:
  - The extinguisher is located in the designated area;
  - There are no obstructions to access or visibility;
  - Operating instructions on the name plate are legible;
  - Seals and tamper indicators are not broken or missing;
  - The extinguisher is full (determine fullness by weighing or "hefting").
  - There is no obvious physical damage, corrosion, leakage, or clogged nozzles;
  - The pressure-gage reading, or indicator is in the operable range or position.
- Portable fire extinguishers are to be recharged after use or pressure leakage. Fire extinguishers will be equipped with an inspection tag, and the inspector must initial and date the tag each month to document the inspection. Tags will be replaced when all lines are used or when tags are lost or removed.
- Any extinguisher that shows excessive wear, damage or unserviceable condition will be removed from service and replaced by an operable extinguisher.
- Fire extinguisher maintenance will be performed at least annually by approved contractor or trained Master Construction Solutions personnel. This annual inspection is intended to give maximum assurance that extinguishers will operate effectively and safely. Annual maintenance and inspection records will be maintained from one annual inspection to the next (at which time the old inspection record is replaced by the new inspection record).
- During any period when an extinguisher is removed from service for testing, another extinguisher must replace the extinguisher used for testing.
- Annual inspection records will be maintained for review by regulatory agencies and for internal audit purposes.
- Portable fire extinguisher hydrostatic testing schedule is as follows:

Types of Extinguishers	Test Intervals (Years)
Soda acid (stainless steel shell)	5
Cartridge operated water and/or antifreeze	5
Stored pressure water and/or antifreeze	5
Wetting agent	5
Foam (stainless steel shell)	5
Aqueous Film Forming Foam (AFFF)	5
Loaded stream	5
Dry chemical with stainless steel	5
Carbon Dioxide	5
Dry chemical, stored pressure, with mild steel, brazed brass, or aluminum shells	12
Dry chemical, cartridge or cylinder operated; with mild steel shells	12
Dry powder, cartridge or cylinder operated with mild steel shells.	12

Emergency Reporting

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- For emergency reporting purposes, at least one readily accessible telephone shall be located at all Master Construction Solutions work sites. This telephone shall be in an area that is not subject to being locked (during normal operating hours).
- When reporting a fire, the emergency dispatcher may request only brief information when you call. He/She will put you on hold to dispatch the Fire Department, then ask for more detailed information.
- In an emergency:
  - Call 911 (unless otherwise instructed, alternate numbers will be posted by the phone.
  - Briefly state what happened and where it happened.
  - Indicate if anyone was hurt and how badly.
  - Give your name and the phone number (or extension) you are calling from; do not hang up unless the dispatcher tells you to.
  - Wait in the area until the Fire Department arrives and provide information to the Incident Commander.
  - In large facilities, have someone meet the Fire Department personnel at the entrance to guide them to the scene.
- The emergency dispatcher may need the following additional information for specific types of emergencies:

Fires	▪ What is burning? ▪ Is the fire small or large?
Emergency Medical Assistance	▪ Is the person conscious or unconscious? ▪ How many people are injured?
Hazardous Spills	▪ The name of the material spilled, including the correct spelling if known. ▪ Is the material a liquid, solid, or gas? ▪ Has anyone been exposed to the material? ▪ Has the flow of the material been contained or stopped?
Actions	▪ Report any actions that may have, or are being, taken: - Attempts to extinguish the fire; - Whether the area has been evacuated; - Whether CPR or other first aid has been started.

This information will help emergency response personnel anticipate, and prepare for, any actions that may be required upon their arrival on the scene.

Using a Fire Extinguisher

- It is unsafe for personnel who have not been trained in the proper use of a fire extinguisher to attempt to use a fire extinguisher to control a fire. Personnel who have not been trained in the use of fire extinguishers must not attempt to use them.
- In case of a fire:
  - Evacuate the building and/or area;
  - Call the fire department;
  - Make sure the fire is small;
  - Make sure you have a clear way out;
  - Make sure the fire extinguisher is rated for the type of fire and that you know how to use the extinguisher;
  - The "Pass Method" is the operating method used with most fire extinguishers. It is a four-step method:

PASS Method	
P	**Pull the pin. This will unlock the operating handle and allow you to discharge the extinguisher.**
A	**Aim at the base of the fire.**
S	**Squeeze the operating handle. This will discharge the firefighting agent.**
S	**Sweep from side to side. Move carefully in on the fire, aiming at the base, sweeping back and forth.**

  - Always back away from the fire even if it appears to be out.

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Fire Extinguisher Mounting and Inspection Guidelines





- Fire extinguishers must remain readily accessible and properly mounted.
- Extinguishers will be visible from a distance of at least 3 feet. Wall markings for fire extinguisher locations (see examples to the left) will be visible from a distance of at least 25 feet.



- Employees expected to utilize fire extinguishers must be properly trained (including hands on training) in the proper use, limitations, inspection, storage, etc. of fire extinguishers.
- Proper documentation of training/re-training must be maintained.

- Proper use, care, and inspection policy, of fire extinguishers, needs to be implemented with outdated fire extinguishers being replaced with ones that meet current regulations.
- The monthly cursory inspection should include (at a minimum) the following items:
- Ensure access to the extinguisher is not blocked and that the cabinet door, if any, opens easily.
- The pressure should be within the recommended level on extinguishers equipped with a gauge (such as that shown below). The needle should be in the green zone. If the needle is not in **green zone,** the extinguisher requires professional maintenance, and this should be noted on the inspection report



- Verify the locking pin is intact and the tamper seal is not broken.
- Visually inspect the hose and nozzle to ensure they are in good condition.
- Visually inspect the extinguisher for dents, leaks, rust, chemical deposits, or other signs of abuse/wear and note any findings on the inspection report. If the extinguisher is damaged or needs recharging, remove it from service and note this in the inspection report.
- Fire extinguishers must be pressure tested (a process called hydrostatic testing) according to NFPA guidelines to ensure the cylinder is safe to use. The inspection sheet has all hydrostatic testing dates noted. If an extinguisher requires this service, this should be noted in the comments. Facilities Services will arrange for testing.

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WHY ARE MONTHLY INSPECTIONS NECESSARY WHEN THE FIRE EXTINGUISHER supplier CONDUCTS AN ANNUAL INSPECTION?
An annual inspection is too infrequent to detect habitual vandalism or malfunctions that occur. Without monthly inspections, a fire extinguisher could be inoperable, and no one would know until it was needed.

MUST MONTHLY INSPECTIONS BE DOCUMENTED?
Yes. The authorized Master Construction Solutions representative should document inspections on the cardboard tag that is attached to the fire extinguisher.

SHOULD PROBLEMS NOTED DURING THE INSPECTION BE MARKED ON THE CARDBOARD TAG?
No. Only the inspector's signature and date should be marked on the tag. If a problem is noted during the inspection the fire extinguisher should be removed from its mounting immediately, replaced with a functioning fire extinguisher and the faulty extinguisher sent back to the supplier.

WHO WILL REPLACE THE MONTHLY INSPECTION TAG?
A state licensed fire extinguisher service company will install the new tags when the annual inspection is performed.



Construction Areas

- Construction areas shall be maintained in a fire-safe condition. This includes:
  - Maintaining egress paths and ensuring that the construction site is accessible to the Fire Department.
  - Consulting with the local Fire Department regarding specific access requirements for construction sites.
  - Accumulations of combustible waste material, dust, and debris shall be removed from structures and their immediate vicinity at the end of each work shift or more frequently if necessary for safe operations.

Flammable and Combustible Liquids

Flammable and combustible liquid fires are much more volatile than those fueled by ordinary materials such as wood, paper, and cloth. Flammable vapors ignite with explosive force. The resulting fire gives off twice as much heat, has a greater rate of temperature rise and spreads faster than fires from ordinary materials.

Because of these hazards, special precautions are required when storing, handling, and using flammable and combustible liquids. Both the National Fire Protection Association (NFPA) and the International Fire Code Institute (IFCI) have developed guidelines for the safe storage and use of flammable and combustible liquids. These guidelines are not mandatory unless a federal, state, or local authority chooses to enforce them.

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The Occupational Safety and Health Administration (OSHA) has developed mandatory regulations for the safe storage and use of flammable and combustible liquids for general industry (29 CFR 1910.106), the construction industry (29 CFR 1926.152) and the shipyard industry (29 CFR 1915.36).

To understand the OSHA requirements for the safe storage, handling and use of flammable and combustible liquids, the differences between a flammable and a combustible are as follows:

Flammable Liquids:
A flammable liquid has a flash point below 100˚F (37.8˚C) (except for any mixture having components with flash points of 100˚F (37.8˚C) or higher, the total of which make up 99 percent or more of the mixture) according to 1910.106(a)(19). Flammable liquids are known as Class I liquids and are divided into the following classes under 1910.106(a)(19).:

Class IA	These liquids have a flash point below 73°F (22.8°C) and a boiling point that's below 100°F (37.8°C).
Class IB	These liquids have a flash point below 73°F (22.8°C) and a boiling point at or above 100°F (37.8°C).
Class IC	These liquids have a flash point at or above 73°F (22.8°C) and below 100°F (37.8°C).

Combustible Liquids:
A combustible liquid is any liquid with a flash point at or above 100˚F (37.8˚C) and below 140˚F (60˚C), according to 1910.106(a)(18). Combustible liquids are divided into the following two classes under this regulation:

Class II	Liquids having flash points at or above 100°F (37.8°C) and below 140°F (60°C) (except any mixture having components with flash points of 200°F (93.3°C) or higher, the volume of which makes up 99 percent or more of the total volume of the mixture.
Class III	These liquids have flash points at or above 140°F (60°C). Class III liquids are further subdivided into subclasses Class IIIA and CIIIB.
Class IIIA	Liquids have flash points at or above 140°F (60°C) and below 200°F (93.3°C) (except any mixture having components with flash points of 200°F (93.3°C) or higher) the total volume of which makes up 99 percent or more of the total volume.
Class IIIB	Liquids have flash points at or above 200°F (93.3°C).

Safety Cans:
One way to reduce the hazards associated with flammable and combustible liquids is to use safety cans. While safety cans are among the most familiar pieces of safety equipment, they also may be the least understood.

The basic purpose of a safety can is to provide a convenient means of carrying, dispensing, and storing flammable or combustible liquids while controlling flammable vapors from those liquids.

The official OSHA definition of a safety can, according to 1910.106(a)(29), is, "an approved container, of not more than five gallons capacity, having a spring-closing lid and spout cover and so designed that it will safely relieve internal pressure when subjected to fire exposure." An approved container is one approved or listed by a nationally recognized testing laboratory, as stated in 1910.106(a)(35).

To meet this definition, a safety can must be leakproof, must automatically vent vapor at approximately five pounds per square inch gauge (psig) of internal pressure, must prevent flames from reaching the liquid contents and must automatically close after filling or pouring is performed.

In addition to these basic safety requirements, safety cans must be easy to use, properly marked, resistant to damage and wear under typical work conditions, and cannot exceed OSHA's maximum allowable size (see the chart).

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Maximum Allowable Safety Can Sizes		
Flammable liquids, Class IA	2 gallons	
Flammable liquids, Class IB	5 gallons	
Flammable liquids, Class IC	5 gallons	
Combustible liquids, Class II	5 gallons	
Combustible liquids, Class III	5 gallons	

Safety cans are manufactured with metal (galvanized, stainless or terneplated steel) or nonmetallic (polyethylene) bodies. Nonmetallic cans can be more expensive but may offer better resistance to corrosive chemicals and are usually more durable than metal cans.

OSHA standards 1910.144(a)(1)(ii) for liquids having flashpoints below 80°F (26.7°C) require that the safety cans be painted red with clearly visible identification either in the form of a yellow band around the cans or the name of the contents conspicuously stenciled or painted on the cans.

Cap-operating mechanisms on safety cans are spring-loaded and self closing. This feature provides a leak proof seal and allows pressure relief venting. The carrying handle is either attached to or integral with the cap operating mechanism. Handle designs affect the convenience of carrying and using the safety can. The best design swings to distribute weight evenly, protects the cap when not in use and enables the safety can to be opened without any awkward second steps.

Flame arrestor screens inside the cap spout are essential to prevent fire flashback to the can's contents. These are wire or perforated metal inserts. A fire arrestor works because it provides rapid dissipation of heat from fire. Vapor temperature on the inside of the can remains below the ignition point.

Safety cans must not be filled above their rated capacity, (to the seam that joins a metal can top to the body) or to a fill mark on a nonmetallic can.

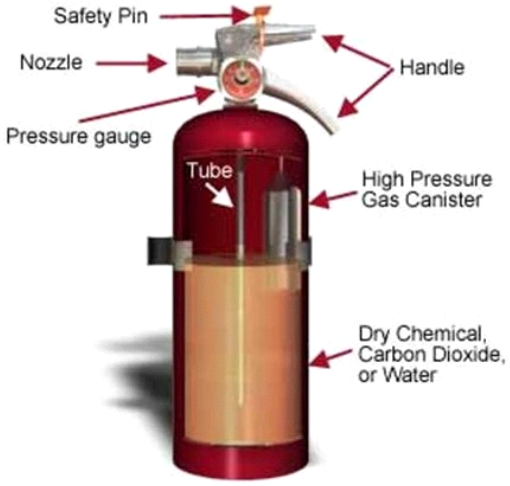
Safety-Can Types:

Type I Safety Cans	Typical single-spout safety cans. The spout is used for both filling and pouring. They are designed for filling containers with large receiving openings but can also be equipped with funnel hose attachments for filling containers with smaller openings.
Type II Safety Cans	Have a built-in dispensing hose attached to the pouring spout. Because of this, a second opening in the can is required. This second opening serves as a pressure and vacuum relief opening and a filling spout. Both the pouring spout and the filling spout have a flame arrestor. The pouring spout also has an internal dispensing valve. Both the dispensing valve and the fill cap are opened by a single operating mechanism.
Metal Laboratory Cans	Safety cans with self-closing faucets. They are designed for dispensing flammable liquids into smaller containers. They are available in shelf or tilt-rack styles. The shelf dispensing can has a safety faucet near its base for gravity flow dispensing and a top spout for filling and pressure/vacuum relief. Tilt-rack cans are mounted in a sturdy tilt frame with the pouring spout on the top of the can opposite the fill and pressure relief spout.

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Safety Training

Portable Fire Extinguisher

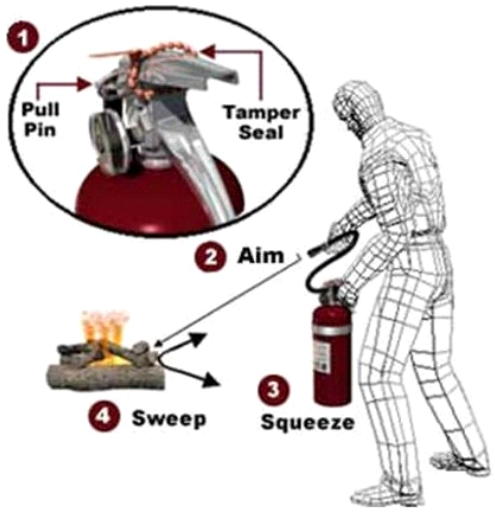


- In stored pressure models the expellent gas and extinguishing agent are stored in a single chamber and discharge is directly controlled by the valve
- These units have the advantage of being easily inspected since most are equipped with a pressure gauge indicating that the unit is ready for use.

Maintenance - The best piece of equipment will not operate if it is not recharged and maintained properly. History has proven that nearly every fire extinguisher failure can be traced back to human negligence. To prevent this Fire Extinguishers shall be:

- Visually inspected monthly
- Maintained annually
- Hydrostatically tested periodically

Using A Fire Extinguisher. The P.A.S.S. word is a method for operating most common fire extinguishers. It is a four step method.



Remember... The average hand portable extinguisher will operate for 10 to 30 seconds. There is no time to learn during an emergency.

Fire Prevention (29 CFR 1926.151)

- Internal combustion engine powered equipment shall be so located that the exhausts are well away from combustible materials. When the exhausts are piped to outside the building under construction, a clearance of at least 6 inches shall be maintained between such piping and combustible materials.
- Smoking shall be prohibited at or in the vicinity of operations which constitute a fire hazard, and shall be conspicuously posted "No Smoking or Open Flame".
- Combustible materials shall be piled with due regard to the stability of piles and in no case higher than 20 feet.
- Fuel cans are to be stored 25 feet from an ignition source (i.e., generator, heater).
- Driveways between and around combustible storage piles shall be at least 15 feet wide and maintained free from accumulation of rubbish, equipment, or other articles or materials Driveways shall be so spaced that a maximum grid system unit of 50 feet by 150 feet is produced.
- Storage of any materials shall not obstruct or adversely affect means of emergency exit.
- All materials shall be stored, handled and piled with due regard to their fire characteristics. Noncompatible materials, which may create a fire hazard, shall be segregated by a barrier having a fire resistance of at least 1 hour.

Temporary Heating Devices

- Heaters not suitable for use on wood floors shall not be set directly upon them or other combustible materials. When such heaters are used, they shall rest on suitable heat insulating material or at least 1-inch concrete, or equivalent. The insulating material shall extend beyond the theater 2 feet or more in all directions.
- Heaters used in the vicinity of combustible tarpaulins, canvas, or similar coverings shall be located at least 10 feet from the coverings. The coverings shall be securely fastened to prevent ignition or upsetting of the heater due to wind action on the covering or other material.
- Solid fuel salamanders are prohibited in buildings and on scaffolds.
- Flammable liquid-fired heaters shall be equipped with a primary safety control to stop the flow of fuel in the event of flame failure. Barometric or gravity oil feed shall not be considered a primary safety control. Heaters designed for barometric or gravity oil feed shall be used only with the integral tanks.
- Heaters specifically designed and approved for use with separate supply tanks may be directly connected for gravity feed, or an automatic pump, from a supply tank.
- Only heaters approved by a nationally recognized testing lab (i.e., UL) or government agency (MSHA) shall be used in construction or industry.

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First Aid and Bloodborne Pathogens Policy

Prompt medical attention in case of injury on the job is critical to ensure the health and well-being of Master Construction Solutions employees. This safety policy provides guidelines to determine what first aid requirements are applicable for various operations at Master Construction Solutions.

To achieve these requirements, Master Construction Solutions shall, as far as is reasonably practicable, provide medical and first aid services such as:

- **Trained & Certified First Aid Providers;**
- **First Aid Supplies, in accordance with 29 CFR 1910.151; and**
- **Emergency/Evacuation procedures for injured person(s).**

Introduction Assessment

Prior to the commencement of any work activity on any "Company" work site, Master Construction Solutions will assess the First Aid requirements using the following:

- How many people will be employed at the work site?
- Is the work site isolated?
- What specific hazards are at this worksite?
- Where is the nearest available and appropriate occupational health, medical or ambulance service? What distance is involved?
- What types of injury, disease or illness might occur at the work site?
- How many first aid supply boxes are needed?
- Who will have responsibility for the contents of first aid boxes and weekly (minimum) inspections?
- What supplies are needed in the first aid boxes?
- Are supplies specific for identified hazards (of the work site) included?
- How many first aid providers are needed?
- What level of first aid provider is needed?
    - Level 1
    - Level 2
    - Level 3
- Is a first aid room needed?
- Who will be responsible for the first aid room?
- Has contact or consultation taken place with:
    - Supervisory personnel for the work site?
    - First Aid Providers for the work site?

Posting Requirements

Master Construction Solutions will post information throughout the jobsite advising employees where the first aid station(s) is located. In addition, Supervisory Personnel and/or designated First Aid Provider(s) will ensure that all emergency phone numbers and names of treatment providers will be posted at each telephone and/or throughout the job site for quick reference. These numbers shall always be listed, even in areas with a 911 emergency system.

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Emergency Instructions

The following people are responsible in the event of an emergency:

Area of Responsibility	Name	Phone & Extension

Emergency Response Phone Numbers Are:

Fire Department 	
Police Department 	
Ambulance Service 	
Universal Emergency	

First Aid Stations & First Aid Providers Are:

First Aid Areas Are Located At:		
Designated First Aid Providers Are:		

When an emergency evacuation is announced and *If* time permits:

1. Shut off all power to machinery, fans, and equipment.
2. Turn off all natural gas operations (heaters only).
3. Close all windows (if applicable) and clear all blocked aisles.
4. Walk rapidly, **DO NOT RUN**, to the nearest "EXIT".
5. Wait in designated meeting area for further instructions.

Company Name will have trained fire personnel assigned to fight incipient or small fires with the fire extinguishers. **Do not** operate a fire extinguisher unless you have been properly trained.

Our Designated Meeting Area (except during a Tornado) is:

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Requirements for First Aid Facilities and/or Supplies

- All worksite employees will have access to first aid supplies. This will be achieved by ensuring each work site/operation is equipped with a minimum of one first aid kit that meets (at a minimum) *ANSI Standard Z308.1 1998* or *Appendix A of CFR 1910.151 (Aug. 98)* requirements.
- In addition to first aid supplies, Master Construction Solutions will ensure that an adequate number of field employees are trained in First Aid/CPR. This number will be determined by size of work site crew, scheduled employee vacations, FMLA leave, etc....
- As far as is practicable, first aid boxes shall be provided and located to ensure:
    - That they are readily accessible to all employees;
    - That the name(s) and contact number(s) of First Aid Providers are provided on or near the box;
    - Additional information, such as the name, address, and phone number of the nearest medical or emergency services, are supplied on or near the box. (This information will be provided and maintained by the Site's Supervisory Personnel and/or the designated First Aid Providers).
- In addition, first aid boxes will be:
    - Unlocked, but securely closed;
    - Dust and moisture proof;
    - Under the control of a trained First Aid/CPR Provider.
- If working on an existing structure where 150 or more of their employees and subcontractor employees are present, Master Construction Solutions will provide a First Aid Room. This room will consist of the following:
    - A folded stretcher and blanket;
    - A telephone and posted instructions for calling a physician and notifying the hospital the patient is enroute;
    - Posted method of transporting ill or injured employees and instructions for calling an ambulance;
    - A log of all first aid cases and the treatment, medication, or procedure for each employee treated;
    - A covered trash receptacle operated by a foot pedal;
    - Dispensers for soap, towels, cleaning towels, and disposable cups;
    - A bed;
    - A supply of clean blankets;
    - A supply of clean sheets and pillow cases;
    - Emergency oxygen equipment;
    - First aid manual;
    - Lavatory with hot and cold water.

Additionally, there will be a wall-mounted first aid kit on all floors except for the floor on which there is a first aid room.

- In existing buildings with less than 150 of their employees, and subcontractor employees present, the following is required to ensure that employees have access to medical supplies and services.
    - Emergency telephone numbers posted by each telephone;
    - Signs directing employees to the location of the first aid kit(s);
    - A First Aid Kit that meets the requirements of this plan;
    - First Aid/CPR Manual.

First Aid Kits

First aid kits utilized at a Master Construction Solutions work site should contain:

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ANSI Z308.1–2015, TABLE 1: CLASSES OF FIRST AID KITS & REQUIRED SUPPLIES				
First Aid Supply	**Minimum Quantity**		**Minimum Size or Volume**	
	Class A Kits	Class B Kits	(U.S.)	(Metric)
Adhesive Bandage	16	50	1 x 3 in.	2.5 x 7.5cm
Adhesive Tape	1	2	2.5 yd. (total)	2.3m
Antibiotic Application	10	25	1/57 oz.	0.5g
Antiseptic	10	50	1/57 oz	0.5g
Breathing Barrier	1	1		
Burn Dressing (Gel Soaked)	1	2	4 x 4 in.	10 x 10cm
Burn Treatment	10	25	1/32 oz.	0.9g
Cold Pack	1	2	4 x 5 in.	10 x 12.5cm
Eye Covering (with Means of Attachment)	2	2	2.9 sq. in.	19 sq. cm
Eye/Skin Wash	1 fl. oz. total			29.6 mL
		4 fl. oz. total		118.3 mL
First Aid Guide	1	1	N/A	N/A
Hand Sanitizer	6	10	1/32 oz.	0.9 g
Medical Exam Gloves	2 pair	4 pair	N/A	N/A
Roller Bandage (2 inch)	1	2	2 in. x 4 yd.	5 cm x 3.66 m
Roller Bandage (4 inch)	0	1	4 in. x 4 yd.	10 cm x 3.66 m
Scissors	1	1	N/A	N/A
Splint	0	1	4.0 x 24 in.	10.2 x 61cm
Sterile Pad	2	4	3 x 3 in.	7.5 x 7.5 cm
Tourniquet	0	1	1 in. (width)	2.5 cm (width)
Trauma Pad	2	4	5 x 9 in.	12.7 x 22.9 cm
Triangular Bandage	1	2	40 x 40 x 56 in.	101 x 101 x 142 cm

- **Eye:** Where any of the following points applies to a Master Construction Solutions worksite, an eye module must be added – in a clearly labeled container - to the Basic 1st Aid Kit:
  - Chemical liquids or powders are handled in open containers.
  - Spraying, hosing, compressed air, or abrasive blasting operations.
  - There is a possibility of flying particles.
  - Welding, cutting, or machining operations are conducted.

The Eye Module must contain, at a minimum:

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Quantity	Description
1 Roll	Crepe Bandage 7.5 cm
10	Eye-Wash Containers Single Use
4	Sterile Eye Pads
1	Eye Treatment Guidance Notes

- **Burn:** Where any of the following points applies to a Master Construction Solutions Worksite, a burn module must be added – in a clearly labeled container - to the Basic 1st Aid Kit:
  - Heat or flame is used in the work activity.
  - Flammable liquids or gases are used.
  - Chemical acids or alkalis are used.
  - Other corrosive chemicals are used.

The Burn Module must contain, at a minimum:

Quantity	Description
4	Burn Dressings Sterile Non-Adherent Absorbent 7.5 cm x 5 cm
2	Burn Dressings Sterile Non-Adherent Absorbent 7.5 cm x 10 cm
1 Box 10	Burn Gel (Individually Packaged)
1	Burn Treatment Guidance Notes

- It is the responsibility of the First Aid Provider to monitor, and inspect (at a minimum weekly), the contents of the First Aid Box, and individual modules. Likewise, it is the First Aid Responder who is responsible for ensuring that all supplies have not exceeded their expiration date.

Levels of Training in First Aid / CPR

- The level of training required for First Aid Providers, at the workplace, will be determined when first aid facilities and services are initially planned. The hazard identification and risk assessment process will determine the level of training required.
- In deciding training levels and the number of First Aid Providers required, employees located in isolated areas or mobile workplaces should be considered. Arrangements must also be made to cover absences of First Aid Providers from the work site.
- Where a particular hazard or risk has been identified a First Aid Provider must be trained to deal with the type of injury or illness that may result. The various levels of training for First Aid Providers are:

Level 1 ***Basic Workplace First Aid***	At this level the First Aid Provider should be able to: ▪ Perform basic emergency first aid procedures.
Level 2 ***Workplace First Aid***	At this level the First Aid Provider should be able to: ▪ Perform emergency first aid procedures; and undertake the first aid treatment of injuries and illnesses (i.e., heart attack, fainting).
Level 3 ***Occupational First Aid***	At this level the First Aid Provider should be able to: ▪ Meet the requirements of a Level 2 First Aid Provider; ▪ More effectively deal with first aid problems in the workplace, particularly in an isolated area; ▪ Demonstrate a broad knowledge of the hazards of the working environment, first aid room requirements, techniques of emergency care, and on-site assessment of injured person(s) condition.

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If an injury occurs, the First Aid Provider should:

1 Evaluate the accident area to ensure he/she does not become involved in the same accident situation. The injured person should not be moved unless a life threatening condition exists (i.e., a person's car catches on fire after a wreck and they could be burned up.)
2 Remain calm and take charge of the situation until professional medical help arrives.
3 Direct others briefly and clearly as to how they can help or secure help.
4 Conduct a primary survey of the victim to detect life threatening conditions that require immediate attention. These include:

Respiratory Arrest

- Ensure Adequate breathing by establishing and maintaining an open airway.
- If there are no signs of breathing, give artificial breathing (mouth-to-mouth using by-pass resuscitator is preferred method).
- If victim experiences circulatory failure, start CPR if trained to perform it.

Severe Bleeding

- Determine if from capillaries, veins or arteries.
- If artery or vein is involved, use the following methods in this order:
  1 Apply direct pressure using a sterile bandage or the cleanest material available.
  2 Elevate the bleeding part of the body above the head if no fractures are involved and injury will not be aggravated.
  3 Apply pressure at closest available pressure point.

Shock

Be prepared to treat for shock even when there is little or no injury. First aid procedures are:

1 Keep victim lying down.
2 Provide as much fresh air as possible.





3 Loosen tight clothing at the neck, waist and chest.
4 Keep the victim warm and dry by wrapping in blankets or similar materials.
5 Do not give victim anything by mouth.
6 Help victim maintain a good positive attitude by remaining calm, using reassuring tones and keeping onlookers away.

- Determine if transportation is necessary. Transportation of the injured person will depend on the judgment call of the First Aid Provider. In many cases, particularly with fractures, back and similar injuries, it is wiser to call the rescue squad or EMS for professional help. They have backboards, inflatable splints and other equipment that can be used to move the victim without causing additional injuries.
- Only after the life threatening injuries have been addressed and medical help has been requested, should the First Aid Provider proceed to the following steps. Most of the additional steps may not be necessary if medical help can get to the site.

1 Dress any open wounds with bandage compresses, cravat bandages or any other clean materials that are available. It is only necessary for this material to last until the victim can be moved to professional medical help.
2 Splint any fractures with the best available material. Shovel handles, sticks, rolled up newspaper, etc., can be used as improvised splints.

" When all else fails, the First Aid Provider should use his or her best judgment and do whatever is necessary to save the life."

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Bloodborne Pathogen Exposure Control Guidelines

The Exposure Control Plan is a key document to assist Master Construction Solutions in implementing and ensuring compliance with the standard, thereby protecting our employees. This Exposure Control Plan includes:

I. Employee Exposure Determination.
II. Procedures for evaluating the circumstances surrounding an employee exposure incident.
III. The schedule and method for implementing the specific sections of the standard, including:
    a. Methods of Compliance;
    b. Hepatitis B Vaccination & Post-Exposure Follow-up;
    c. Recordkeeping.

- **The Safety Director** is responsible for the implementation of the Exposure Control Plan:
    - The Safety Director will maintain and update the written Exposure Control Plan at least annually and whenever necessary to include new or modified tasks and procedures.
    - Ensuring that all medical actions required are performed and that appropriate medical records are maintained.
    - Training, documentation of training, and making the written Exposure Control Plan available to employees, OSHA, and NIOSH representative.

- **Site Superintendents** will be responsible for:
    - Providing accurate and timely information to all employees (regardless of status) concerning exposure, identification of labels and signs, proper use of PPE, and safeguards to prevent infection.
    - Ensuring that all supervisory personnel receive Bloodborne Pathogen training.
    - Maintain and provide all necessary personal protective equipment (PPE), engineering controls (i.e. sharp containers, etc.), labels, and red bags required by the standard.
    - Ensuring that adequate supplies of equipment are available at all construction locations.
    - Written housekeeping protocols and will ensure that effective disinfectants are purchased.
    - Training, documentation of training, and making the written Exposure Control Plan available to employees, OSHA, and NIOSH representatives.

- **Site Foremen** will be responsible for:
    - Ensuring those employees who are reasonably anticipated to have contact with or exposure to blood or other potentially infected materials comply with the procedures and work practices outlined in this Exposure Control Plan.

- **All Employees** are responsible for:
    - Identifying hazards and taking proper action to prevent infection through contact with bodily fluids or contaminated products.
    - Notifying their immediate supervisor immediately when a bloodborne hazards condition is identified.

Employee Exposure Determination

Master Construction Solutions has evaluated the work tasks associated with the job functions of Master Construction Solutions to determine which tasks could be reasonably anticipated to result in exposure to Bloodborne Pathogens. Master Construction Solutions uses the following categorical distinctions to determine the level of potential exposure:

Category I: Tasks that involve exposure to blood, body fluids, or tissues. All procedures or other job-related tasks that involve an inherent potential for mucous membrane or skin contact with blood, body fluids, or tissues, or a potential for spills or splashes of them.

- Examples of Category I tasks are those normally associated with frequent and repetitive handling and working directly with blood products such as those performed by medical personnel (i.e., physicians, nurses, Emergency Medical Technicians, etc.). These jobs by design require an almost constant exposure to the potential for infection.
- Master Construction Solutions has identified no employees or job task that requires this level of potential exposure to Bloodborne Pathogens.

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Category II: Tasks that involve no exposure to blood, body fluids, or tissues, but employment may require performing unplanned Category I tasks. The normal work routine involves no exposure to blood, body fluids or tissues, but exposure may be required as a condition of employment.

- Category II tasks are those normally associated with employees whose primary job function does not require them normally to be exposed to blood or body fluids but who are trained and designated to provide First Aid and CPR (Cardiopulmonary Resuscitation) as a collateral duty to their routine job functions.
- The following is a list of job classifications in which some employees at our establishment have occupational exposure. Included are a list of tasks and procedures in which occupational exposure may occur for these individuals:
  - **Site Foreman:** Performing First Aid, Post Accident Clean-up
  - **Yard Supervisor:** Performing First Aid, Post Accident Equipment Clean-up
  - **General Laborers:** Maintenance of Sanitary Sewer Lines, Post Accident Equipment Clean-up.
  - **Utility/Janitorial Person:** All Construction Locations, General Janitorial

All exposure determinations, for Category I and Category II were made without regard to the use of Personal Protective Equipment.

Methods of Implementation and Control

- **Universal Precautions**: All employees will utilize Universal Precautions. Universal Precautions is an infection control method that requires employees to assume that all human blood and human body fluids are infectious for HIV, HBV and other Bloodborne Pathogens and must be treated accordingly.
- **Exposure Control Plan (ECP)**: Employees covered by the Bloodborne Pathogens Standard will receive an explanation of this ECP during their initial training session. It will also be reviewed in their annual refresher training. A copy of the Plan will be made available free of charge and within 15 days of the request.
- **Engineering Controls and Work Practices**: Engineering controls and work practice controls will be used to prevent or minimize exposure to Bloodborne Pathogens. Our engineering controls (i.e., sharps containers, etc.) will be inspected and maintained or replaced by the Site Foreman every week.

Engineering Controls	▪ Puncture-resistant disposal containers for contaminated sharps or broken glass. ▪ Bio-Safety cabinets. 
Work Practices	▪ Providing readily accessible hand washing facilities. ▪ Washing hands immediately or as soon as feasible after removal of gloves. ▪ Washing body parts as soon as possible after skin contact with blood or other potentially infectious materials occurs. ▪ Labeling.  ▪ Equipment decontamination. ▪ Prohibiting eating, drinking, and smoking, applying cosmetics or lip balm and handling contact lenses in work areas where there is a likelihood of occupational exposure. ▪ Prohibiting food and drink from being kept in refrigerators, freezers, shelves, cabinets or on countertops or bench tops where blood or other potentially infectious materials are present. ▪ Requiring that all procedures involving blood or other potentially infectious materials shall be performed in such a manner as to minimize splashing, splattering, and generation of droplets of these substances. ▪ Examining equipment that may become contaminated with blood or other potentially infectious materials prior to servicing or shipping and decontaminating such equipment as necessary. Items will be labeled per the standard if not completely decontaminated

- **Personal Protective Equipment (PPE):** Shall be used if occupational exposure remains after instituting engineering and work practice controls, or if controls are not feasible. Training will be provided by the Site

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Foreman and/or Site Superintendent in the use of the appropriate personal protective equipment for employees' specific job classifications and tasks/procedures they will perform. PPE Items include, but are not limited to:

- Gloves
- Face Shields
- Masks
- Eye Protection (Splash-proof goggles, safety glasses w/side shields)
- Mouthpieces
- Chemical Protective Suit (Tyvek Suit)
- Shoe Covers & Caps

Master Construction Solutions adheres to the following practices to ensure that personal protective equipment is not contaminated and is in the appropriate condition to protect the individual from potential exposure.

- Wash hands immediately or as soon as feasible after removal of gloves or other personal protective equipment. Approved alcohol-based waterless hand cleansers or towelettes will be used when handwashing facilities are not feasible or available. Hands will then be washed with soap and running water as soon as possible.
- Reusable personal protective equipment is cleaned, laundered, and decontaminated as needed at no cost to the employee.
- Equipment that cannot be decontaminated and must be discarded must be forwarded on to the Construction Foreman and/or Site Supervisor for discarding by approved procedures and in an approved container.
- Any garment penetrated by blood or other potentially infectious materials shall be removed immediately, or as soon as possible.
- All personal protective equipment shall be removed prior to leaving a work area and placed in an appropriate designated area or container for storage, washing, decontamination, or disposal.
- Disposable gloves shall be replaced as soon as practical after contamination, or if they are torn, punctured, or otherwise lose the ability to function as an "exposure barrier."
- Utility gloves shall be decontaminated for reuse unless they become cracked, peeling, torn, or exhibit other signs of deterioration, at which time they will be disposed of.
- Masks and eye protection (such as goggles, face shields, glasses, etc.) shall be used whenever splashes or sprays may generate droplets of infectious materials.
- Caps/hoods and or shoe covers/boots shall be used in any instances where "gross contamination" is anticipated.
- An appropriate ANSI approved Chemical Protective Suit w/hood, appropriate face, and eye protection, such as a mask with glasses with solid side shields and/or a chin length face shield shall be worn when working on or removing a sanitary sewer line.
- Repair and/or replacement of PPE will be at no cost to employees.

Hepatitis B Vaccination

- The Hepatitis B Vaccination series will be made available at no cost within 10 days of initial assignment to employees who have occupational exposure to blood or other potentially infectious materials unless:
  - The employee has previously received the series.
  - Antibody testing reveals that the employee is immune.
  - Medical reasons prevent taking the vaccination.
  - The employee chooses not to participate.
- If an employee chooses to decline HB vaccination, then the employee must sign a statement to this effect.
  - Employees who decline may request and obtain the vaccination later at no cost. Documentation of refusal of the HB vaccination will be kept at the Main Office with the employee's other medical records.

Post-Exposure Evaluation and Follow-Up

- Should an exposure incident occur contact the Site Foreman, Site Superintendent, or Safety Director immediately. Each exposure must be documented by the employee on an "Exposure Incident Form".
- An immediately available confidential medical evaluation and follow-up will be conducted by the nearest Medical Care Facility. The following elements will be performed:
  - Document the routes of exposure and how exposure occurred.
  - Identification of the source individual (unless infeasible or prohibited by law.)
  - Obtain consent and test the source of an individual's blood as soon as possible to determine HIV and HBV infectivity and document the source's blood test results.
  - If the source individual is known to be infected with either HIV or HBV, testing need not be repeated to determine the known infectivity.

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- Provide the exposed employee with the source individual's test results and information about applicable disclosure laws and regulations concerning the source identity and infectious status.
- After obtaining consent, collect exposed employee's blood as soon as feasible after the exposure incident and test blood for HBV and HIV serological status.
- If the employee does not give consent for HIV serological testing during the collection of blood for baseline testing, preserve the baseline blood sample for at least 90 days.

➢ The Site Superintendent will review the circumstances of the exposure incident to determine if procedures, protocols and training need to be revised.

Housekeeping

➢ The Safety Director has developed and implemented a written schedule for cleaning and decontaminating work surfaces as indicated by the standard. It is as follows:

Area	Scheduled Cleaning (Day/Time)	Specific Instructions
First Aid Treatment Areas	When Surfaces Become Contaminated	➢ Use Bleach 1:10 Solution or Hospital Grade Disinfectant. ➢ Wearing Gloves & Safety Glasses w/Side Shields, wash all contaminated surfaces.
Contaminated Work Surfaces	When Surfaces Become Contaminated	➢ Use Bleach 1:10 Solution or Hospital Grade Disinfectant. ➢ Wearing Gloves & Safety Glasses w/Side Shields, wash all contaminated surfaces

➢ Decontaminate work surfaces with an appropriate disinfectant after completion of procedures, immediately when overtly contaminated, after any spill of blood or other potentially infectious materials, and at the end of the work shift when surfaces have become contaminated since the last cleaning.

➢ Inspect and decontaminate, on a regular basis, reusable receptacles such as bins, pails and cans that have a likelihood for becoming contaminated. When contamination is visible, clean and decontaminate receptacles immediately or as soon as feasible.

➢ Always use mechanical means such as tongs, forceps, or a brush and a dustpan to pick up contaminated metal shavings, broken glass, etc.; never pick up with hands even if gloves are worn.

➢ Place regulated waste in closable and labeled or color-coded containers. When storing, handling, transporting, or shipping, place other regulated waste in containers that are constructed to prevent leakage.

➢ When discarding contaminated sharps, place them in containers that are closable, puncture-resistant, appropriately labeled or color coded, and leak-proof on the sides and bottom.

➢ Ensure that sharps containers are easily accessible to personnel and located as close as feasible to the immediate area where sharps are used or can be reasonably anticipated to be found. Sharps containers also must be kept upright throughout use, replaced routinely, closed when moved, and not allowed to overfill.

➢ Never manually open, empty, or clean reusable contaminated sharps disposal containers.

➢ All items that have been contaminated with blood or other potentially infectious materials are to be disposed of as a regulated waste. While it is not practical or economically feasible to place specially designed waste receptacles at all Master Construction Solutions facilities and work sites, this does not diminish the requirement for proper labeling, handling, and disposal of biohazardous materials. If there is waste material generated which contains or is contaminated with blood or body fluids, the following steps shall be taken:

➢ Do not handle in any manner contaminated items without the proper PPE.

➢ Place all contaminated items in a sealable container being careful not to contaminate the outside of the container.
- If the contaminated item is sharp or likely to puncture the container, use a container that is sufficiently sturdy to prevent the puncture of the container walls.
- Label the container prominently to identify that the contents are blood and/or body fluids – a biological hazard.
- Place the container in a secure area with the label completely visible.

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- Dispose of gloves and other protective equipment in the same container. Ensure that glove outer surfaces do not touch the skin as they are removed.
- Notify the Site Foreman immediately. The Site Foreman will make the necessary arrangements to have the waste material properly contained, labeled, and disposed of.

➢ Site Foremen will maintain appropriate regulated biohazardous waste containers with appropriate labeling and use these containers for the disposal of contaminated articles.

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Date of Incident:	Time of Incident:	Location of Incident:

Potentially Infectious Materials Involved	
Type:	Source:
Type:	Source:

Circumstances (work being performed, etc.):

How Incident Was Caused (accident, equipment malfunctions, etc.):

Personal Protective Equipment Being Used:

Actions Taken (Decontamination, Clean-up, Reporting, etc.):

Recommendations For Avoiding Repetition:

Name of Person Completing Report:	Signature of Person Completing Report:
Title of Person Completing Report:	Date Report Completed:

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Post-Exposure Evaluation and Follow-Up Checklist

The following steps must be taken, and information transmitted, in case of an individual's exposure to Bloodborne Pathogens:

Fill in the appropriate completion date for each action in the blank following the description:

Description	Date Completed
1) Employee furnished with documentation regarding exposure incident.	_____
2) Source individual identified (Name _____.)	_____
3) Source Individual's blood tested, and results given to exposed individual.	_____
4) Consent could not be obtained (Name _____.)	_____
5) Exposed person's blood collected and tested.	_____
6) Appointment made for exposed person to see health care professional.	_____
7) Name of Health Care Professional _____	_____
8) Documentation forwarded to Health-care Professional:	
▪ Bloodborne Pathogen Standard	_____
▪ Description of Exposed Person's Duties	_____
▪ Description of Exposure Incident, Including route(s) of Exposure	_____
▪ Result of Source Individual's Blood Testing	_____
▪ Exposed Person's Medical Records	_____

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Bloodborne Pathogens

In The Workplace

What are blood-borne viruses (BBV)?

BBVs are viruses that some people carry in their blood and which may cause severe disease in certain people and few or no symptoms in others. The virus can spread to another person, whether the carrier of the virus is ill or not.

The main BBVs of concern are:

- Hepatitis B virus (HBV), Hepatitis C virus & Hepatitis D virus, which all cause hepatitis, a disease of the liver.
- Human Immunodeficiency virus (HIV) which causes acquired immune deficiency syndrome (AIDS) affecting the immune system of the body.

These viruses can also be found in body fluids other than blood, for example, semen, vaginal secretions and breast milk. Other body fluids or materials such as urine, feces, saliva, sputum, sweat, tears and vomit carry a minimal risk of BBV infection, unless they are contaminated with blood. Care should still be taken as the presence of blood is not always obvious.

How can BBVs Spread in the workplace?

It is very unlikely that you will become infected through everyday social contact with another worker who has a BBV. BBVs are mainly transmitted sexually or by direct exposure to infected blood or other body fluids contaminated with infected blood. In the workplace, direct exposure can happen through accidental contamination by a sharp instrument, such as a needle or broken glass. Infected blood may also spread through contamination of open wounds, skin abrasions, skin damage due to a condition such as eczema, or through splashes to the eyes, nose or mouth.

What action should be taken after a possible infection with a BBV?

If you are contaminated with blood other body fluids, take the following action without delay:

- Wash splashes off your skin with soap and running water;
- If your skin is broken, encourage the wound to bleed, do not suck the wound - rinse thoroughly under running water;
- Wash out splashes in your eyes using tap water or an eye wash bottle, and your nose or mouth with plenty of tap water - do not swallow water;
- Report the incident to your supervisor and your occupational health department or medical advisor if your company has one.

Prompt medical advice is important. The circumstances of the incident need to be assessed and consideration given to any medical treatment required. Treatment might be appropriate following infection with a BBV, but to be effective, it may need to be started quickly.

If you think you may have been infected with a BBV, you should have access to support, advice and reassurance. If there is no medical advisor on site, contact your GP, or the nearest Occupational Health and Safety Clinic or Emergency Treatment Facility immediately.

Immunization

Immunization (vaccination) is available against HBV, but not other BBVs. Immunization should only be seen as a supplement to reinforce other control measures.

- Three doses over 6 months;
- Must receive all three doses $\geq$ 79% effective;
- Free to employees who meet the criteria of exposure;
- May decline vaccine (but must sign waiver);
- May receive vaccine later.

Special considerations for first aiders.

If you are a first aider in the workplace, the risk of being infected with a BBV while carrying out your duties is small. The following precautions can be taken to reduce the risk of infection:

- Wear suitable disposable gloves when dealing with blood or any other body fluids;
- Use suitable eye protection and a disposable plastic apron where splashing is possible.
- Use devices such as face shields when you give mouth-to-mouth resuscitation, but only if you have been trained to use them.
- Wash your hands after each procedure.

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General Safety Guidelines Policy

Responsibilities

Employer Responsibilities:

- Master Construction Solutions shall:
  - furnish to each of their employees' employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees, and
  - comply with all local, state, and federal occupational safety and health standards.

Employee Responsibilities:

- Each employee shall:
  - comply with occupational safety and health standards and all rules, regulations, and orders issued which are applicable to his/her own actions and conduct.

Contactor Requirements

As a condition of doing business with Master Construction Solutions, all Contractors must comply with applicable local, state, federal regulatory requirements and our company safety policies and procedures. These include, but are not limited to:

- Provide access to SDS material upon request and follow the OSHA Hazard Communication Standard requirements.
- Conduct daily safety inspections of all assigned areas.
- Identify and correct hazards.
- Provide Contractor Employees with the required personal protective equipment.
- Ensure Contractor Employees have the proper training for assigned tasks.
- Coordinate with Master Construction Solutions for safety related issues.
- Establish and maintain an effective Safety and Health Program.
- Establish and maintain an effective Housekeeping Program.
- Site Specific Safety Plans and/or Requirements

Any contractor that does not meet these requirements will not be permitted to work for Master Construction Solutions. To ensure compliance Master Construction Solutions reserves the right to review contractors' safety programs, safety training documents and safety statistics.

All contractor employees shall adhere to all other Master Construction Solutions policies, including but not limited to drug and alcohol policies, company equipment, use of controlled substances, firearm & explosive restrictions, and harassment of other persons.

Contractors are required to participate in pre-job meetings, safety orientations, safety meetings, job safety analysis or hazard assessments, on job safety inspections, etc.

Post-job safety performance reviews will be conducted on all contractors.

General Safety Requirements

- Job sites, materials, equipment, and tools will be frequently and regularly inspected by a competent person designated by Master Construction Solutions to ensure safety.
- The use of any machinery, tool, material, or equipment which is not in compliance with any applicable requirement is prohibited. Such machine, tool, material, or equipment shall either be identified as unsafe by tagging or locking the controls to render them inoperable or shall be physically removed from its place of operation.
- Only those employees qualified by training or experience shall be permitted to operate equipment and machinery.
- Employees shall be instructed in the recognition and avoidance of unsafe conditions and the regulations applicable to his/her work environment to control or eliminate any hazards or other exposure to illness or injury.

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- Employees required to handle, or use, harmful substances, flammable liquids, gases, or toxic materials shall be instructed in the safe handling and use of these materials and made aware of the potential hazards, and personal protective measures required. (See Master Construction Solutions's Hazard Communication Program for additional information.)
- All employees required to enter confined or enclosed spaces shall be instructed as to the nature of the hazards involved, the necessary precautions to be taken, and in the use of protective and emergency equipment required. The employer shall comply with any specific regulations that apply to work in dangerous or potentially dangerous areas. (See Master Construction Solutions's Confined Space Policy for additional information.)

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Hand/Power Tool Safety Policy

Use of tools makes many tasks easier. However, the same tools that assist us, if improperly used or maintained, can create significant hazards in our work areas. At Master Construction Solutions, employees who use tools must be properly trained to use, adjust, store and maintain tools properly. This policy and procedure cover hand, electrical, pneumatic, powder driven, and hydraulic tool safety.

Responsibilities

- **Management:**
  - Provide correct tools for assigned tasks.
  - Ensure tools are maintained in a safe condition and stored safely.
  - Provide employee training.
  - Provide for equipment repair.
- **Employees:**
  - Follow proper tool safety guidelines.
  - Report tool deficiencies and malfunctions.
  - Properly store tools when work is completed.

Hazard Controls

- **Engineering:**
  - Properly designed tools.
  - Guards and Safety Devices.
- **Administrative:**
  - Tool sharpening program.
  - Use of Personal Protective Equipment (PPE).
  - Control of tool issue.
  - Employee training.
  - Controlled access to equipment and tool areas.

General Safety Precautions

Master Construction Solutions employees who use hand and power tools and who are exposed to the hazards of falling, flying, and abrasive objects, or exposed to harmful dusts, fumes, mists, vapors, or gases must be provided with the particular PPE to protect them from the hazard. Master Construction Solutions is responsible for the safe condition of tools and equipment used by employees. This also includes tools that are furnished by the employees.

All hazards involved in the use of tools can be prevented by following the five basic safety rules:

- Keep all tools in good/safe condition with regular maintenance.
- Use the right tool for the job.
- Examine each tool for damage before use.
- Operate according to the manufacturer's instructions.
- Provide and use the proper PPE.

Hand Tools

- Hand tools are non-powered. They include anything from axes to wrenches. The greatest hazards posed by hand tools result from misuse and improper maintenance. Some examples:
  - Using a screwdriver as a chisel may cause the tip of the screwdriver to break and fly, hitting the user or other employees.
  - If a wooden handle on a tool such as a hammer or an axe is loose, splintered, or cracked, the head of the tool may fly off and strike the user or another worker.
  - A wrench must not be used if its jaws are sprung, because it might slip.

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- Impact tools such as chisels, wedges, or drift pins are unsafe if they have mushroomed heads. The heads might shatter on impact, sending sharp fragments flying.

- Appropriate PPE (i.e., safety goggles, gloves, etc.), should be worn due to hazards that may be encountered while using portable power tools and hand tools.
- Floors shall be kept as clean and dry as possible to prevent accidental slips with or around dangerous hand tools.
- Around flammable substances, sparks produced by iron and steel hand tools can be a dangerous ignition source. Where this hazard exists, spark-resistant tools made from brass, plastic, aluminum, or wood will provide safety.

Power Tool Precautions

- Power tools can be hazardous when improperly used. There are several types of power tools, based on the power source they use: electric, pneumatic, liquid fuel, hydraulic, and powder actuated. The following general precautions should be observed by power tool users.
  - Never carry a tool by the cord or hose.
  - Never yank the cord or the hose to disconnect it from the receptacle.
  - Keep cords and hoses away from heat, oil, and sharp edges.
  - Disconnect tools when not in use, before servicing, and when changing accessories such as blades, bits and cutters.
  - All observers should be kept at a safe distance away from the work area.
  - Secure work with clamps or a vise, freeing both hands to operate the tool.
  - Avoid accidental starting. The worker should not hold a finger on the switch button while carrying a plugged-in tool.
  - Tools should be maintained with care. They should be kept sharp and clean for the best performance. Follow instructions in the user's manual for lubricating and changing accessories.
  - Be sure to keep good footing and maintain good balance.
  - The proper apparel should be worn. Loose clothing, ties, or jewelry can become caught in moving parts.
  - All portable electric tools that are damaged shall be removed from use and tagged ***"Do Not Use."***
  - Any tool which is not in compliance with the requirements in this policy is prohibited, and must be identified as "unsafe" by tagging or locking the controls to render the tool/equipment inoperable.

Guards

Hazardous moving parts of a power tool need to be safeguarded. For example, belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating, or moving parts of equipment must be guarded, and guarding must be in place when in use.

- Guards, as necessary, should be provided to protect the operator and others from the following:
  - Point of Operation
  - In-Running Nip Points
  - Rotating Parts, and
  - Flying Chips and Sparks
- Safety guards must never be removed when a tool is being used. The following are examples of guards to be used:
  - Portable circular saws with a blade diameter greater than 2 inches must have guards above and below the base plate. Both guards must cover the depth of the teeth. The lower guard shall move when the saw is placed against the work material, but when the saw is withdrawn from the work material the guard will automatically and instantly return to the covered position.
  - Tools without positive accessory holding capabilities must be equipped with a constant pressure switch or control that will shut off the power when pressure is released.
  - All hand-held drills, tappers, fasteners, horizontal, vertical and angle grinders (with a wheel greater than 2 inches), and other similar tools shall be equipped with a pressure switch or control, with the ability to be locked in the on position, but a swift finger movement can disengage the switch or control.
  - Hand-held tools similar to the above-mentioned hand-held tools, but with a wheel 2 inches or less may have a positive on/off switch or control.
  - Pneumatic power tools and hoses must have a retainer clip on each piece of hose and equipment (without such retainer the hose or equipment could be ejected).

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Safety Switches

- The following hand-held powered tools are to be equipped with a momentary contact "on-off" control switch:
  - Drills
  - Tappers
  - Fastener Drivers
  - Horizontal, Vertical and Angle Grinders with wheels larger than 2 inches in diameter.
  - Disc & Belt Sanders
  - Reciprocating and Saber Saws
  - Other Similar Tools
- Other hand-held powered tools such as circular saws having a blade diameter greater than 2 inches, chain saws, and percussion tools without positive accessory holding means must be equipped with a constant pressure switch that will shut off the power when the pressure is released.

Electrical Safety

Among the chief hazards of electric-powered tools are burns and slight shocks that can lead to injuries or even heart failure. Under certain conditions, even a small amount of current can result in severe injury and eventual death. A shock also can cause the user to fall off a ladder or other elevated work surface.

- To protect the user from shock, tools must either have a three-wire cord with ground and be grounded, be double insulated, or be powered by a low-voltage isolation transformer. Three-wire cords contain two current-carrying conductors and a grounding conductor. One end of the grounding conductor connects to the tool's metal housing. The other end is grounded through a prong on the plug. The third prong should never be removed from the plug.
- Double insulation is more convenient. The user and the tools are protected in two ways: by normal insulation on the wires inside, and by a housing that cannot conduct electricity to the operator in the event of a malfunction.
- **Electric Power Tool General Safety Practices:**
  - Electric tools should be operated within their design limitations.
  - Gloves and safety footwear are recommended during use of electric tools.
  - When not in use, tools should be stored in a dry place.
  - Electric tools should not be used in damp or wet locations.
  - Work areas should be well lighted.

Pneumatic Tools

Pneumatic tools are powered by compressed air and include chippers, drills, hammers, and sanders. There are several dangers encountered in the use of pneumatic tools. The main one is the danger of getting hit by one of the tool's attachments or by some kind of fastener the worker is using with the tool. Eye protection is required, and face protection is recommended for employees working with pneumatic tools. Working with noisy tools such a jackhammer requires proper, effective use of hearing protection.

- When using pneumatic tools, employees are to check to see that they are fastened securely to the hose to prevent them from becoming disconnected. A short wire or positive locking device attaching the air hose to the tool will serve as an added safeguard.
- A safety clip or retainer must be installed to prevent attachments, such as chisels on a chipping hammer, from being unintentionally shot from the barrel.
- Screens must be set up to protect nearby workers from being struck by flying fragments around chippers, riveting guns, staplers, or air drills.
- Compressed air guns should never be pointed toward anyone. Users should never "dead-end" it against themselves or anyone else.

Powder-Actuated Tools

Powder-actuated tools operate like a loaded gun and should be treated with the same respect and precautions. In fact, they are so dangerous that they must be operated only by specially trained employees (i.e., trained by the manufacturer or other Competent Person).

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- Powder-Actuated Tool Safety:
    - These tools should not be used in an explosive or flammable atmosphere.
    - Before using the tool, the worker should inspect it to determine that it is clean, that all moving parts operate freely, and that the barrel is free from obstructions.
    - The tool should never be pointed at anybody.
    - The tool should not be loaded unless it is to be used immediately. A loaded tool should not be left unattended, especially where it would be available to unauthorized persons.
    - Hands should be kept clear of the barrel end. To prevent the tool from firing accidentally, two separate motions are required for firing:
        - One to bring the tool into position, and
        - Another to pull the trigger.
    - The tools must not be able to operate until they are pressed against the work surface with a force of at least 5 pounds greater than the total weight of the tool.
- If a powder-actuated tool misfires, the employee should wait at least 30 seconds, then try firing it again. If it still will not fire, the user should wait another 30 seconds so that the faulty cartridge is less likely to explode, then carefully remove the load. The bad cartridge should be put in water.
- Suitable eye and face protection are essential when using a powder-actuated tool.
- The muzzle end of the tool must have a protective shield or guard centered perpendicularly on the barrel to confine any flying fragments or particles that might otherwise create a hazard when the tool is fired. The tool must be designed so that it will not fire unless it has this kind of safety device.
- All powder-actuated tools must be designed for varying powder charges so that the user can select a powder level necessary to do the work without excessive force.
- If the tool develops a defect during use it should be tagged and taken out of service immediately until it is properly repaired.

Powder-Actuated Tool Fasteners:

- When using powder-actuated tools to apply fasteners, there are some precautions to consider. Fasteners must not by fired into material that would let them pass through to the other side. The fastener must not be driven into materials like brick or concrete any closer than 3 inches to an edge or corner. In steel, the fastener must not come any closer than ½ inch from a corner or edge. Fasteners must not be driven into very hard or brittle materials that might chip, splatter or make the fastener ricochet.
- An alignment guide must be used when shooting a fastener into an existing hole. A fastener must not be driven into a spalled area caused by an unsatisfactory fastening.

Personal Protective Equipment (PPE)

Master Construction Solutions is responsible for providing the employee with the designated PPE that is required for every type of hand/power tool that the employee will be subjected to using, and to ensure that the employee id trained on how to use the PPE.

- Types of PPE include:
    - Face shields for flying debris
    - Gloves to protect against abrasions
    - Hearing protection for loud tools/equipment
    - Safety glasses for the possibility of flying objects
    - Respirators for any fumes or particulates that may be generated
    - Safety shoes/boots to protect from falling objects
    - Hardhats to protect from falling objects

Master Construction Solutions is responsible to ensure that employees are properly trained in the use of the PPE, using the PPE properly, and to ensure that the proper PPE is being selected. Any time that the tool or job changes the PPE should be re-evaluated.

DO NOT USE DAMAGED PPE, DISPOSE OF IT PROPERLY

Hydraulic Power Tools

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The fluid used in hydraulic power tools must be an approved fire-resistant fluid and must retain its operating characteristics at the most extreme temperatures to which it will be exposed. The manufacturer's recommended safe operating pressure for hoses valves, pipes, filters, and other fittings must not be exceeded.

Jacks:

- All jacks - lever and ratchet jacks, screw jacks, and hydraulic jacks – must have a device that stops them from jacking up too high. Also, the manufacturer's load limit must be permanently marked in a prominent place on the jack and should not be exceeded.
- A jack should never be used to support a lifted load. Once the load has been lifted, it must immediately be blocked up.
- Use wooden blocking under the base if necessary to make the jack level and secure. If the lift surface is metal, place a 1-inch-thick hardwood block or equivalent between it and the metal jack head to reduce the danger of slippage.
- To set up a jack, make certain of the following:
    - The base rests on a firm level surface.
    - The jack is correctly centered.
    - The jack head bears against a level surface, and
    - The lift force is applied evenly.
- Proper maintenance of jacks is essential for safety. All jacks must be inspected before each use and lubricated regularly. If a jack is subjected to an abnormal load or shock, it should be thoroughly examined to make sure it has not been damaged.
- Hydraulic jacks exposed to freezing temperatures must be filled with an adequate antifreeze liquid.

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Portable Grinder Safety

Inspection & Testing

- Upon obtaining a portable grinder, check that it does not vibrate or operate roughly.
- Before an abrasive wheel is mounted, it must be inspected closely for cracks and defects. And ring test if recommended by the manufacturer.
- To test a wheel, tap it gently with a light, non-metallic instrument. If the wheel emits a cracked or dead sound, it must not be used because it could fly apart in operation. A stable or undamaged wheel will give a clear metallic tone or ring when tapped.
- Any equipment or parts that do not pass inspection or are not operating properly should be removed from service and tagged "Do Not Use" until they are repaired.

Operating the Grinder

- Portable grinders should be equipped with guards. Guards provide protection against abrasive wheel breakage while rotating during grinding/buffing operations. If a damaged guard is observed, it should be replaced immediately.
- Preparation. Before starting the grinder, personnel not involved with the immediate work should remain at a safe distance. Flammable materials should also be removed from the work area. Work should be secured with clamps or a vice to free both hands to operate the tool.
- Starting. Employees should ensure a secure base and stable footing by keeping the work area free of tripping hazards. When starting the grinder, workers should stand away from the wheel and prepare for a kick back. To avoid accidental starting, instruct employees not to keep their fingers on the switch button while carrying or plugging in tool.

Changing Wheels

Abrasive wheels should not be forced onto a grinder nor should the mounting hole sizes be changed. To control cracking of the abrasive wheels, they must fit freely on the spindle and be tightened to hold the wheel in place without distorting the flange. In addition, the mounting nut should not be tighten excessively. Always follow the manufacturer's instructions.

Other precautions:

- Ensure that equipment will not operate when unattended by checking the constant pressure (dead man) switch.
- Do not use liquid coolants with portable grinders. It could cause the metal to shatter.
- Do not wear loose fitting clothing, jewelry or other items that could become entangled in moving parts.
  - Tuck or secure long hair.

Maintenance and Storage

Make these tips part of your procedures to maintain and store portable grinders:

- Store portable grinders on racks or hooks, not on the ground.
- Clean and service grinders according to the manufacturer's recommendations, including lubricating and changing accessories.
- Keep a written maintenance record on portable grinders, as well as other power tools.

Electrical Hazards

- An additional hazard from grinder use is electrical shock, which can lead to injuries or even burns and heart failure. Under certain conditions, even a small amount of electric current can result in fibrillation of the heart and death.
- Shock can also cause a secondary type accident such as a fall or struck-against incident.

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Hand Tools

General Safety Rules

Appropriate personal protective equipment, e.g., eye wear, gloves, etc., should be worn due to hazards that may be encountered while using portable power tools and hand tools.

Safety requires that floors be kept as clean and dry as possible to prevent accidental slips with or around dangerous hand tools.

When working around flammable substances, sparks produced by iron and steel hand tools can be a dangerous ignition source. Where this hazard exists, spark-resistant tools made from brass, plastic, aluminum, or wood will provide for safety.

Saw blades, knives, or other tools should be directed away from aisle areas and other employees working in close proximity. Knives and scissors must be sharp. Dull tools can be more hazardous than sharp ones.

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Hand tools are hand operated implements, which call for a certain degree of safety, while using them.

Do's :

- Always wear eye protection when using hand tools.
- Always wear appropriate clothing when working with hand tools.
- Treat/handle all hand tool instruments with care.
- Be knowledgeable as to the proper hand tools to use for various jobs.

Don'ts :

- Don't use torque wrenches to pry apart components.
- Don't use leverage extension "cheater bars" on a wrench handle.
- Never pull on a loosely adjusted wrench.
- Be certain wrench fits nut tightly.
- Don't hammer on a wrench.
- Wrenches are to be used with muscle power only.
- Pipe wrenches are for turning and holding, don't use them for lifting or bending.
- Never expose pliers to excessive heat.
- Don't hammer with pliers.
- Never cock or tilt an open-end wrench.
- Don't bend stiff wire with plier's tip.
- Don't bend heavy bars on light duty vises.
- Don't use pliers on round shank or handle of screwdrivers for added turning power.
- Don't use sheet metal cutting snips to cut heavy wire. There are tools for this purpose.
- Don't use screwdrivers to pry anything apart.
- Don't use a tool box, chest or cabinet as an anvil or for a similar purpose.
- Don't use a screwdriver as a punch or chisel.
- Don't use a screwdriver to test for current.
- Never use a striking or struck tool with a loose or damaged handle. Replace or secure properly.
- Never use any struck tool with a mushroomed, chipped or damaged head.
- Never strike chisels or other hard objects with a nail hammer, as the hammer may chip and cause eye or other bodily injury.
- Never strike one hammer with another or with a hatchet.
- Never use a hot chisel for cutting stone, concrete or cold metal.
- Never strike a metal object with the striking face of an axe.
- The axe striking face should only be used to drive soft objects such as wood or plastic stakes.
- Never use a bricklayer's hammer to strike metal or other tools.
- Don't use brick chisels on metal. They are strictly for masonry.
- Never drive one maul by striking with another maul, sledge or other striking tool.
- Never use a drift pin as a punch.

Every tool has a correct use; Always use the right tool for the job!

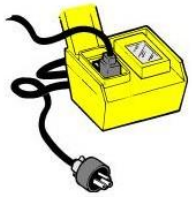
Power Tool Safety Tips

Portable power tools present greater accident hazards than hand tools. Nearly all power tool accidents are caused by improper handling and poor maintenance. Power tools should be used only after becoming thoroughly familiar with their controls, safety requirements and operating procedures. The categories which most power tools fall under are electric power tools, fuel-powered tools, powder-actuated tools, pneumatic power tools and hydraulic power tools.

- Wear the proper personal protective equipment for the job.
- Before you use it, inspect the tool for broken parts, loose bolts, defective or broken cord insulation, plugs or switches, or improper connections.
- Only use equipment that's in good condition.
- Test the tool before you use it. For example, for a cutting tool, test its sharpness with a piece of wood, not your fingers.
- To prevent shock, make sure your tool is properly grounded and double-insulated.
- Keep power cords away from heat, sharp objects and chemicals that could damage their insulation.
- Be sure to keep your work area dry.
- Never use electrical equipment when your hands are wet or any part of you is touching water.
- If you must work in a wet area, keep the power cord clear of wet surfaces and use a ground fault circuit interrupter (GFCI).



- Keep your work area free of debris.



- Use tools in well-lit areas.
- Never use electric tools where flammable vapors or gases are present.
- Report unsafe conditions, such as defective cord insulation, poor connections to terminals, broken switches or plugs, sparking or overheating equipment, and outlets without GFIC's in damp areas.
- Never carry a power tool by the cord or hose.
- Disconnect tools before changing accessories, such as blades, bits or cutters, and before servicing or inspecting them.
- Secure your work material with clamps or a vise if possible.
- Avoid wearing clothing or jewelry that may become caught in a tool.
- Report equipment as unsafe if it has insulation defects, if it sparks or if you feel any shock or tingling when using it.
- Start and end from "off." Make sure the power switch is off before plugging in equipment. When you're finished, turn the equipment off before unplugging it to protect yourself and the next user.
- When you turn off a tool, let it stop completely before putting it down in a safe place.
- Never horseplay around power tools.
- Avoid kinking, cutting or crushing any electrical cord.
- If equipment has a three-prong plug, use a three-slot outlet or extension cord.
- Avoid overstraining equipment by using it improperly.
- Service Equipment regularly and repair or replace it as needed.
- Pay attention to the direction of the tool's rotation. You're responsible for seeing that no one is in the path of flying objects.
- Use the switch lock only when the tool is in a stand or jig.
- Make sure you have good footing when you're using heavy tools or working at an awkward angle, such as overhead.
- Portable electric saws usually include the necessary guards to protect the operator. Never operate electric power saws with guards that are not functioning properly or are missing.



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Hazard Identification and Risk Assessment Policy

Each worksite/existing structure will be assessed (by a Qualified/Competent Person) to determine if hazards are present which necessitate the use of personal protective equipment (PPE). Sites will be assessed for routine and non-routine activities as well as new procedures, changes in operation and products or services. If it is determined that such hazards are present, where applicable, Master Construction Solutions will eliminate the hazard, control the hazard, or select personal protective equipment for the affected employees. All changes will be communicated and reviewed with all affected employees, regardless of status.

- At a minimum, the Job Hazard Assessment shall consist of:
  - A "walk-through" survey to identify hazard sources based on general hazard categories.
  - Observation of the sources.
  - Organizing data from the survey.
  - Analyzing data from the survey.
  - Conference with affected employees for input and review.
    - Affected employees will be trained in the hazard identification process so that they can actively participate in the hazard identification process.
- The basic hazard categories that should be considered in the walk-through survey are:
  - Impact
  - Penetration
  - Compression (roll-over)
  - Chemical
  - Heat
  - Harmful Dust
  - Light (optical radiation)
- The Job Hazard Assessment form provides the user with a formal and accurate assessment of worksite hazards. The form focuses on head, eye and face, hand and arm, and foot and leg hazards. Forms of hazard assessments that are already in place at Master Construction Solutions are:
  - Hearing Conservation Program (Noise Hazards)
  - Respiratory Protection Program
  - Hazard Communication Program (HAZCOM)
- Keys to Job Hazard Assessment are recognizing, evaluating, and controlling hazards. During the assessment a determination will be made if the hazard can be eliminated.
  - Whenever possible, engineering and administrative controls will be used first to eliminate or reduce employee exposure to any workplace hazard.
- If hazards are present, then a Risk Assessment shall be done so Master Construction Solutions can:
  - Eliminate the hazard. This is the most effective measure. These techniques, when possible, will be used to eliminate the hazard(s):
    - Choose a different process;
    - Modify an existing process;
    - Substitute with a less hazardous substance;
    - Improve environment (i.e., ventilation);
    - Modify or change equipment or tools.
  - Contain the hazard. If the hazard cannot be eliminated, contact might be prevented using enclosures, machine guards, worker booths or similar devices.
- If the hazard(s) cannot be eliminated, or contained, Master Construction Solutions will select the type(s) of PPE that will best protect the affected employee(s) from the identified hazard(s).
  - Master Construction Solutions will communicate selection decisions to each affected employee.
  - Select PPE that properly fits each affected employee.
  - Train affected employees in the proper use and care of all PPE.

Hazards are to be identified, classified/prioritized, and addressed based on the risk associated with the task. All potential hazards, regardless of severity, must be analyzed to determine how to eliminate or control that hazard.

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After new procedures are implemented, a review will be conducted to ensure that the corrective measures taken are effective and have not created additional or new hazards. This process will continue until no additional hazards are found.

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Hazard Identification & Risk Assessment Worksheet

Job Description		Location/Site		Master Construction Solutions		Date
Sequence of Basic Steps		Potential Significant Hazards		Hazard Control Method		
List the steps required to complete the job. (Follow the flow of the Product or the Process.)		List the potential SIGNIFICANT hazards beside each step. Focus on what can cause harm and what can go wrong. Use Analysis List below.		List the control methods required to ELIMINATE, ISOLATE, or MINIMIZE each SIGNIFICANT hazard.		Person responsible to implement control(s).
Step No.		Step No.		E/I/M		

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Analysis List

To help identify hazards, for each step ask - Can I ?

- Strain or sprain my back or other muscle
- Be Caught in anything
- Slip, trip or fall on the same or different level
- Cause a fire, property damage or pollution
- Be struck by or against anything
- Come into contact with a hazardous substance
- Come into contact with an energy source

PPE Required					T/A Completed by	
Signage Required					Date	

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Hazardous Waste/Emergency Response Policy

Purpose

- This policy is designed to ensure that every effort is made to minimize the generation of hazardous waste and that all hazardous waste is properly managed and disposed of in accordance with all applicable federal, state, and local regulations at Master Construction Solutions. This policy applies to Master Construction Solutions employees, and subcontractors who engage in any Master Construction Solutions activity. Awareness training is provided to all first responders at the operations level, and all Emergency Response trainers must be a competent/qualified person.
- This hazardous waste policy does not include radioactive waste, biological waste or hazardous chemicals that are not spent, outdated, or unwanted.

Definition of Terms

Hazardous Waste: is defined under federal law as a chemical waste that is specifically listed by the EPA as a hazardous waste or if it exhibits one or more of the following characteristics: ignitability, corrosivity, reactivity, and toxicity.
Satellite Accumulation Areas: are areas designated for hazardous waste collection and temporary storage near the point of generation. When containers are filled, they are picked up by subcontractor and transported to a Central Waste Accumulation Area.

Responsibilities

- **Subcontractor:**
  - The overall responsibility for the Hazardous Waste Management Program, including a written Emergency Response Plan with address procedures to be followed in the event of an emergency, waste collection, RCRA hazardous waste determination, packaging, storage, disposal, training, inspections, and record keeping.

- **Principal Investigator/Facilities Service Supervisor, Contractor:**
  - Responsible for the proper management of hazardous waste in their work area, including labeling of containers, segregation, inspections and maintenance of the area.

- **Employees:**
  - Responsible for participating in annual Hazard Communication or training which will include hazardous waste training. Employees are also responsible for the proper management of hazardous waste in their work area, including labeling of containers, segregation, inspections and maintenance of the area. Employees are provided with training on their duties in the event of any emergency, and all employees and subcontractors will complete annual refresher training.

Procedures

- **Satellite Accumulation Areas**
  - Satellite Accumulation Areas must be managed in accordance with all applicable EPA regulations. Each area must be labeled as a 'Satellite Accumulation Area'. Waste chemicals must be stored in secondary containment bins to collect spills and prevent mixing of incompatible chemicals. Details on the management of accumulation areas can be found in the Hazcom policy.
- **Central Accumulation Area**
  - Hazardous waste that is collected from the jobsite is stored, consolidated, and packaged for disposal at a central accumulation area. This building is a secure area that is marked with signs indicating the hazards present and is inspected weekly. In the event of a spill or accidental release, spill kits are available onsite to facilitate a timely response and cleanup.
- **Emergency Response Plan (ERP)**
  - The Emergency Response Plan is established to formalize Master Construction Solutions response to and mitigation of incidents involving hazardous materials. The plan is designed to minimize hazards to human health, the environment and property. The plan contains detailed emergency information and must be updated annually. A senior official or commander will take charge of an emergency and notify all upper management. Copies of the plan are available from Master Construction Solutions.

- **Training**

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- Hazardous waste training is provided by Master Construction Solutionsfor all employees and subcontractors who may generate waste chemicals. Additional training is required for Master Construction Solutions employees involved in the packaging and disposal of hazardous wastes. Additional training includes 40-hour hazwoper, 8-hour DOT hazardous materials training and an annual refresher for each.

- **Waste Minimization Plan**
  - Master Construction Solutions has a written Hazardous Waste Minimization Plan that describes methods employed to reduce the volume of waste generated. Medical surveillance will be provided to responders potentially exposed to hazardous substances. This plan is updated annually.
- **Recordkeeping**
  - The following records are maintained by Master Construction Solutions: all permits, licenses, hazardous waste shipping documents, inspection logs, training records, and regulatory agency correspondence. These documents are kept on file for a minimum of three years.

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Hearing Conservation Policy

The term "Company" as used in these policies and procedures includes all employees (regardless of status), sub-contractors, and vendors of Master Construction Solutions work sites for which Master Construction Solutions has responsibility.

Many operations and pieces of equipment used at Master Construction Solutions's worksites produce noise. Exposure to excessive levels of noise can result in a permanent loss of hearing acuity, development of Tinnitus (i.e., ringing of the ears), a possible increase in blood pressure and stress-related problems.

This policy and procedure are applicable to all "Company" employees and subcontractors who may be exposed to excessive noise levels and to both construction and non-construction work.

Training and Recordkeeping Requirements

- The formal written Hearing Conservation training program is to provide employees with the necessary understanding, skills, and knowledge to safely perform their jobs. Employees who are exposed to noise exceeding the 8-hour time-weighted average (85 dBA) or the peak (140 dB) must be trained in the following:
  - The effects of noise on hearing.
  - When and/or where hearing protectors are required.
  - The purpose of hearing protectors.
  - The advantages, disadvantages, and attenuation of various types of protectors.
  - The purpose of audiometric testing, including an explanation of the test procedures.

- **Initial and refresher training** is to be provided for employees. Refresher training must be conducted annually and whenever:
  - An employee's duties change;
  - Whenever hazards at the worksite change; or
  - An evaluation of the Hearing Conservation program identifies inadequacies in the employee's knowledge.

- **Recordkeeping requirements** shall include, but not be limited to:
  - Records on area noise testing exposure will be accurately maintained for 5 years.
  - All employee audiometric test records will be actively maintained for the duration of employment plus 5 years. Records will then be removed and handled according to the "Company's" records retention policy.
  - Audiometric test records will include:
    - Name and job classification;
    - Date of the audiogram;
    - Examiner's name;
    - Date of audiometer calibration; and
    - Employee's most recent noise exposure assessment.
  - Certification of training with name, identity of trainers and training dates.
  - Records will be provided on request to employees, former employees, and OSHA inspectors/auditors.

Responsibilities

- Management shall be responsible for the following:
  - Ensuring that stipulations and exposure limits described in this supplement are included in specifications and contract documentation for work to be performed by subcontractors.
  - Enrolling employees found to be exposed to noise levels that exceed the permissible limits in the "Company's" Hearing Conservation Program.
  - Responsible for requesting monitoring for suspect areas identified by Supervisory Personnel or as identified in the worksite Hazard Assessment procedure (See the "Company's" Personal Protective Equipment Policy and Procedure.)
  - Conducting noise surveys to establish the noise levels at various work sites; and posting the appropriate signs in specific areas, operations, or equipment that may expose employees to noise above 85 dBA.

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- Notifying Supervisory Personnel and affected employees within 21 days of receiving the report on their hearing tests or if the results of noise monitoring indicate the employee's routine 8-hour TWA exceeds 50% of the PEL.
- Ensure that all cases where an STS occurs are recorded on the OSHA log 300 as an occupational illness.

➢ Supervisory Personnel shall be responsible for the following:
- Working with management to schedule employees for hearing tests and training if the employees are included in the Hearing Conservation Program (HCP).
    - Employees who are placed in a job where excessive noise levels (90 dBA or above) occur will be scheduled for audiometric tests within 90 days of their placement. This will include both new hires and employees transferred into high noise jobs.
- Enforcing the use of hearing protection through disciplinary action as prescribed in the "Company's" Disciplinary Program.
- Ensuring that an adequate supply and variety of hearing protection is maintained at their worksite and that employees are reminded and transported for evaluation or treatment.

➢ Employees shall be responsible for the following:
- Complying with all applicable guidelines contained in this safety policy and procedure.
- Inform their immediate Supervisor and/or Safety Director if a change occurs in the workplace that results in exposure to higher noise levels.
- Use noise control measures or wear and maintain hearing protection as required.
- Attend training on noise exposure and the requirements of the HCP.
- Employees included in the HCP will have medical evaluations and follow-up audiograms scheduled by the "Company" as a condition of employment.
- Report any complicating medical problems to their immediate Supervisor or the Safety Director as soon as possible.

Measurement of Noise

➢ Whenever it is suspected that an employee's exposure routinely equals or exceeds an 8-hour TWA of 85 dBA or a dose of 50%, Master Construction Solutions will order a "Noise Measurement" to be performed. The results of the measurements are used to determine which, if any, controls are appropriate to reduce employee exposure to noise.
- This will include the monitoring of continuous, intermittent, and impulse sound between 80 and 130 decibels.

All instruments will be of the proper type and will be calibrated prior to use.

➢ This "Noise Measurement" will be repeated whenever a change in the work area occurs where additional employees are exposed above the action level or where the previously issued hearing protection is inadequate for protecting the employee(s).

➢ Management will notify Supervisory Personnel, in writing, of employees who are confirmed to be exposed to excessive levels of noise, regardless of their use of hearing protectors.
- Notification will include a statement regarding the Supervisor's responsibility to enroll the employee(s) in a medical surveillance program, implement feasible engineering controls, or provide hearing protectors. A copy of the notice will be provided to Master Construction Solutions's Human Resources representative.

➢ A copy of the most current noise measurement results will be posted at each individual worksite for the duration of the project.

➢ Employees are not to be exposed to impulsive or impact noise $\geq$ 140dB peak sound pressure level.

Employee Rights

➢ Employees will be notified in writing if exposed at or above the 85 dBA TWA.

➢ Employees will be allowed to observe or have a representative observe area noise monitoring.

➢ Once enrolled in the HCP, employees will receive an initial baseline audiogram and will be retested annually for as long as they remain enrolled.
- These tests will be conducted at no charge to the employee.

➢ Employees may choose from a variety of styles of hearing protection and will be instructed in how to wear and maintain the protection selected.

➢ Employees will have access to their monitoring and audiometric testing records.

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Audiometric Testing

- Audiometric testing will be provided to all employees whose exposure routinely exceeds an 8-hour Time Weighted Average (TWA) of 85 dBA.
- Testing will be conducted by properly certified or licensed audiologists, otolaryngologists, physicians, or technicians.
- Whenever an employee is routinely exposed at or above the action level, a baseline audiometric test must be conducted within 6 months.
- Audiometric tests must not be conducted until the employee has at least 14 hours without exposure to workplace noise (i.e., over a weekend) or has been furnished and worn hearing protection for this period.
- Annual retesting will be conducted if an employee continues to be routinely exposed to an 8-hour TWA or 85 dBA or more.
- Retesting will include a comparison of an employee's baseline audiogram with the annual retest to determine if a threshold shift has occurred.
- If a standard threshold shift is indicated, the employee will be notified in writing in 21 days.

Standard Threshold Shift (STS)

- Any STS must be evaluated by a physician or other licensed professional to determine if it is work-related.
  - This evaluation will be done at no cost to the employee.
- Employees who are wearing hearing protection, who experience an STS, will be refitted, and retrained on its use.
- The "Company's" Audiometric Contractor will refer for additional clinical audiological or ontological examination any employee who has experienced an STS whom he/she suspects as having a medical problem that caused such a shift.
- Such referrals may also be made if the Contractor suspects that medical problems of the ear have been caused or aggravated by hearing protection.
  - When an STS has occurred, it must be recorded on the OSHA log 300 as an occupational illness. The date listed for the occupational illness will be the date that the STS is first diagnosed.

Hearing Protection

- Employees will be provided with and required to wear hearing protection when exposed to 85 decibels or greater even if the employee has not had a baseline audiogram or experienced a STS.

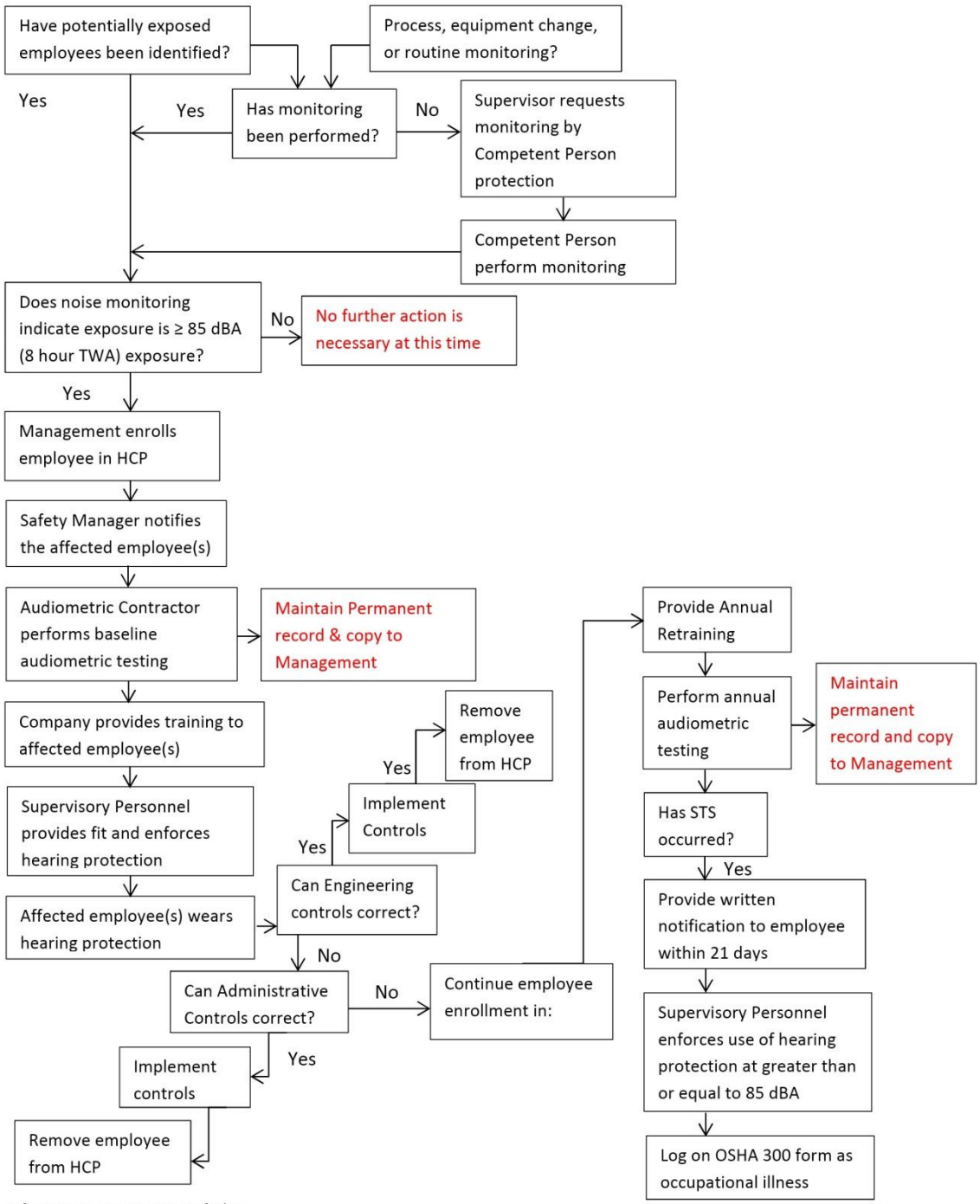




- All equipment and work areas identified at 85 dBA or above will be placarded or posted that hearing protection is required.
- Replace hearing protection whenever it becomes too worn to effectively protect the employee.
- A variety of hearing protectors will be available for employee selection at each work site.
- Training on the use and care of hearing protection will be provided by Supervisory Personnel.
- All hearing protection will be properly fitted, and its use supervised.
- Hearing protection must be adequate to reduce employee exposure to 90 dBA or below if no STS has occurred or to 85 dBA or below if an STS has occurred.

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HCP Procedural Flow Chart



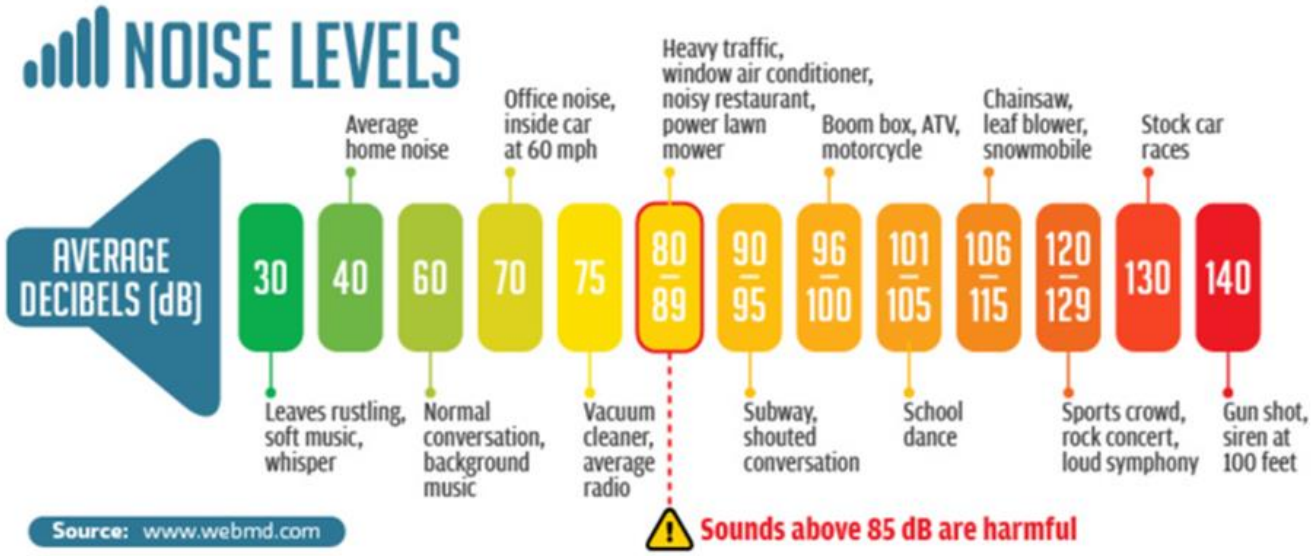
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8

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Worksite/Project Identifying Name:		Physical Address:	
Name of Person Performing Audit:	**Title:**	**Date:**	
Area	**Satisfactory**	**Action Required**	**Corrective Action Date**
Employee Knowledge			
Last Date of Training			
Use of Hearing Protectors			
Program Administration			
Written Program Available			
Records			
Training			
Inspections			
Noise Level Testing			
Annual Audiometric Tests			
Employee Test Notification			
Threshold Shift Records			
Safeguards			
Engineering Safeguards			
Administrative Safeguards			
Training Safeguards			
Equipment Inspection			
Hearing Protectors			
Noise Meters			
Calibration Equipment			
Area Inspection			
Signs Posted			
Employees Wearing Hearing Protection			
Notes			

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HEARING PROTECTION

Noise can be more than a nuisance. It may cause you to lose your hearing — either temporarily or permanently. The severity of hearing loss depends on:

- How loud the noise is (intensity);
- How high-pitched the noise is (frequency);
- How long you are exposed to the noise — hourly, daily, weekly, monthly;
- Whether the noise is continuous (impact every second or less) or intermittent;
- The age of the person exposed to the noise; individual susceptibility of the person exposed to the noise.

Types of Earplugs

- Formable earplugs - come in two varieties, the disposable kind made of waxed cotton or acoustical fibers that can be molded to your ears, and the semi-disposable type made of molded foam, which can be used for up to a week.
- Premolded earplugs- are made of soft silicone rubber or plastic and are reusable.
- Custom-molded earplugs - are molded to fit the individual by inserting silicone rubber or plastic molding compound into each ear and allowing it to set. The compound may then be used as earplugs or as molds for earplugs.

Using Earplugs

- Earplugs screen out harmful noise while allowing you to hear your coworkers.
- Earplugs can reduce noise levels by up to 30 decibels.
- Check the Noise Reduction Rating (NRR) on your earplugs' package. The higher the number, the better the protection.
- Earplugs are lightweight, inexpensive and low-maintenance.
- Earplugs are the protectors of choice for work in hot, enclosed environments or in situations where you keep hearing protectors on all day.
- They're easily worn with eyeglasses and hard hats and other head protection.
- Follow the manufacturer's instructions exactly when inserting earplugs.
- To work properly, earplugs must completely fill your ear canal.
- Make sure your hands are clean when inserting earplugs. Dirt and oils could cause an infection.
- Keep reusable earplugs clean by washing them after each use in warm, soapy water.

Types of Earmuffs

- Earmuffs consist of cushioned cups made of molded plastic filled with foam, liquid or air that are attached to a band that can be worn over your head, behind your neck or under your chin.
- Cap-mounted earmuffs can be attached to hard hats.
- Dielectric earmuffs have no metal parts, for workers exposed to high voltage.
- Electronic earmuffs reduce hazardous noises while magnifying sounds you need to hear.

Using Earmuffs

- Earmuffs reduce noise by about 20-30 decibels.
- The NRR on your earmuffs indicates their effectiveness.
- Inspect the condition of your earmuffs before each use.
- Your earmuffs should fit comfortably, without the headband being too tight or too slack.
- Earmuff cups should adjust up and down and in and out for a good fit.
- To work correctly, earmuffs must form a seal around your ears, completely enclosing them, without pinching your earlobes.
- No hair or clothing should stick out from under the cups.
- You can use earplugs with earmuffs for added protection.
- Follow the manufacturers instructions for proper cleaning and storage.
- Be sure to replace hardened, cracked, or worn earmuff cushions.



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Heat Illness Policy

Introduction

The human body works hard to keep its temperature at 98.6 degrees Fahrenheit. When it's too hot, the body will rid itself of excess heat. Two ways it does this are sweating and dilation (widening) of blood vessels. When sweat evaporates from the skin, you begin to cool off. When blood vessels dilate, blood is brought to the skin to release heat. When the air temperature is higher than the body's temperature, the body cannot easily cool itself. If the air is humid, or the body is wrapped in heavy clothing and protective gear, sweat does not evaporate quickly. Heat-related illness can be a concern in any weather, indoors or out. Exposure to heat can cause illness and death. Heat stroke is the most serious heat illness. Other heat illnesses, such as heat exhaustion, heat cramps and heat rash, should also be avoided. The following are precautions Master Construction Solutions will take any time temperatures are high, and the job involves physical work.

Risk Factors:

- High temperature and humidity, direct sun exposure, no breeze or wind
- Low liquid intake; previous heat illnesses
- Heavy physical labor
- Long work periods/days
- Dark or waterproof clothing
- No recent exposure to hot workplaces

How To Stay Safe During Extreme Heat:

- Drink plenty of water before work and throughout the day; avoid alcohol,
- Caffeine, and sugary drinks Eat light – the more calories you take in, the more body heat you produce.
- Wear lightweight, light-colored, loose-fitting clothing if safe for your job.
- Apply 15 SPF or higher sunscreen 30 minutes before going outdoors.
- If you have a chronic medical condition or take medication, ask your doctor about heat-related illness.
- Work shorter shifts to get accustomed to the higher temperature.
- Take frequent rest breaks in cool or shaded areas.

5 Main Heat-Related Illnesses: Signals and First Aid

1. **Heat Rash**
   - **Signals:**
     - Red clusters or pimples on the skin
   - **First Aid:**
     - Rest in a cool place out of direct sunlight
     - Drink cool liquids: water is best
2. **Heat Cramps**
   - **Signals:**
     - Painful muscle cramps or spasms
   - **First Aid:**
     - Rest is a cool place out of direct sunlight
     - Drink cool liquids: water is best but and electrolyte drink will help replace lost body salt
     - Gently stretch, massage, and ice the muscle
3. **Heat Syncope:**
   - **Signals:**
     - Sudden fainting episode
     - Fast, weak pulse and skin will be cool and moist
   - **First Aid:**
     - Lie down in a cool shaded area
     - Remove heavy clothing and loosen any tight-fitting clothing
     - Once aware, drink cool liquids: water or electrolyte drink
4. **Heat Exhaustion:**
   - **Signals:**
     - Pale, clammy skin

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- Profuse sweating
- Fatigue, weakness, or exhaustion
- Nausea or vomiting
- Headache, dizziness, or fainting
- Rapid heartrate – mood changes or confusion
- May stop sweating

➢ **First Aid:**

- Lie down in a cool shaded area
- Loosen or remove tight-fitting or outer clothing
- Drink cool liquids: water and/or electrolyte drink
- Use cool wet cloths on the forehead and body
- Call for medical help if unconscious, vomiting occurs, symptoms worsen, or last longer than one hour

5. **Heat Stroke: (This is an immediate life-threatening emergency, CALL 911)**

➢ **Signals:**

- Hot, dry, red skin
- No perspiration
- Rapid and strong pulse
- High body temperature (105 degrees F)
- Confusion, dizziness, headache
- Convulsions or loss of consciousness

➢ **First Aid:**

- Call 911, this is a life-threatening medical emergency
- Move victim to a cool shaded place
- Loosen tight or restrictive clothing
- Remove perspiration-soaked clothing
- Apply cool, wet clothes to the skin. Cold packs can be placed under armpits and in groin area
- Fan the victim
- Monitor victim for changes, CPR may need administered

Employer Responsibilities to Prevent Heat Illness

- Train supervisors about the hazards leading to heat stress and how to prevent them prior to their supervising employees that work in heat. Supervisors must take into consideration personal factors before assigning tasks in circumstances where heat illness can occur.
- Provide a lot of cool drinking water to workers close to the work area. At least one pint of water per hour is needed.
- Schedule frequent rest periods with water breaks in shaded or air-conditioned areas.
- Prior to beginning work, consider physical factors that contribute to heat related illness (level of physical activity, duration of physical activity, protective clothing/equipment, clothing color, physical condition of employees).
- Routinely check workers who are at risk of heat stress due to their job duties and/or protective clothing.
- When possible, control environmental factors such as temperature, humidity, radiant heat sources & air circulation.

Protecting Yourself and Others from Heat Illness

- Know signs/symptoms of heat illnesses; monitor yourself; use a buddy system.
- Block out direct sun and other heat sources.
- Drink plenty of fluids. Drink often and BEFORE you are thirsty.
- Avoid beverages containing alcohol or caffeine.
- Wear lightweight, light-colored, loose-fitting clothes.
- Be aware that poor physical condition, some health problems (such as high blood pressure or diabetes), pregnancy, colds and flu, and some medications can increase your personal risk. If you are under treatment, ask your healthcare provider.

What to do if a Woker Falls Ill to Heat

- Call a supervisor for help. Supervisors will be trained in prevention procedures as well as procedures to follow when an employee exhibits symptoms consistent with possible heat illness. If the supervisor is not available, call 911.

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- Have someone stay with the worker until help arrives.
- Move the worker to a cooler/shaded area.
- Remove outer clothing.
- Fan and mist the worker with water; apply ice (ice bags or ice towels).
- Provide cool drinking water, if able to drink.

IF THE WORKER IS NOT ALERT or seems confused, this may be a heat stroke. CALL 911 IMMEDIATELY and apply ice as soon as possible.

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HEAT ILLNESS

High Temperature + High Humidity + Physical Work = Heat Illness

When the body is unable to cool itself through sweating, *serious* heat illnesses may occur. The most severe heat induced illnesses are *heat exhaustion* and *heat stroke*. If actions are not taken to treat heat exhaustion, the illness could progress to heat stroke and possible *death*.

Heat Exhaustion

What happens to the body:

- Headaches
- Dizziness/Light Headedness
- Weakness
- Mood Changes (irritable, or confused/ can't think straight)
- Feeling Sick to your Stomach
- Vomiting/Throwing up
- Decreased and Dark Colored Urine
- Fainting/Passing Out
- Pale Clammy Skin

What should be done:

- Move the person to a shaded area. Don't leave the person alone. If the person is dizzy or light headed, lay them on their back (raise their legs 6-8 inches). If the person is sick to their stomach lay them on their side.
- Loosen and remove heavy clothing.
- Have the person drink some cool water (a small cup every 15 minutes).
- Cool the skin with water or wet cloth.
- If the person does not feel better in a few minutes, call 911.

If heat exhaustion is not treated, the illness may advance to heat stroke.

Heat Stroke—a medical emergency

What happens to the body:

- Dry Pale Skin (no sweating)
- Hot Red Skin (looks like a sunburn)
- Mood Changes (irritable, confused/not making any sense)
- Seizures/Fits
- Collapse/Passed Out (will not respond)

What should be done:

- Call for emergency help (911)
- Move the person to a cool area. Don't leave the person alone. Lay them on their back and if the person is having seizures/fits remove any objects close to them so they won't strike against them. If person is sick to their stomach lay them on their side.
- Remove any heavy and outer clothing
- Have the person drink some cool water (a small cup every 15 minutes)
- Try to cool the person with water or a wet cloth.
- If ice is available, place ice packs under the arm pits and groin area.

How to protect workers:

- Train the workforce on heat illnesses
- Perform heavier work on cooler days
- Work in pairs
- Drink plenty of cool water every 15-20 minutes
- Wear light, loose-fitting, breathable clothing
- Take frequent breaks in cool areas
- Avoid eating large meals before work
- Avoid caffeine and alcoholic beverages

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Stay Safe in the Heat

4 Keys: Prepare, Water, Rest, Shade



Get help immediately for heat-related illness. Call 911 and get the person to a cool location. While you wait for help to arrive, cool them by any means at hand, preferably by immersing them up to the neck in cold water or applying ice bags or cold packs beside the neck, armpits and groin.

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Housekeeping and Sanitation Policy

Master Construction Solutions worksites can present many hazards to employees when they are working. Housekeeping is not just cleanliness. It includes keeping work areas neat and orderly; maintaining halls and floors free of slip and trip hazards; and removing waste materials (i.e., paper, cardboard) and other fire hazards from work areas. It also requires paying attention to important details such as the layout of the whole workplace, aisle marking, the adequacy of storage facilities, and maintenance. Good housekeeping is the basic part of accident and fire prevention.

Effective housekeeping is an ongoing operation. It is not a hit-and-miss cleanup done occasionally. Periodic "panic" cleanups are costly and ineffective in reducing accidents.

This safety policy and procedure is established in accordance with Occupational Safety and Health Standards for General Industry (29 CFR 1910.22(a). This policy and procedure shall apply to all employees, subcontractors and/or vendors at any and all Master Construction Solutions work-site locations.

Master Construction Solutions requires conformance with the safety standards set here in. A site-specific program may be utilized, providing it meets or exceeds the requirements set forth in this manual.

Policy

It is the policy of Master Construction Solutions to provide a place of employment that is free from recognized hazards that cause, or are likely to cause, death or serious physical harm to employees or the public. Therefore, all employees on Master Construction Solutions worksites will practice good housekeeping to further reduce hazards to employees.

It is the responsibility of each manager/unit head, supervisor, and employee to ensure implementation of Master Construction Solutions's safety policy and procedure on Housekeeping. It is also the responsibility of each Master Construction Solutions employee to report immediately and unsafe act or condition to his or her supervisor. Specific responsibilities are further addressed in this policy and procedure.

Definition of Terms

Debris – Unusable or unwanted construction waste material.

Form Lumber – Lumber that is used to contain liquid concrete into defined shapes until the concrete hardens.

Hazardous Waste – Waste that is either toxic to humans or to the environment.

General

- All places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in sanitary condition.
- The floor of every workroom shall be maintained in a clean and so far as possible, dry condition. Where wet processes are used, drainage shall be maintained and false floors, platforms, mats, or other dry standing places should be provided where practicable.
- To facilitate cleaning, every floor, working place and passageway shall be kept free from protruding nails, splinters, holes, or loose boards.

Training

Employees will be trained to work safely by following good housekeeping practices. Employees will be trained in:

- The importance of housekeeping; and
- The benefits of housekeeping

Employees will be trained at time of initial employment or assignment.

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Dust and Dirt Removal

In some work areas, enclosures and exhaust ventilation systems may fail to collect dust, dirt, and chips adequately. Vacuum cleaners are suitable for removing light dust and dirt. Industrial models have special fittings for cleaning walls, ceilings, ledges, machinery, and other hard-to-reach places where dust and dirt may accumulate.

Dampening floors or using sweeping compounds before sweeping reduces the amount of airborne dust. The dust and grime that collect in places like shelves, piping, conduits, light fixtures, reflectors, windows, cupboards, and lockers may require manual cleaning.

Special purpose vacuums with HEPA (high efficiency particulate air) filters will be used for the clean up and removal of hazardous substances (i.e., particles of asbestos, lead, or fiberglass).

Compressed air <u>will not</u> be used for removing dust, dirt or chips from equipment, work surfaces or clothing.

Scrap and Debris

Scrap material and debris generated usually consist of:

- Non-combustible scrap material and debris; and
- Combustible scrap material and debris.

Non-combustible scrap material and debris that consist of form and scrap lumber with protruding nails, and all other debris, must be kept cleared from work areas, passageways, and stairs, and from around buildings or other structures.

Nails are to be removed from used lumber before stacking. Combustible scrap and debris must be removed at regular intervals during construction without increasing the hazard exposure to employees who remove such debris.

Waste Disposal

The regular collection, grading and sorting of scrap contribute to good housekeeping practices. It also makes it possible to separate materials that can be recycled from those going to waste disposal facilities.

All waste must first be collected into containers before disposal. The categories of waste generated at a site include:

- General waste and trash (non-toxic, non-hazardous); and
- Hazardous waste.

Separate containers must be provided for the collection and separation of waste, trash, and other refuse. These containers will be placed near where the waste is produced to aid in the proper separation and collection of generated scrap. All scrap containers will be clearly labeled (i.e., glass, plastic, scrap metal, etc.).

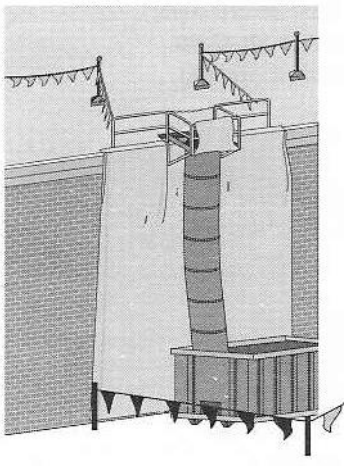
Additional separate containers must be provided with lids for hazardous wastes to prevent sparks or other ignition sources from coming into contact with hazardous waste. Hazardous wastes can include used oil, used oil filters, oily rags, and flammable wastes as well as caustics, acids, harmful dusts, etc.

Absorbent that is used to collect incidental used oil spills and oil rags can be disposed of in waste collection dumpsters. Used oil filters must be drained of oil before they can be disposed into separate waste containers.

Disposal from Elevated Surfaces

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Anytime materials need to be dropped 20 feet or more on the outside of a building, they must be sent down an enclosed chute. An enclosed chute is defined as a slide, closed in on all sides, through which materials are removed from a roof or other elevated area. If materials are being dropped on the inside of a building through a hole in the floor without a chute, the area below should be completely barricaded. The barricades must be at least 42 inches high and 6 feet back from the protected edges of the opening above. All scraps, waste, and trash must be removed from the immediate work area on a regular basis. However, the waste that accumulates on the lower level should not be removed until the end of the work shift. Removing waste throughout the work shift would require workers on different levels to communicate with one another, possibly creating dangerous situations to do so.



All noncombustible materials and large debris, such as that from roof system tear-offs, can be disposed of in an on-site dumpster. When placing a dumpster at a work site, the following precautions should be considered:

- Place dumpster away from doors and windows to prevent any discarded material from falling or blowing around and causing damage or injury.
- If possible, place the dumpster on a solid flat surface so it does not cause damage to the building grounds or sink into soft ground (if outdoors), which could render it difficult to move or empty.
- Erect barricades around the dumpster to prevent people from wandering into an area where debris might be falling from above.

Storage

Organization of stored materials is essential for overcoming material storage problems. Reducing the amount of handling of materials will also reduce the risk of strain and sprain injuries, especially if manual materials' handling is required. The location of the stockpiles should not interfere with work, but they should be readily available when required. Stored materials should allow a minimum of 3 feet of clear space under sprinkler heads.

Stacking cartons and drums on a firm foundation and cross tying them, where necessary, reduces the chance of their movement. Stored materials should not obstruct aisles, stairs, exits, fire equipment, emergency eyewash fountains, emergency showers, or first aid stations. All storage areas should be clearly marked.

Flammable, combustible, toxic and other hazardous materials are to be stored in approved containers in designated areas that are appropriate for the different hazards that they pose. Storage of materials should meet all requirements specified in the fire codes and the regulations of environmental and occupational health and safety agencies in the jurisdiction.

Spill Control

The best way to control spills is to stop them before they happen. Regularly cleaning and maintaining machines and equipment is one way. Another is to use drip pans and guards where possible spills might occur. When spills do occur, it is important to clean them up immediately. Absorbent materials are useful for wiping up greasy, oily or other liquid spills. Used absorbents must be disposed of properly and safely.

Water

- **Potable water** is water that meets the quality standards prescribed in the U.S. Public Health Service Drinking Water Standards, or water that is approved for drinking purposes by the state or local authority having jurisdiction. Potable water shall be provided in all places of employment, for drinking, washing of the person, cooking, washing of foods, washing of cooking, or eating utensils, washing of food preparation or processing premises, and personal service rooms.

  Portable drinking water dispensers shall be designed, constructed, and serviced so that sanitary conditions are maintained, shall be capable of being closed, and shall be equipped with a tap.

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Open containers such as barrels, pails, or tanks for drinking water from which the water must be dipped or poured, whether or not they are fitted with a cover, are prohibited. A common drinking cup and other common utensils are prohibited.

- **Non-Potable water** is not meant for drinking but for industrial or firefighting purposes. There cannot be any cross-connections between systems providing potable and non-potable water. Non-potable water must be clearly labeled to indicate that the water is not safe for drinking, washing, or cooking.

  Construction of nonpotable water systems or systems carrying any other nonpotable substance shall be such as to prevent backflow or back-siphonage into a potable water system.

  Nonpotable water shall not be used for washing any portion of the person, cooking or eating utensils, or clothing. Nonpotable water may be used for cleaning work premises, other than food processing and preparation premises and personal service rooms: Provided, that this nonpotable water does not contain concentrations of chemicals, fecal coliform, or other substances which could create unsanitary conditions or be harmful to employees.

Responsibilities

Management:

- Ensuring that containers, sanitary facilities, sufficient water, and other supplies to maintain effective housekeeping, are purchased and readily available.
- Obtaining and coordinating the required training for all affected employees.
- Ensuring compliance with this safety policy and procedure through Master Construction Solutions's auditing process.

Supervisors:

- Ensuring that employees are instructed on good housekeeping practices when performing their job duties.
- Ensuring that combustible scrap and debris is being removed and properly disposed of, at regular intervals during each shift.

Employees:

- Following good housekeeping practices in the performance of their job duties.
- Reporting any hazardous conditions to their immediate supervisor.

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Injury/Illness Recordkeeping Policy

Master Construction Solutions is committed to providing a healthy and safe work environment for its employees and preventing occupational illness and injury. Master Construction Solutions is required to keep OSHA injury and illness records as per OSHA 29 CFR 1904. Master Construction Solutions is required to keep record of fatalities, injuries, and illnesses that:

- Are work related (1904.5)
- Are a new case (1904.6)
- Meet one or more of the general recording criteria (1904.7)

Also, all employers must report to OSHA any workplace incident that results in:

- Worker fatality within 8 hours
- Amputation, loss of an eye, or hospitalization of 1 or more workers within 24 hours

To meet the recordkeeping requirement Master Construction Solutions must use:

- The OSHA 300 form: Log of Work-Related Injuries and Illnesses
- The 300-A: Summary of Work-Related Injuries and Illnesses (Submit per OSHA 29 CFR 1904.41 as required)
- The OSHA 301 form: Injury and Illness Incident Report.

An OSHA 301 Incident Report form, or an equivalent form, must be completed for each recordable injury or illness entered on the OSHA 300 Log. Each recordable injury or illness must be recorded on the OSHA 300 Log and 301 Incident Report within seven (7) calendar days of receiving information that a recordable injury or illness has occurred.

At the end of each calendar year Master Construction Solutions must:

- Review the OSHA 300 Log to verify that the entries are complete and accurate, and correct any deficiencies identified;
- Create an annual summary of injuries and illnesses recorded on the OSHA 300 Log;
    - A Master Construction Solutions executive must certify that he or she has examined the OSHA 300 Log and that he or she reasonably believes, based on his or her knowledge of the process by which the information was recorded, that the annual summary is correct and complete.
- Certify the summary; and
- Post the annual summary.
    - A copy of the annual summary must be posted in each establishment in a conspicuous place or places where notices to employees are customarily posted. Master Construction Solutions must ensure that the posted annual summary is not altered, defaced, or covered by other material.
    - The summary must be posted no later than February 1 of the year following the year covered by the records and kept in place until April 30.

Master Construction Solutions will retain the OSHA 300 Log, the privacy case list (if one exists), the annual summary, and the OSHA 301 Incident Report forms for five (5) years following the end of the calendar year that these records cover.

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Incident Investigation and Reporting Policy

Investigation of accidents and incidents is an essential part of Master Construction Solutions' Incident Investigation and Reporting program. A thorough investigation, reconstructing the chain of events leading to an accident or incident, identifies unsafe acts and conditions requiring corrective action. An accident/incident investigation and subsequent implementation of the corrective action minimizes the potential for future accidents or incidents.

Responsibilities

- **OSHA:**
  - OSHA investigates all major accidents resulting in death or catastrophe (hospitalization of 3 or more employees). Call OSHA's Emergency number at 1-800-321-OSHA (6742) within 8 hours of the fatality or catastrophe.
- **Supervisor:**
  - The responsible supervisor completes the initial report and gathers pertinent witness statements when:
    - An employee involved in a minor occupational accident is unable to work the subsequent full shift due to a resulting illness or injury, or;
    - The employee receives medical treatment from other than a/an Master Construction Solutions trained first aid provider, or;
    - Events and conditions involving an incident or non-injury accident indicate there was a high probability of serious injury, illness, or significant property damage.
- **Safety Manager:**
  - The Safety Manager is responsible for reviewing the Supervisor's Accident/Incident Investigation Form and initiating and implementing corrective action to prevent accident reoccurrence. The Safety Manager may authorize a Competent Person to perform his duties.

Investigation

The supervisor, upon notification of an accident or incident, immediately reports the incident to Master Construction Solutions Safety Manager. Master Construction Solutions Safety Manager will then report the accident or incident to any host or client if applicable (within 24 hours).

- **Preserving the Site:**
  - The Supervisor is to ensure that the accident/incident site is preserved as it was when the event occurred. Equipment involved in and/or evidence from a major accident is not to be moved unless it is necessary for victim removal or Incident Investigation and Reporting. Safety Manager (or Approved Representative) authorizes removal of equipment involved in a major accident.
- **Investigation:**
  - The Supervisor is to immediately investigate a minor accident (i.e., First Aid only). Accidents involving more than "First Aid Only" treatment will be investigated by Master Construction Solutions Safety Manager (or approved representative) within 24 hours of the accident/incident. While the objective of an investigation is to determine the accident/incident cause an initial identification of evidence immediately following an accident/incident is crucial to the investigation. Evidence may include, but is not limited to, a list of witnesses or people involved, record of environmental factors (wind, rain, temperature, etc.), illumination, noise, ventilation, etc. After the cause is determined, the Supervisor is to provide corrective action immediately. The corrective action(s) should eliminate or minimize the potential of reoccurrence. The name of the person responsible for the corrective actions the date the corrective actions were complete will be recorded.
- **Participants:**
  - Investigation participants may include the immediate supervisor of the injured/involved employee, witnesses, an employee representative, and any other person with the special expertise to evaluate the facts relating to the cause of the accident/incident.
- **Involved Person(s) Statement:**
  - The involved person(s) must complete all applicable forms including the First Report of Injury/Illness and/or a Written Statement. They may also be interviewed.
- **Witness(es) Statement:**

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- A witness to the accident/incident must complete a Written Statement or be interviewed by properly trained personnel. Follow-up interviews may be required so be sure to obtain contact information for all involved persons.

- **Evaluation Factors:**
  - Refer to the Supervisor's Accident/Incident Investigation Form for factors to evaluate during an accident/incident investigation.

Investigation Report

After the investigation and within 48 hours of the incident, the Safety Manager completes a written Accident/Incident Report. Written incident reports should include an incident report form and a detailed narrative statement concerning the events. The format of the narrative report may include an introduction, methodology, summary of the incident, investigation, board member names, narrative of the event, findings, and recommendations. Photographs, witness statements, drawings, and all other pertinent documents should be included.

- **The report should be reported as follows:**
  - Original – Safety Manager
  - Copy – Approved Representative or Designated Competent Person
- **Lessons Learned and Communication**
  - A copy of the original will be made and routed to any personnel Master Construction Solutions Safety Manager feels are pertinent to the accident/incident.
  - After completion of the final report, lessons learned should be reviewed and communicated to all affected personnel. Changes to processes must be placed into effect to prevent reoccurrence or similar events.

Assistance

Contact Master Construction Solutions Safety Manager if assistance is required in conducting an accident/incident investigation or completing the required report(s).

- **Training:**
  - Personnel will be trained in their roles and responsibilities for incident response and investigation techniques. All employees will be trained to be aware of Master Construction Solutions Incident Investigation and Reporting program. Supervisors & management (or a designated competent person) will be trained in accident investigation. All training will be provided upon employment with Master Construction Solutions and reviewed whenever a change in procedure is made.
- **Equipment:**
  - All proper accident/incident investigation forms are attached as part of this document. Any additional equipment such as cameras, measurement equipment, audio recorders, etc., will be provided as needed.
- **First Responders:**
  - As per OSHA 29 CFR 1926.50(c):In the absence of an infirmary, clinic, hospital, or physician, that is reasonably accessible in terms of time and distance to the worksite, which is available for the treatment of injured employees, a person who has a valid certificate in first-aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the worksite to render first aid.
  - Only those employees certified to provide first aid shall do so. If you are ever in any doubt, or if you are not comfortable with the injured/ill employee's situation, always call 911.
- **Loss Control:**
  - After an accident/incident action to prevent further loss should occur. If needed personnel will be available to aid in the prevention of any additional loss, for example: maintenance could be summoned to prevent further damage to equipment or buildings, properly trained personnel called for hazardous chemical clean-up, etc.

Additional assistance may be provided by our outside safety consulting agency:

Safety Resources Co. of Ohio, Inc.
4650 Southway St., S.W.
Canton, Ohio 44706
Phone: 330-477-1100 or 888-256-8544
Fax: 330-477-1200

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WHAT TO DO WHEN…

You have an accident involving "Property Damage" **(the customers or Master Construction Solutions property)** equaling or exceeding a combined dollar amount over $250.00.	1. Call **Master Construction Solutions's office** and report the accident. 2. Call **Safety Resources at 330-477-1100**. If the office is closed the answering machine will give you a list of emergency numbers. Please feel free call our cell phones at any time.
You have an **injury/illness that involves First Aid Only Treatment** by an emergency responder on the job site. 	1. Call **Master Construction Solutions office** and report the accident/illness. 2. Call **Safety Resources at 330-477-1100**. If the office is closed the answering machine will give you a list of emergency numbers. Please feel free to call our cell phones at any time. 3. Complete as much of the First Report of Injury/Illness Form as you can.
You have an **injury/illness that involves transporting the employee** to a medical care facility.  **NOTE: Refer to the "Treatment Facilities & Guidelines" section of this manual for further clarification on when you should utilize an ambulance, or other emergency response service to transport an employee to a medical care facility and when it is acceptable for you to transport the injured/ill employee to the medical care facility.** **If ever in any doubt, or if you are not comfortable with the injured/ill employee's situation, always call for emergency transportation.** **Do not attempt to transport the employee yourself.**	1. If the Health Care Facility has a pre-registration phone number (i.e., Ault Works, Work, Health & Safety Services) call that number now and tell them that you have an accident/illness. At this point they will ask you additional questions. 2. Either transport the injured/ill employee to the medical care facility for treatment or call your job sites posted emergency response number (see the **"Emergency Instruction Form"**) and inform them that you have an injured/ill employee and require emergency transportation (i.e., ambulance, emergency squad). **Under no circumstance** should you allow the employee to drive or make their own transportation arrangements (such as calling a family member or friend to come to the job site and get them) to a medical care facility. 3. **Call Master Construction Solutions office** and report the accident/illness. 4. Call **Safety Resources at 330-477-1100**. If the office is closed the answering machine will give you a list of emergency numbers. Please feel free to call our cell phones at any time. 5. Complete as much of the First Report of Injury/Illness Form as you can.

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WHAT TO DO WHEN…

You have a work-related death or catastrophe (hospitalization of 3 or more employees).	1. Call **Safety Resources at 330-477-1100**. If the office is closed the answering machine will give you a list of emergency numbers. Please feel free to call our cell phones at any time. 2. **Call Master Construction Solutions's Safety Manager immediately.** 3. Call OSHA's Emergency number at 1-800-321-OSHA (6742) within 8 hours of the fatality or catastrophe.
OSHA shows up at a job site.	1. Ask OSHA Compliance officer to wait in the job trailer. 2. Call **Safety Resources at 330-477-1100**. If the office is closed the answering machine will give you a list of emergency numbers. Please feel free to call our cell phones at any time. 3. **Call Master Construction Solutions's Safety Manager immediately.**

Safety Resources Co. of Ohio, Inc.
4650 Southway St. SW
Canton, Ohio 44706
Toll Free: 888-256-8544
Phone: 330-477-1100 • Fax: 330-477-1200

Cell Phones

Rebecca (Becki) DePasquale **Cell Phone: 330-704-5918**
Curt Speck **Cell Phone: 330-704-5958**

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OSHA 300 Log Case No. _____ **Sections in red are required by OSHA and must be completed.**

Generic Logo	YOUR ADDRESS YOUR-PHONE-NUMBER

First Report of Injury/Illness

(also used to report Property Damage) **Must Be Completed within 24 hours of event.**

Employee's Section

Name	SS #	Phone #

Address	City	State	Sex (circle one)	Date of Birth
		Zip	M F	Date of Hire

Check if the answer is yes.

❑ Were you injured in an accident?	❑ Did the accident involve property damage?
❑ Are you reporting an occupational illness?	❑ Was a motorized vehicle (i.e. tow motor, truck, car) involved?

Describe body part(s) affected, or injured, and how affected or injured:

Date of Injury or Illness	Time of Event: ☐ am ☐ pm ☐ (check if cannot be determined)	Time Employee Began Work

Exact location of accident/illness ***(Work Site, Department, Building, Floor, Geographical Location):***

Activity you were performing when injury or illness occurred, or immediately prior to injury or illness; include any tools, materials or equipment you were using at the time ***(an example would be, climbing a ladder while carrying roofing materials):***

Was this part of your normal duties? ☐ Yes ☐ No If no, explain why you were performing these duties?	List Witnesses:

Report prepared by (if different from injured/ill employee): _____
(Name) ***(phone number)***

Employee Signature	Date:

Supervisor's Section

Name of Supervisor Completing This Form (please print): Telephone No. _____	This accident/illness was reported to me on: _____ at _____ (date) (time include am/pm) by:_____

Describe body part(s) affected, or injured, and how affected or injured ***(example - 2nd degree burn, lower left forearm):***

Activity employee was performing when injury or illness occurred, or immediately prior to injury or illness; include any tools, materials, or equipment you were using at the time ***(example - cutting metal plate for flooring):***

How the injury or illness occurred ***(an example would be … employee stepped back to inspect work and slipped on some scrap metal, as worker fell, worker fell onto the hot metal plate):***

What object or substance directly harmed the employee ***(example - acetylene cutting torch, metal plate) If this question does not apply, you may leave it blank:***

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OSHA 300 Log Case No. _____ **Sections in red are required by OSHA and must be completed.**

Supervisor's Section (cont.)

Employee was working:	Workday Phase:	Injury/Illness Severity:
❑ Alone ❑ With a crew or fellow worker ❑ Other (explain:)	❑ Performing Work ❑ Meal/Break Period ❑ Entering/Leaving ❑ Chronic Exposure ❑ Other (explain):	❑ No Treatment Required ❑ First Aid Only ❑ Emergency Room Only ❑ Employee Hospitalized Overnight as an In-Patient ❑ Other Medical Treatment Facility (explain):

If the employee died, when did death occur? (Date of Death):

Supervision at time of accident/illness:	Witness Names & Phone Numbers:
❑ Directly Supervised ❑ Indirectly Supervised ❑ Not Supervised ❑ Supervision Not Feasible	

Signature of Supervisor Completing This Form:	Exact Title of Supervisor	Date

Information on Health Care Provider

If treatment was given away from the worksite, this section must be completed.

Treated by *(Name of physician or other health care provider):*

Was Employee Treated in an Emergency Room?	Was an employee hospitalized overnight as an in-patient?
☐ Yes ☐ No	☐ Yes ☐ No

Name of Treatment Facility:	Address of Treatment Facility:	State: Zip:

Any miscellaneous information regarding Health Care Provider and Facility:

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Master Construction Solutions **Written Statement**

Name		Company	Job Title
Accident/Incident Date	Accident/Incident Time	Incident Location	Cell/Home Telephone

Name of Involved/Injured Employee	Did the employee appear injured/ill?

If the employee appeared injured or ill, please describe the body part that was involved, what the injury was, and the apparent cause (in your opinion)

Where were you in proximity to accident/incident? (in front, back, next to, number of feet, etc.)

Describe the general work or activity being performed by you and the involved/injured employee.

Describe the accident/incident. Include specific work/activity involved; tools and equipment used; the use or nonuse of personal protective equipment. Written/oral rules; any verbal statements made; general site conditions, e.g., lighting, noise, unusual odors, housekeeping; weather.

Add additional pages if necessary for additional space or drawings.

Continued on back.

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Did you speak to the involved/injured employee at or near the time of the incident? _____ Yes _____ No	If so, what did he/she tell you?
Did you offer any assistance? _____ Yes _____ No	If so, please describe.
Have you had any subsequent discussions with the involved/injured employee regarding this incident? _____ Yes _____ No	If so, when and what did he/she tell you on this occasion?
Please add any additional comments you may have regarding this incident:	

I have had a chance to read and correct my statement, consisting of _____ pages.

Signature	**Date**

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Master Construction Solutions **Supervisor's Accident/Injury Investigation Report**

Employee Name	Job Site/Location	Accident Date
Supervisor's Name	**Supervisor's Title**	**Investigation Date**

Check all factors contributing to the accident/incident/illness:

☐ **Human**
Training
Task Performance
Protective Equipment
Work History

☐ **Site Conditions**
Physical Layout
Walking/Working Surfaces
Lighting
Weather

☐ **Equipment/Tools/Materials**
Operation
Safety Guards & Controls
Condition & Maintenance
Labels/Signs/Tags

☐ **Time Factors**
Work Shift
Cause/Effect Relationship
Sequence of Events

☐ **Policies & Procedures**
Safety Policies & Procedures
Operating Specifications
Regulations & Standards

☐ **Occupational Exposures**
Air Contaminants
Chemicals
Noise
Biohazards, Human Body Fluids

Explain all checked factors in the space below. Add additional pages for more space and to provide any necessary drawings.

List all recommended corrective action(s). Add additional pages if needed.

Name of Person Responsible for Corrective Action	Department Responsible for Corrective Action
Anticipated Date of Corrective Action	**Actual Date of Corrective Action**

Supervisor's Signature	Date	Employee's Signature	Date
Safety Manager's Signature			**Date**

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Master Construction Solutions **Accident/Incident Diagram/Narrative**

Location	Date of Accident/Incident

Notes

Name of Person Completing Form:	**Signature**	**Date**

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Ladder Safety Policy

Ladders present unique opportunities for unsafe acts and unsafe conditions. Most ladder falls involve portable ladders that move, tilt, or shift while a worker is climbing or descending. Unstable or slippery base surfaces are the primary reasons ladders fail. Other reasons include a misstep or a slip of the foot, loss of balance, overreach, and being struck by a vehicle or other object.

To reduce ladder-fall risks, employees who use ladders must be trained to:

- Frequently inspect and maintain ladders;
- Match tasks to the appropriate ladder;
- Set up ladders correctly; and
- Climb and descend ladders properly.

Ladder Ratings

There are many types of portable ladders, but they all receive one of four ratings, based on their maximum working load (the maximum weight they can safely support). The ratings are:

Rating	Max. Workload	Master Construction Solutions's Policy
(I-A) Extra Heavy Duty	300 pounds	To be used by Master Construction Solutions and related operations/sub-contractors/affected parties.
(I) Heavy Duty	250 pounds	To be used by Master Construction Solutions and related operations/sub-contractors/affected parties.
(II) Medium Duty	225 pounds	This type of ladder may only be used in office environments or light duty operations.
(III) Light Duty	200 pounds	This type of ladder ***will not*** be used by Master Construction Solutions and related operations/sub-contractors/affected parties in any capacity.

Never subject a ladder to a load greater than its rated capacity.

Selecting Ladders

Ladders come in different types to fit different needs. Ladders are easier and safer to use when you match them with the appropriate task.

On the following page we have identified major types of portable ladders and the tasks for which they are appropriate. Portable ladders are either non-self-supporting (i.e., straight ladder) or self-supporting (i.e., standard step ladder). Most of the ladders utilized by Master Construction Solutions fall into one of these categories.

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- **Non-Self-Supporting Ladders**
  - Single Portable/Straight Ladder
    - The single portable or straight ladder is indispensable for general use. It is the most common type of portable ladder and has the widest range of applications.
    - When used on slippery surfaces, this ladder must have slip-resistant feet or be secured to prevent it from sliding. Rubber or neoprene ladder shoes are recommended for smooth, dry surfaces, and spike are recommended for snow or ice.
    - Sing portable ladders must not be longer than 30 feet and are intended for use by only one worker at a time. Such ladders are available in wood, metal, and reinforced fiberglass.



  - Extension Ladder:
    - Extension ladders offer the greatest length in a general purpose ladder. The ladder consists of two or more sections that travel in guides or brackets allowing adjustable lengths. The section must be assembled so that the sliding upper section is on top of the lower section. Each section must overlap its adjacent section with a minimum distance, based on the ladder's overall length. The overall length is determined by the lengths of the individual sections, measured along the side rails. The table below sows the minimum overlap for ladders up to 60 feet long. **NOTE:** Install positive stops on individual ladder sections to ensure the required overlap.

Ladder Length	**Overlap**
Up to and including 36 feet	3 feet
Over 36 feet to 48 feet	4 feet
Over 48 feet to 60 feet	5 feet

    - Extension ladders are made of wood, metal, or reinforced fiberglass. Wood ladders cannot have more than 2 sections and must not exceed 60 feet. Metal and fiberglass ladders can have as many as 3 sections; however, the overall length must not exceed 72 feet. Individual sections of any extension ladder must not be longer than 30 feet. Extension ladders are for use by only one person at a time.
    - Make sure extension ladders have non-slip bases if there is a chance the ladder can slip. Cord-face ladder shoes are recommended for wet surfaces, rubber or neoprene ladder shoes for ice or

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snow. Be careful if you use an extension ladder on oily, metal, or concrete surfaces. Place the ladder securely and tie it off to prevent it from slipping.



- **Self-Supporting Ladders**
  - Stepladder:
    - The standard stepladder, a general-purpose ladder, has flat steps and a hinged back. It is self-supporting and nonadjustable. An *industrial* model, designed for heavy service demands, has oversized back legs, heavy-duty flat steps, and knee braces that increase rigidity and durability.
    - Standard stepladders should be used only on surfaces that offer firm, level footing such as floors, platforms, and slabs. They are available in metal, wood, or reinforced fiberglass versions and are intended to support only one worker at a time. Remember not to stand on, or work from, the top step. The ladders must have a metal spreader or locking arms. They cannot be longer than 20 feet measured along the front edge of the side rails.

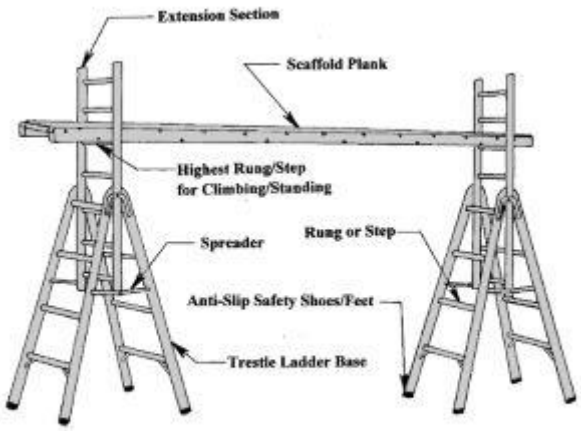


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- Two-Way Stepladder:
    - The two-way stepladder is like the industrial standard stepladder; however, each side of this ladder has a set of steps. The extra set of steps offers convenience and versatility: One person can work from either side, or two people can work from the ladder at the same time—one on each side.



- Trestle Ladder:
    - The trestle ladder is a self-supporting portable ladder that has two sections hinged at the top, forming equal angles with the base. A variation of the trestle ladder, the *extension trestle ladder*, includes a vertically adjustable single ladder that can be locked in place. (The single extension section must lad at least three feet into the base section.) Trestle ladders are used in pairs to support planks or staging. The rungs are not intended to be used as steps.
    - The angle of spread between open front and back legs must be 5 ½ inches per foot of length. The length cannot be more than 20 feet, measure along the front edge of the side rails. Rails must be beveled at the top and have metal hinges to prevent spreading. Metal spreaders or locking devices are also required to keep the rails in place.



Extension Trestle Ladder
(often used in pairs to support a scaffold plank)

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- Platform Ladder:
    - The platform ladder is a special-purpose ladder that has a large stable platform from which you can work at the highest standing level. The ladder's length is determined by the length of the front edge of th side rail from the bottom of th eladder to the base of the platform. The length of the ladder cannont exceed 20 feet.



Using Ladders

- **Placing a ladder…**
    - Move the ladder near the work you are doing.
    - Angle the ladder properly. The base should extend not less than one-fourth the ladder's length. Place a solid rest for the rail tops across any window openings.
    - Protect the base of a tall, occupied ladder if it could be struck by vehicles or pedestrians. Avoid placing a ladder in front of an unlocked, unguarded door.
- **Securing a ladder…**
    - Nail or secure a ladder in place if it will be used repeatedly in the same spot.
    - Select a ladder that will extend at least 36 inches above the access area it's serving.
- **Ascending and descending…**
    - Always face the ladder when ascending or descending.
    - Hold on with both hands when going up or down.
    - Be sure shoes are not greasy, muddy, or slippery before climbing.
    - Attach light, compact tools or materials to yourself (i.e., toolbelt).
    - Raise and lower heavy, awkward loads with a hand line or hoist.
- **Precautions…**
    - Place both feet firmly on the ladder rungs and steps.
    - Make sure only one person stands on, or works from, a standard ladder. (Use scaffold or a second ladder if two or more people are doing the same task).
    - Immediately inspect any ladder that has collapsed, toppled over, or been exposed to oil or grease. Clean and repair the ladder if necessary.
    - Remove defective ladders from service. Tag or mark defective ladders with the words: "Dangerous, Do Not Use."
    - Make sure an extension ladder extends at least 36 inches above an access landing.
    - Keep the area around the top and bottom of a ladder free of debris.
    - Keep the load on the ladder (including yourself) below its maximum load capacity.

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- **Never…**
  - Never place a ladder on boxes, tables, trucks, or other moveable objects.
  - Never work on ladders in exposed areas during a severe storm or strong winds.
  - Never work on ladders covered with ice or snow.
  - Never use a portable ladder if an approved stairway could be used instead.
  - Never slide down a ladder.
  - Never climb a ladder when your hands or shoes are slippery.
  - Never use your hands for carrying items while attempting to ascend or descend a ladder.
  - Never carry awkward loads when ascending or descending a ladder.
  - Do not climb higher than the third rung from the top on straight or extension ladders, or the second tread from the top on stepladders.
  - Never reach out over the side rails, lean, or turn excessively on a ladder. Keep your belt buckle within the side rails.
  - Never use any ladder with conductive side rails near exposed, energized equipment. (Such ladders must be permanently, legibly marked with the words, "WARNING – Do Not Use Around Energized Electrical Equipment."
  - Never paint ladders. Paint conceals defects. Use transparent preservatives instead.
  - Never use ladders with broken, patched, oily, or cracked rails, rungs, or steps.
  - Never use a ladder as guy, brace, or skid.
  - Don't stand or sit on the top two steps of a stepladder.
  - Don't use a non-self-supporting ladder without first opening it up and securing the metal spreader or locking device.
  - Don't load a ladder beyond its maximum load capacity.

Transporting Ladders

Some ladders are easier to move than others. The following basic guidelines are to be utilized during the transportation of any ladder, to help protect the ladder and the people who use them.

- When you hand-carry a ladder, keep the front end elevated, especially around blind corners, in aisles, and through doorways. You will reduce the chance of striking another person with the front of the ladder.
- When transporting a ladder in a truck or trailer, place it parallel to the bed. Avoid tossing, throwing, or dropping it in the bed.
- If you transport a long ladder on a short truck bed over long distances, support the ladder so it won't sag or bend.
- Drive slowly over rough terrain. Tie the ladder securely to eliminate nicking, gouging, chafing, and road shock.

Storing Ladders

Another way to prolong a ladder's life is to store it properly.

- The storage area should be well ventilated.
- Wood ladders shouldn't be exposed to moisture or excessive heat. Avoid storing ladders near stoves, steam pipes, or radiators.
- Store straight or extension ladders in flat racks or on wall brackets. Make sure there are enough brackets to support the ladder so that it doesn't sag. If the ladder rails have a lateral curve, the wall brackets should match the curve.
- Store stepladders vertically, in a closed position, to reduce the risk of sagging or twisting. Secure stored ladders to that they won't tip over if they are struck.
- Store ladders, especially wood ladders, promptly after using them. Exposure to moisture and sun will shorten the life of a wood ladder.

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Maintaining and Repairing Ladders

Neglected ladders quickly become unsafe ladders. Step bolts slacken, step sockets and other joints work loose, hole sizes increase – eventually the ladder becomes twisted and unstable.

Periodic maintenance extends a ladder's life and saves replacement costs. Maintenance includes regular inspection of the ladder, repairing damage and tightening step bolts and other fastening.

- Replace lower steps on wooden ladders when one-fourth of the step surface is worn away. Typically, the center of a step receives the most wear. (Mineral abrasive or other skid-resistant material reduces wear.)
- Don't use cleats to repair rung ladders.
- Don't paint a wood ladder – paint conceals defects.
- Consider stocking repair parts if you use different types of ladders. Typical parts include ladder bolts, related hardware, and lower steps or rungs (which wear out faster than upper steps or rungs).
- Metal ladder treads that have round dimples worn smooth can be re-dimpled with a tapered punch driven upward in same line as the original dimpling.

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Ladder Inspection Form

Inspectors Name:	Date of Inspection:	Ladder's Serial # or I.D. Mark:

Description	Needs Repair	Condition OK	N/A
General Item To Be Checked			
Loose steps or rungs (considered loose if they could be moved at all with the hand).			
Loose nails, screws, bolts, or other metal parts.			
Cracked, split, or broken uprights, braces, steps, or rungs.			
Slivers on uprights, rungs, or steps.			
Damaged or worn nonslip bases.			
Rusted or corroded spots.			
Stepladders			
Wobbly (from side strain).			
Loose or bent hinge spreaders.			
Stop on hinge spreaders broken.			
Broken, split, or worn steps.			
Loose hinges.			
Extension Ladders			
Loose, broken, or missing extension locks.			
Defective locks that do not seat properly when the ladder is extended.			
Deterioration of rope, from exposure to weather, acid, or other destructive agents.			
Fixed Ladders			
Loose, worn, or damaged rungs or side rails.			
Damaged or corroded parts of cage.			
Corroded bolts and rivet heads on inside of metal stacks.			
Damaged or corroded handrails or brackets on platforms.			
Weakened or damaged rungs on brick or concrete slabs.			
Base of ladder obstructed.			

Notify Supervisor of unrepairable ladders immediately.
Unrepairable ladders will then be promptly destroyed.

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PORTABLE LADDER SAFETY

Setting Up A Ladder

- Before setting up a ladder, check for overhead electrical wires. Clear the area around the base and top of the ladder of debris, tools and other objects.
- If you must use a ladder in passageways, driveways or other high traffic areas, set up suitable barricades. If you're using a ladder in a doorway, lock the doors shut.
- Place the ladder feet ¼ of the ladder's working length away from the base of the structure.
- Rest both side rails on the top support and secure the ladder to prevent slipping.
- If you will be stepping onto a higher platform (i.e., a roof or scaffold) from the ladder, make sure the ladder extends at least 3 feet above that platform.
- Place the ladder on a firm, level footing. Secure the bottom to prevent it from slipping. Have someone hold the ladder if possible, especially if the ladder doesn't have slip-resistant feet or secure blocking.
- Do not set up a ladder on a box, cart, table or scaffold; on ice; or on any other unstable or slippery surface.
- Stand a ladder on both side rails, not on any of its rungs.

Climbing A Ladder

- Grasp the rungs of the ladder, not the side rails. The rungs are easier to hold onto in case your foot slips. Face the ladder when going up or down and when working form it. Keep the center of your body within the side rails.
- Maintain three-point contact by keeping 2 hands and 1 foot, or 2 feet and 1 hand, on the ladder at all times.

Other Safety Precautions

There are two types of portable ladders:

- **Stepladders**
- **Extension Ladders**

When selecting a ladder, determine the height of reach needed, the area where you will use the ladder and the type of task to be performed.

- Ensure that all electrical equipment used during ladder work is in good condition and properly grounded.
- Do not join 2 short ladders to make a longer ladder. The side rails are not strong enough to support the extra load.
- Do not allow anyone to stand under a ladder.
- Do not use a ladder placed in a horizontal position as a scaffold plank or runway.
- Do not use a chair, barrel, box or anything else as a makeshift ladder.
- If you have access to a fixed stairway or scaffold, use it instead of a portable ladder.



Staying On A Ladder

- Do not work from the top 2 rungs. The higher you go on a ladder, the greater the possibility that it will slip out at the base.
- Wear protective footwear with slip-resistant soles and heels. Before climbing a ladder, make sure your footwear is in good condition and wipe off the soles if necessary. Don't climb a ladder if the soles of your shoes or boots are wet, muddy, or slippery.
- Ensure that only 1 person is on a single-width ladder. A double-width ladder should have no more than 1 person on each side.
- Don't straddle the space between a ladder and another object.
- Don't overreach from a ladder; step down and move the ladder as required.
- Keep your balance. If you are doing work that requires you to look up and reach above your head (i.e., paint a wall or wash windows) rest frequently to avoid arm fatigue and disorientation. If you become dizzy or panicky, drape your arms over a rung and rest your head against another rung or side rail. Climb down slowly.

Don't even use a ladder unless it is designed and approved for the task you are performing. And remember that the little time and effort it takes to inspect your ladder, set it up properly and exercise caution will make your job easier, and could quite possibly save your life.

Portable Ladders.pub
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Mobile Equipment Policy

Master Construction Solutions recognizes the hazards associated with the operation of heavy equipment and mobile equipment. To control these hazards, Master Construction Solutions has developed these guidelines to eliminate injuries and fatalities related to this type of equipment.

This policy applies to all mobile equipment that may be operated by gasoline, propane, diesel, or electricity except for forklifts and cranes. Only qualified/authorized personnel may operate heavy/mobile equipment. Workers must demonstrate their competency by successful completion of the training and evaluation process specified herein. This policy establishes the guidelines and requirements for working in or around all types of heavy/mobile equipment.

Definition of Terms

Competent Person – Person who by possession of a recognized degree in an applicable field or a certificate of professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter and work.
Mobile Equipment – Free moving equipment propelled/powered by gasoline, propane, natural gas, diesel, or electricity used to haul, transport, excavate, move, maneuver or hoist materials, equipment, products, or personnel except for forklifts and cranes.
Pre-use Inspection – Required inspection of a piece of mobile equipment completed prior to the start of work at each work shift.
Qualified Person - One who can identify 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.

General Operating Requirements

- The location shall determine the safe operating speed for any mobile equipment.
- All incidents involving mobile equipment shall be reported to the job site foreman and Master Construction Solutions safety department.
- Equipment operators are responsible for always keeping the equipment under control.
- All equipment operators must obey traffic signs and signals and any audible or visual warning devices.
- Alteration or modification of equipment is not permitted without prior written consent of the manufacturer.
- When parking, the operator must not block fire aisles, stairways, fire equipment or other emergency response areas or equipment.
- Horseplay and stunt driving are strictly prohibited.
- All equipment rated capacities shall not be exceeded.
- Equipment operators shall perform a pre-shift inspection of all equipment using the appropriate form for each piece of equipment.
- Any deficiencies found in the pre-shift inspection shall be reported and the equipment taken out of service until appropriate repairs are made and the equipment deemed safe to operate.
- Right of way must be yielded to all emergency vehicles.
- Riders are not permitted unless the equipment is designed and equipped for such purposes.
- Operators must keep both hands free for operation of the equipment. Eating, drinking, reading and the operation of communication or audio devices which are not “hands-free” is prohibited.
- Governors, where used to set a specific speed, must not be altered, or removed.
- Equipment operators must maintain a safe following distance from other equipment or vehicles. Three truck lengths or three seconds should be used as a guideline for establishing safe distance.
- Where operators must enter intersections or doorways with obstructed views, it is the operator’s responsibility to stop and sound the horn before proceeding. Convex mirrors, where available, should be used to assist in identifying cross-traffic.
- Equipment operators must stay within floor markings and out of pedestrian lanes where the work permits. When work requires the operator to enter these areas, barricades and signage should be used to alert others of their presence.
- When the cab of the equipment is not enclosed appropriate eye protection must be worn.
- Seatbelts must be worn prior to starting the equipment and during equipment use.

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- Operators may only use the equipment in the manner that it was designed and intended for.
- Excess counterweight is forbidden.
- Only attachments which are designed for use with each piece of equipment shall be used.
- Operators must be aware of and give right of way to pedestrians. Keep bystanders out of the work area.
- Traveling surfaces must be capable of supporting the weight of the equipment and the load.
- Railroad tracks and similar edges should be crossed at a 45-degree angle when possible.
- The operator is responsible for ensuring that adequate clearance is maintained of lights, sprinklers, ductwork, or pipes.
- Equipment operators must maintain a safe distance from edges, elevated ramps, platforms, or docks.
- Equipment operators shall not pass other vehicles moving in the same direction at intersections, blind spots, or other dangerous locations.
- Equipment operators must look back over both shoulders before changing direction or moving in reverse.
- Operators must follow all manufacturers' guidelines for refueling. At a minimum this will include shutting off the engine, keeping the filler in contact with the tank, always staying with the piece of equipment and a prohibition against smoking or open flame within the immediate refueling area.
- Equipment operators shall keep all parts of their bodies within the dimensions of the truck cab.
- When parking near railroad tracks, equipment shall not be placed closer than 25 feet from the center of the railroad tracks.
- Equipment operators may not travel with a load obstructing their view. When a load obstructs the operator's view, the load should be moved backwards. Spotters should be used when view obstruction is unavoidable.
- Equipment operators should avoid running over loose materials, uneven or soft surfaces and slippery areas (oil slicks). These conditions should be reported for correction.
- All equipment should be equipped with back-up alarms.
- Back-up alarms and lighting systems shall be inspected during the pre-shift inspection.
- Loads should not be moved until they are properly secured.
- Flatbed truck operators shall pre-examine loads to ensure they do not overload the truck.
- Flatbed truck operators shall not use the reverse direction power for braking.
- Flatbed truck operators shall allow sufficient clearance for lowering loads onto storage spaces.

Equipment Operator Training and Evaluation

- **General Requirements**
  - The formal training program consists of classroom instruction with competency testing and practical training.
  - Training shall include safety rules, operating procedures, equipment controls and safe work instructions such as, but not limited to, job safety analysis and standard operating procedures.
  - A competent person who has the requisite mobile equipment knowledge, training and experience will conduct the training and evaluations.
  - The competent person will evaluate each prospective operator while performing the safe operation of each piece of equipment.
  - All operators must exhibit satisfactory operating skills and pass a supervised written examination.
  - Employees will be qualified on each specific piece of equipment they will be operating. The documentation records will contain: the names of the operator, date of training, name of the competent person providing the training and the specific equipment for which the employee was trained.
- **Training Topics for Safe Operation**
  - All operating instructions, warnings, and precautions for the type of equipment the operator will be authorized to operate.
  - The differences between the industrial vehicle and an automobile.
  - Equipment controls and instrumentation location – what they do and how they work.
  - Engine and motor operation.
  - Steering and maneuvering.
  - Visibility including visibility restrictions.
  - Vehicle capacity
  - Vehicle stability
  - Vehicle inspection and maintenance the operator will be required to perform.
  - Any other operating instruction, warning or precaution listed in the operator's manual for the type of vehicle the employee is being trained to operate.

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- Composition of probably loads and load stacking.
- Workplace related topics and operating procedures (weather, docks, etc.)
- Surface conditions where the vehicle will be operated.
- Load manipulation.
- Pedestrian traffic.
- Narrow aisles and other restricted areas of operation.
- Hazardous locations where the vehicle will be operated.
- Ramps and sloped surfaces.
- Closed environments and other areas where insufficient ventilation could cause a build-up of carbon monoxide or diesel exhaust.
- Operating limitations.
- Refueling and charging/recharging batteries.

➢ **Evaluation and Refresher Training**

- A competent person must conduct and document an evaluation of the performance of the operator or heavy/mobile equipment initially.
- Documented corrective training shall be required when conditions in the workplace change, new equipment is being introduced or if an operator demonstrates any of the following conditions:
    - Operating in an unsafe manner
    - Involvement in an accident
    - Assignment to a different piece of equipment
    - Conditions in the workplace change that could affect safe operation.

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Personal Protective Equipment (PPE) Policy

The use of Personal Protective Equipment (PPE) to eliminate injuries is an important component of Master Construction Solutions' safety program. This program and policy have been established to aid Master Construction Solutions in two basic objectives regarding the use of Personal Protective Equipment:

- **To protect the wearer from safety and health hazards; and**
- **To prevent injury to the wearer from incorrect use and/or malfunction of the PPE.**

To ensure the safety of all individuals on a worksite, Master Construction Solutions, expressly forbids any employee, subcontractor, or vendor from furnishing and using their own Personal Protective Equipment until it has been examined and approved by the President, Site Supervisory Personnel, or otherwise designated Competent Person. All equipment furnished by outside employees, subcontractors or vendors must meet the full scope and applicability of this policy and procedure.

Controlling Hazards

PPE devices alone should not be relied on to provide protection against hazards, but should be used in conjunction with engineering controls, work practice and administrative controls.

- **Engineering Controls:**
  - Workplace hazards may be corrected using engineering controls which may be thought of as replacing or redesigning machinery, equipment, and tools, and/or substituting materials. Engineering controls are the "first line of defense" against injury/illness, because they have the potential to eliminate a hazard, and do not rely on human behavior to be effective. For instance, rather than require employees to wear respiratory protection which must be monitored, inspected, trained, managed, it's much more effective to install a ventilation system that does not require any of those management activities.
- **Work Practice and Administrative Controls:**
  - Work Practice and administrative controls involve changing or redesigning work procedures, rescheduling breaks, changing the number of workers doing a job, etc., to reduce the frequency and duration of exposure to the hazards of tasks. Using administrative controls is not as effective as engineering controls because, in most cases, they only reduce exposure - they do not eliminate the hazard. And even more importantly, administrative controls rely on human behavior (which is a negative factor) which must be managed.
  - If the person conducting the hazard assessment discovers that hazards requiring PPE are present, or likely to be present, then management must:
    - Select, and have each affected employee use, the types of PPE that will protect the affected employee from the hazard identified in the hazard assessment.
    - Communicate selection decisions to each affected employee; and
    - Select PPE that properly fits each affected employee.

Six Step Assessment Process

Each worksite/existing structure will be assessed to determine if hazards are present which necessitate the use of PPE. Master Construction Solutions will verify that the assessment has been completed through a written certification ***(Job Hazard Assessment Form)***. If it is determined that such hazards are present, where applicable, Master Construction Solutions will select personal protective equipment for the affected employees and communicate the selection decisions to all affected employees, regardless of status.

It is important to consider certain general guidelines to assess foot, head, eye and face, and hand hazard situations that exist in an operation or process, and to match the protective devices to the hazard.

- **Step One: Conduct a Survey**
  The most effective strategy for surveying the work area is to use a team of individuals to conduct the assessment. The worksite supervisor, Competent Person and/or experienced employee should conduct a walk-through survey

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of the areas in question. The purpose of the survey is to identify sources of hazards to workers and co-workers. Consideration should be given to the basic hazard categories:

- Impact
- Penetration
- Compression (Roll-Over)
- Chemical
- Temperature Extremes
- Hazardous Atmospheres
- Noise

➢ **Step Two: Determine sources of hazards**

During the walk-through survey determine if any of the following ***basic hazard sources*** exist:

- Sources of motion, i.e., machinery or processes where any movement of tools, machine elements or particles could exist, or movement of personnel that could result in collision with stationary objects;
- Sources of high temperatures that could result in burns, eye injury or ignition of protective equipment, etc.;
- Chemicals that could contact skin and eyes;
- Sources of hazardous atmospheres;
- Sources of light radiation, i.e., welding, brazing, cutting, furnaces, heat treating, high intensity lights, etc.;
- Sources of falling objects or potential for dropping objects;
- Sources of sharp objects which might pierce the feet or cut the hands;
- Sources of rolling or pinching objects which could crush the feet;
- Layout of workplace and location of co-workers; and
- Electrical hazards.

➢ **Step Three: Organize the data**

Following the walk-through survey, it is necessary to organize the data and information for use in the assessment of hazards. The objective is to prepare for an analysis of the hazards in the environment to enable proper selection of protective equipment. In addition, injury/accident data should be reviewed to help identify problem areas.

➢ **Step Four: Analyze the data**

Having gathered and organized data on a worksite/jobsite, an estimate of the potential for injuries should be made. Each of the ***basic hazard categories*** should be reviewed to determine the:

- Nature of the hazard;
- Degree of risk;
- Seriousness or severity of potential injury;
- Possibility of exposure to several hazards simultaneously.

Next the ***probability***, or likelihood that an accident will occur needs to be determined. This can be accomplished by analyzing a set of conditions or factors associated with a hazard. They are:

- The number of employees exposed;
- The frequency of exposure;
- The duration of exposure;
- The proximity of employees to the point of danger;
- The adequacy of training;
- The adequacy of supervision;
- The adequacy of workstation design; and

➢ **Step Five: Select the Personal Protective Equipment**

After completing the hazard assessment it's time to select the right PPE for the job: To do this most effectively, it's important to:

- Become familiar with the potential hazards and the type of protective equipment that is available, and what it can do, i.e., splash protection, impact protection, etc.;
- Compare the hazards associated with the environment, i.e., impact velocities, masses, projectile shape, radiation intensities, with the capabilities of the available protective equipment;
- Involve employees in the selection process;
- Select the protective equipment which ensures a level of protection greater than the minimum required to protect employees from the hazards; and
- Fit the user with the protective device and give instructions on care and use of the PPE. It is very important that end users be made aware of all warning labels for and limitations of their PPE.

Fitting the device

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PPE that fits poorly will not properly protect employees. And, if the PPE is not comfortable, the employee is not likely to wear it long. Protective devices are generally available in a variety of styles and sizes, and care should be taken to make sure that the employee gets the right size for him or her.

Devices with adjustable features

It's important to realize that when it comes to PPE, ***"one size DOESNOT fit all!"*** Adjustments should be made on an individual basis for a comfortable fit that will keep the protective device in the proper position. Where manufacturer's instructions are available, they should be followed carefully.

- **Step Six: Reassess for Hazards**

  It is the responsibility of management to reassess the workplace hazard situation as necessary, by identifying and evaluating new equipment and processes, reviewing accident records, and reevaluating the suitability of previously selected PPE.

PPE Selection Guidelines

- After completion of the hazard assessment, the general procedure for selection of personal protective equipment is to:
  - Become familiar with the potential hazards and the type of protective equipment that is available, and what it can do;
  - Compare the hazards associated with the environment;
  - Select the protective equipment which ensures a level of protection greater than the minimum required to protect employees from the hazards; and
  - Fit the user with the protective device and give instructions on care and use of the PPE.
- Table 1 is a checklist for PPE selection in various hazardous situations. The checklist is intended for use as a quick reference and should be used in conjunction with the applicable sections of this policy and procedure. There may be operating conditions in which the use of a listed item from the table is impractical or would increase the hazard. In these instances, use appropriate PPE and procedures to safeguard employee safety and health.

TABLE 1

Hazard	Recommended PPE
Heavy Impact or Falling Object	**Head:** Hard Hat **Knees, Legs, and Ankles:** Fiber Metal Leggings **Feet and Toes:** Steel Box Toe Shoes or Toe Guards
Moderate Impact	**Head:** Hard Hat **Feet and Toes:** Steel Box Toe Shows
Small Flying Particles	**Head:** Abrasive Blasting Hood **Eyes:** Goggles, Spectacles with Side Shields **Face:** Plastic Face Shields **Fingers, Hands, and Arms:** Leather Gloves or Mittens, Sleeves **Trunk:** Leather/Canvas Fiber Aprons, Coats, or Jackets **Knees, Legs, and Ankles:** Leather, Fiber Metal, or Flame-Resistant Duck Pants, Knee Guards, Leggings, or Spats
Dusts	**Eyes:** Goggles, Spectacles with Side Shields, Plastic Eye Shields **Face:** Plastic Face Shields **Respiratory:** Approved Dust, Airline, or Abrasive Blasting Respirator
Sparks	**Head:** Cotton or Wool Cap (Flame Retardant Treated) **Eyes:** Goggles, Spectacles with Side Shields, Plastic Eye Shields **Face:** Plastic Face Shields **Fingers, Hands, and Arms:** Leather Flame Resistant Duck or Aluminum Fabric Gloves or Mittens, Sleeves **Trunk:** Leather Aprons, Coats, or Jackets **Knees, Legs, and Ankles:** Leather Fiber Metal, Flame-Resistant Duck Pants, Knee Guards, Shin Guards, Leggings, or Spats
Splashing Metal	**Eyes:** Goggles, Spectacles with Side Shields, Plastic Eye Shields **Face:** Wire Screen Shield **Fingers, Hands, and Arms:** Leather Flame-Resistant Duck or Aluminum Fabric Gloves or Mittens, Sleeves **Trunk:** Leather Aprons, Coats, or Jackets

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	Knees, Legs, and Ankles: Leather Fiber Metal, Flame-Resistant Duck Pants, Knee Guards, Shin Guards, Leggings, or Spats **Feet and Toes:** Leather Shoes, Foundry Shoes
Mists, Vapors, Gases, Fumes, and Smoke	**Eyes:** Goggles **Face:** Plastic Face Sheilds for Mists **Respiratory/Immediately Dangerous to Life:** Self-Contained Apparatus **Respiratory/Not Immediately Dangerous to Life:** Air Line Respirator, Hose Mask Without Blower, Chemical Cartridge Respirator with Filter for Specific Contaminant **Fingers, Hands, and Arms:** Rubber, Natural Rubber, Plastic Synthetic Fiber, Coated Glass Fiber, or Other Chemical-Resistant Gloves or Mittens, Sleeves, Protective Creams **Trunk:** Rubber, Plastic, or Other Chemical-Resistant Material **Knees, Legs, and Ankles:** Rubber, Plastic, or Other Chemical-Resistant Material **Feet and Toes:** Conductive Shoes (for explosive gases, vapors, or other materials)
Hot Materials	**Fingers, Hands, and Arms:** Leather Gloves, Mittens, Hand Pads, or Finger Cots; Leather, or Flame-Resistant Duck Sleeves **Trunk:** Leather Aprons, Coats, or Jackets **Knees, Legs, and Ankles:** Leather, or Flame-Resistant Duck Pants, Knee Guards, Shin Guards, Leggings, or Spats **Feet and Toes:** Wood Soles
Heat	**Head:** Cotton or Wool Cap **Fingers, Hands, and Arms:** Leather Aluminized Fabrics, Glass Fiber Insulated Gloves, Mittens, or Hand Pads; Flame-Resistant Duck or Reflective Fabric (for radiant heat) Sleeves **Knees, Legs, and Ankles:** Flame-Resistant Duck, Aluminized Fabrics for Radiant Heat **Feet and Toes:** Leather or Wood Soles, Thermal Insulated Shoes **Whole Body:** Aluminized Garments for Radiant Heat, Vortex Tube with Air Cooled Suits
Slips and Falls	**Feet and Toes:** Nonskid Shoes, Wood Soles, Slip-Resistant Soles and Heels (cord and cork)
Moisture and Water	**Head:** Plastic: Rubber Hat **Fingers, Hands, and Arms:** Rubber, Oiled Fabrics, Plastic, Coated Glass Fiber Gloves, Mittens, or Finger Cots, Rubber Oiled Fabrics, or Plastic Sleeves **Trunk:** Rubber or Plastic Material **Knees, Legs, and Ankles:** Rubber or Plastic Material **Feet and Toes:** Nonskid Shoes, Leather or Wood Soles, Rubber or Neoprene Overshoes **Whole Body:** Garments of Rubber, Plastic, or Other Impervious Material
Cuts and Abrasions	**Head:** Hard Hat **Fingers, Hands, and Arms:** Leather, Metal Mesh, or Cotton Canvas Gloves, Mittens, Hand Pads, or Finger Cots, Leather Sleeves **Trunk:** Leather or Canvas Fiber Aprons, Coats, or Jackets **Knees, Legs, and Ankles:** Leather or Fiber Metal Pants, Knee Guards, Shin Guards, Leggings, or Spats **Feet and Toes:** Steel Box Toes Shoes, Wood Soles
Dermatitis	**Head:** Plastic-Rubber Hat, Cotton or Wool Cap **Face:** Plastic Face Shield, Protective Barrier Creams **Fingers, Hand, and Arms:** Rubber, Synthetic Rubber Plastic or Cotton Gloves, Protective Barrier Creams **Trunk:** Rubber or Plastic Material **Knees, Legs, and Ankles:** Rubber or Plastic Material **Feet and Toes:** Rubber Boots, Wood Soles, Shower Sandals (paper or wood)
Electricity and Electric Shock	**Head:** Plastic-Rubber or Plastic Hat (Class B) **Fingers, Hands, and Arms:** Rubber Gloves and Sleeves Resistant to 10,000 Volts for 3 Minutes **Trunk:** Rubber Material **Knees, Legs, and Ankles:** Fiber Material or Flame-Resistant Duck Pants, Knee Guards, Shin Guards, Leggings, or Spats **Feet and Toes:** Steel Box Shoes
Explosives	**Head:** Cap (flame retardant)

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	Fingers, Hands, and Arms: Gloves **Trunk:** Powder Uniform **Feet and Toes:** Conductive Shoes
Machinery	**Head:** Cap (long hair), Cotton or Wool Caps **Fingers, Hands, and Arms:** Flame-Resistant Duck Sleeves **Trunk:** Rubber, Plastic, or Canvas Fiber Aprons, Coats, or Jackets **Knees, Legs, and Ankles:** Fiber Material or Flame-Resistant Duck Pants, Knee Guards, Shin Guards, Leggings, or Spats **Feet and Toes:** Steel Box Shoes
Reflected Light and Glare	**Eyes:** Goggles, Spectacles with Side Shields with Filter Lenses
Welding	**Head:** Leather Skull Cap **Eyes:** Goggles-Welder's Eyecup, Helmets, or Hand Shields with Filter Lenses **Face:** Helmets or Hand Shields with Filter Lenses, Face Shield **Hands:** Flameproof Gauntlet Gloves
Laser Radiation	**Eyes:** Protective Eyewear
Noise	**Ears:** Plug or Insert, Cup or Muff Ear Protectors, Helmet

Head Protection

- Employees working in areas where there is possible danger of head injury from impact, from falling or flying objects, or when working with High-voltage equipment. The hard hat should be easily adjustable so employees will wear the hat properly.
- Hard Hats approved for use by Master Construction Solutions are either Class A or Class B and are clearly marked with the American National Safety Institute label (ANSI Z89.1) next to the manufacturer's name.
  - Class A hard hats provide protection against impact and falling or flying objects.
  - Class B hard hats protect the head against high voltage electricity.
- All hard hats will be disposed of whenever the helmet has received impact or shows signs of deterioration.
- It is mandatory that hard hats be worn in all construction areas, including roads, shops, and outlying work areas where there is a potential exposure to falling or flying material.

Eye and Face Protection

Flying particles, cuts, chemicals, injurious light, heat rays, and blows to the face and eyes cause eye injuries. To prevent such injuries, Master Construction Solutions offers many types of eye and face protection devices.

- Employees will be issued, and will, use appropriate eye or face protection when exposed to eye or face hazards. From flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation. Protectors must meet the following minimum requirements.
  - Provide adequate protection against particular hazards for which they are designed;
  - Be reasonably comfortable when worn under the designated conditions;
  - Fit snugly without interfering with the movements or vision of the wearer;
  - Be durable;
  - Be capable of being disinfected;
  - Be easily cleanable;
  - Be kept clean and in good repair.

- The following sign, or one with the same wording, will be posted in all areas where eye protection is mandatory. Employees who work in these areas will wear eye protection issued to them. Visitors to the area shall also be provided with suitable eye protection.



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- Employees whose vision requires the use of corrective lenses and who are required to wear protective eyewear shall wear one of the following types of goggles or eyeglasses:
  - Eyeglasses whose protective lenses provide optical correction;
  - Goggles that can be worn over corrective eyeglasses without disturbing the adjustment of the eyeglasses; and
  - Goggles that incorporate corrective lenses mounted behind the protective lenses.

- **Table 2** (see following page) is a guide for selecting the devices that will provide adequate eye protection for various operations. **Table 3** lists the lens shades recommended for protecting the eye against flares and welding. If eye protection is needed for situations not listed in either table, consult Site Supervisory Personnel and/or the "Qualified" or "Competent Person".

Table 2

Eye-protection equipment for various operations and material exposures.

Hazard	Recommended Eye-protection
Chemicals	▪ Face Shield ▪ Ventilated Clear-Plastic Goggles
Chipping	▪ Face Shield ▪ Ventilated Clear-Plastic Goggles ▪ Safety Glasses with Plastic Side Shields
Compressed Air Use	▪ Ventilated Clear-Plastic Goggles ▪ Personal Safety Glasses ▪ Safety Glasses with Plastic Side Shields
Dust	▪ Ventilated Clear-Plastic Goggles
Electrical Work	▪ Safety Glasses with Plastic Frames and Side Shields ▪ Face Shield
Forging	▪ Face Shield ▪ Safety Glasses ▪ Safety Glasses with Plastic Side Shields ▪ Ventilated Clear-Plastic Goggles
Furnace Operations	▪ Calobar Clip-ons ▪ Welding Goggles: See Table 3 for recommended shades. ▪ Welding Goggles Plate Holder: See Table 3 for recommended shades. ▪ Welding Helmet: See Table 3 for recommended shades.
Grinding, Buffing, Polishing	▪ Face Shield ▪ Safety Glasses with Plastic Side Shields ▪ Ventilated Clear-Plastic Goggles
Lasers	▪ Special Laser Glasses
Machine & Hand-Tool Operations	▪ Face Shield ▪ Safety Glasses ▪ Safety Glasses with Plastic Side Shields ▪ Ventilated Clear-Plastic Goggles
Molten Material Handling	▪ Face Shield
Welding, Cutting, Burning (Acetylene)	▪ Welding Goggles: See Table 3 for recommended shades. ▪ Welding Goggles Plate Holder: See Table 3 for recommended shades. ▪ Welding Helmet: See Table 3 for recommended shades.
Welding (Spot & Butt)	▪ Face Shield ▪ Safety Glasses ▪ Safety Glasses with Plastic Side Shields ▪ Ventilated Clear-Plastic Goggles

Table 3

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Recommended lens shades for welding operations

Operation	Lens Shade Number
Oxyacetylene Torch Cutting & Welding:	
▪ Soldering	Medium Calobar
▪ Brazing	3or 4
▪ Cutting	
- Light less than 1 in.	3 or 4
- Medium, 1 to 6 in.	4 or 5
- Heavy, greater than 6 in.	5 or 6
Welding	
▪ Light, less than 1/8 in.	4 or 5
▪ Medium, 1/8 to 1/2 in.	5 or 6
▪ Heavy, greater than 1/2 in.	6 or 8
Arc Welding – in gas-shielded arcs (helium or argon), use shades 11 through 14.	
▪ Metal or Helium Arc	
- 1/6 to 3/32 in. – diameter rod	10
- 3/32 to 1/8 in. – diameter rod	10
- 1/8 to 5/32 in. – diameter rod	11
Metal Arc	
▪ 3/16 to 7/32 in. – diameter rod	12
▪ 1/4 in. – diameter rod	13
▪ 5/16 to 3/8 in. – diameter rod	14
Atomic Arc	14
Carbon Arc	14

- **Approvals** – Design, construction, testing, and use of eye and face protection will be in accordance with ANSI Z87.1-1989. Lenses and frames shall be marked with the manufacturer's symbol to indicate compliance with ANSI Z87.1-1989.
  - The use of approved lenses in unapproved frames is not acceptable.
  - Tinted lenses in safety glasses, including photo-gray lenses, are permissible only when prescribed for corrective purposes or specifically approved by the "Qualified Person/Competent Person".
- **Side Shields** should be used on safety glasses worn in buildings or areas designated as eye-hazard areas. Side shields should also be used on safety glasses worn in eye-hazard operations, unless it has been specifically determined for a particular operation that it is not possible for injurious objects or energies to enter the wearer's eyes from the side or that the reduced peripheral vision would pose a greater hazard to the employee.
  - Side shields shall not be easily detachable from the frames: slip-on types of sideshields are not permitted for use on any "Company" construction worksite.
  - Snap-on side shields are permissible only if they are clearly marked with the ANSI symbol and fit tightly, with no gapping or sliding movement, onto the glass's frames.
- It is essential that the lenses of eye protectors be kept clean. Continuous vision through dirty lenses can cause eye strain – often an excuse for not wearing eye protection.

Hand and Arm Protection

- Master Construction Solutions requires all employees to use appropriate hand and arm protection when employees' hands and arms are exposed to hazards such as:
  - Skin absorption of harmful substances;
  - Severe cuts or lacerations;
  - Severe abrasions;
  - Punctures;
  - Chemical Burns;
  - Thermal Burns & Harmful Temperature Extremes
- The required hand and arm protective wear will be based upon the hazard of the risk. **Table 4** presents details on the types of hand and arm protective wear used by Master Construction Solutions. *(For further details on electrical protection gloves and sleeves, reference the "Company's" Electrical Safety Program).*

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- **Reusable gloves and arm sleeves** shall be inspected regularly for damage, replaced when necessary, and stored in a protected location away from chemical exposure when not in use.
- **Heat-Resistant gloves and arm sleeves** - Asbestos gloves and arm sleeves are not permitted for use on any "Company" worksite. In cases of extreme heat exposure, Master Construction Solutions will supply a silica-based glove and arm sleeve that will provide heat protection to 1100□C.

Table 4

Hand and Arm Protective Wear

Type/Hazard	Protection Provided
Cut-Resistant	This type of glove is used where protection against cuts is required. Plastic dots can be adhered to the metal mesh to facilitate gripping. Another type of cut-resistant glove combines stainless steel with cut-resistant fiber wrapped with nylon fibers for enhanced flexibility and surface softness. These materials resist knives, glass, sheet metal, sharp edges, and other cutting surfaces. They are cut-resistant but not cut-proof or puncture proof. These materials must not be subjected to high-speed knives or serrated blades
High & Low Temperatures	Gloves, mittens, and arm and sleeve protectors are available in a wide variety of materials. Leather is a common welder's glove material. Heavy duty terry cloth gloves can provide heat protection of up to 350 degrees F. For extreme high and low temperature protection, specially processed silica fiber cloth (non-asbestos) can withstand temperatures of from –100 degrees F to 1100 degrees F. Do not use asbestos gloves.
Splinters, Cuts, Abrasions, & General Use	Light weight pigskin, goatskin, or calfskin leather gloves enable dexterity and grip while offering some resistance to cuts and abrasions. Other materials, which offer similar protection, include laminated nitrile coating on stretch fabric, vinyl, rubber coated, or impregnated fabrics.
Electrical Protection	Rubber devices that protect against electrical shock must meet the ANSI J6 series standards. Rubber insulating gloves must meet ANSI J6.6. These gloves are available to meet different voltage exposures. Light weight low voltage gloves are for use on voltages of under 1000V. Gloves for use on high voltage are of thicker material for the dielectric strength. As the voltage rating increases, so does the glove weight. Leather glove protectors are available to protect rubber gloves against punctures and abrasion. Employees who use this type of equipment must be qualified [see the "Company's" Electrical Safety Plan or reference 29 CFR 1910.331 (a)]. Rubber gloves must be visually inspected, and an "air" test must be performed before they are used.
Repetitive Motion And Vibration	Protective gear is available to minimize repetitive hand and wrist motions. One glove has openings for the fingers but offers palm protection. These anti-vibration gloves may be worn under regular work gloves.
Chemicals	Glove materials used to protect against chemicals include natural rubber, neoprene, polyvinyl chloride, polyvinyl alcohol, and nitrile. Table 5 shows recommended glove materials for use with various chemical hazards. Many operational variables may affect the performance of chemical protection gloves, including chemical combinations and concentrations, temperature, and exposure time.

Table 5

Recommended glove materials for use with various chemical hazards.

Chemical Hazards	Butyl	Neo-prene[a]	Nitrile[b]	Polyvinyl Chloride	Polyvinyl Alcohol	Latex	Polyethyl ene	Viton
Acids, dilute	+	+	+	+	-	+	-	+
Alcohol	+	+	+	+	-	+	+	+
Alkali (bases), dilute	+	+	+	+	-	+	-	+
Aromatics	-	-	-	-	+	-	-	+
Chlorinated Hydrocarbons	+	-	+	-	+	-	-	+
Epoxy Resins	+	+	+	+	-	-	-	+
Esters	+	-	-	-	-	-	-	-

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Hydrocarbons	+	+	+	-	+	-	-	+
Ketones (acetone, MEK, etc.)	+	-	-	-	-	-	-	-
Lacquer thinner	+	+	+	-	+	-	-	+
Oils, Grease	+	+	+	+	+	-	-	+
Petroleum Distillates, Mineral	+	+	+	-	+	-	-	+
PCB's	-	-	-	-	-	-	-	+

[a] Platex gloves, which are made of neoprene and latex, can be classified with neoprene.
[b] Also called Bune-N.
+ Recommended
- Not Recommended

Research on glove materials shows that:
(1) Each glove material temporarily resists solvent breakthrough, but eventually some permeation will result.
(2) The same glove material form different suppliers may vary in its permeation characteristics.
(3) A glove that swells indicates excessive permeation has occurred.
(4) Disposable gloves will be discarded after each use.

Ear Protection

Exposure to high noise levels will cause hearing loss or impairment. It can create physical and psychological stress. There is no cure for noise-induced hearing loss, so the prevention of excessive noise exposure is the only way to avoid hearing damage. Specifically designed protection is required, depending on the type of noise encountered.

- No employee shall be permitted to work in an area where the sound level exceeds 85 decibels (A scale) unless hearing protection that reduces the exposure to a level below 85 decibels (85 dbA) is worn.
- Warning signs shall be posted in any location where the sound level exceeds 85 dbA.



- All types of heavy equipment (dozers, loaders, graders, mixers, etc.) require hearing protection unless specifically instructed otherwise.
- Most earplugs are disposable, to be used one time and then thrown away. The non-disposable type should be cleaned after each use for proper protection.
- Earmuffs need to make a perfect seal around the ear to be effective. Glasses, long sideburns, long hair, and facial movements, such as chewing can reduce protection. Special equipment is available for use with glasses or beards.
- For extremely noisy situations, earplugs should be worn in addition to earmuffs. When used together earplugs and earmuffs change the nature of sounds.

Foot and Leg Protection

- Employees will wear protective footwear when working in areas where there is a danger of foot injuries from heavy falling objects, rolling objects, objects piercing the soles, and where employees' feet are exposed to electrical hazards.
- All protective footwear must comply with ANSI Z41-1991.
- Aluminum alloy, fiberglass, or galvanized steel footguards can be worn over usual workshoes, although they present the possibility of catching on something and tripping workers.
- Heat-resistant soles protect against hot surfaces like those found when roofing, paving and working with hot metal.

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- Storm rubbers, which slip over the safety shoe, provide a non-skid tread for fall protection on slippery walking surfaces. Storm rubbers also provide excellent protection for inside or outside work where water, oil, or chemicals could damage the safety shoe outer shell.
- Over-the-sock or over-the-safety shoe boots are available. Boot outer shell materials include PVC, rubber, butyl, and neoprene. Temperature, abrasion, and chemical exposures in the workplace must be considered in the selection of the material (see Table 5).

Protective spats and leggings offer protection against high heat, flame, molten metal splashes, hot sparks, and chainsaw cuts. Material construction includes leather, flame retardant duck, aluminized rayon, and other aluminized fabrics.

- Quick release legging Velcro closures should be used when any emergency would require the legging to be quickly removed.

Torso Protection

- Many hazards threaten the torso. Protective garments such as vests, jackets, aprons, coveralls, and full body suits may be necessary to protect employees who handle hot and/or hazardous materials.
  - When a need for such a garment is identified, it shall be furnished by Master Construction Solutions.
- **Selection.** The type of garment that will provide the best protection for a job will depend on the nature of the job and the physical and chemical hazards associated with the job.
  - Wool and specially treated cotton are two natural fibers, which are fire-resistant and comfortable since they adapt well to changing workplace temperature.
  - Duck, a closely woven cotton fabric, is good for light duty protective clothing. It can protect against cuts and bruises on jobs where employees handle heavy, sharp, or rough material.
  - Heat-reflecting clothing such as leather is often used to guard against dry heat and flame.
  - Rubber and rubberized fabrics, neoprene, and plastics give protection against some acids and chemicals.
- Disposable suits of paper-like material are particularly important for protection from dusty materials or materials that can splash. If the substance is extremely toxic, a completely enclosed suit will be necessary. The clothing must be inspected to assure proper fit and function for continued protection.

Respiratory Protection

- The workplace can present hazards to the lungs. Some of the most common hazards are:
  - The lack of oxygen; and
  - The presence of harmful dust, fog, smokes, mists, fumes, gases, vapors, or sprays.
- Respirators prevent the entry of harmful substances into the lungs during breathing. Some respirators also provide a separate supply of breathable air so work can be performed where there is inadequate oxygen, or where greater protection is needed.
- The prevention of atmospheric contamination at the worksite should be accomplished as far as feasible by engineering control measures:
  - Enclosing or confining the contaminant producing operation;
  - Exhausting the contaminant; or
  - Substituting with less toxic materials.
- When effective engineering controls are not feasible, while those controls are being installed, or during cleanup operations, appropriate respirators will be used.
  - The respirator user will be instructed that respirators have their limitations and are not substitutes for effective engineering controls.
  - Where respirators are necessary for health protection, specific procedures are necessary to overcome any potential deficiencies and to assure the effectiveness of the equipment.

Traffic Safety Vests

- Every “Company” employee shall wear an approved reflective fluorescent safety vest or, equivalent, under the following conditions:

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- When working within a road allowance or on a public way;
- When working on a project where the wearing of a traffic safety vest is required under the Occupational Health & Safety Act and the Regulations for Construction Projects. This includes the directing of traffic;
- In any other location or situation where the Employee may be endangered by vehicular traffic or where being visible is important to his/her safety.

➢ For the purposes of this policy, approved equivalents to a traffic safety vest are T-shirts, jackets, overalls, and other approved apparel, which is safety ("blaze") orange or neon yellow in color with reflective tapes on the front and back. Approved means that the clothing has been reviewed and approved for use by Site Supervisory Personnel or "Competent Person".

Personal Protective Equipment (PPE) and Heat Stress

➢ Wearing PPE puts a worker at considerable risk of developing heat stress. This can result in health effect ranging from transient heat fatigue to serious illness or death. Heat stress is caused by several interacting factors, including environmental conditions, clothing, workload, and the individual characteristics of the worker.

➢ Individuals vary in their susceptibility to heat stress. Factors that may predispose someone to heat stress include:
- Lack of physical fitness
- Lack of acclimatization
- Age
- Dehydration
- Obesity
- Alcohol & Drug use
- Infection
- Sunburn
- Diarrhea
- Chronic Disease

➢ Reduced work tolerance and increased risk of excessive heat stress is directly influenced by the amount and type of PPE worn. PPE adds weight and bulk, severely reduces the body's access to normal heat exchange mechanisms (i.e., evaporation, convection, and radiation), and increases energy expenditure.

➢ When selecting PPE, each item's benefit will be carefully evaluated in relation to its potential for increasing the risk of heat stress. Once PPE is selected, the safe duration of work/rest periods will be determined based on the:
- Anticipated work rate;
- Ambient temperature and other environmental factors;
- Type of protective ensemble;
- Individual worker characteristics and fitness – physical fitness is a major factor influencing a person's ability to perform work under heat stress. The better fit someone is, the more work he/she can safely perform.

➢ At a given level of work, a fit person, relative to an unfit person, will have:
- Less physiological strain;
- A lower heart rate;
- A lower body temperature, which indicated less retained body heat (a rise in internal temperature precipitates heat injury);
- A more efficient sweating mechanism;
- Slightly lower oxygen consumption;
- Slightly lower carbon dioxide production.

➢ The degree to which a worker's body has physiologically adjusted or acclimated to working under hot conditions affects his or her ability to do work. Acclimatized individuals generally have lower heart rates and body temperatures than unacclimatized individuals and sweat sooner and more profusely. This enables them to maintain lower skin and body temperatures at a given level of environmental heat and workloads than unacclimatized workers.

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I am reviewing (check the appropriate box):		**Workstation/ Worksite**	**Specify Location:**
		Single Employee's Job Description	**Name of Employee:**
			Working Title of Position:
			Other Description:
		Job Description For A Class of Employees	**Working Title of Position:**
			Other Description:

Name of Person Completing Form:	**Title of Person Completing Form:**	**Date:**

Eye Hazards

Eye Hazards – Tasks that can cause eye injury include working with chemicals or acids; chipping, sanding, or grinding; welding; furnace operations; and, metal and wood working.

Check the appropriate box for each hazard:			*Description of Hazard(s)*	*Based upon the hazard assessment, the following PPE is required:*
Chemical Exposure	____ Yes	____ No		
High Heat/Cold	____ Yes	____ No		
Dust/Flying Debris	____ Yes	____ No		
Impact	____ Yes	____ No		
Light Radiation	____ Yes	____ No		
	____ Yes	____ No		

Head Hazards

Head Hazards – Tasks that can cause head injury include working below other workers who are using tools or materials that could fall; working on energized electrical equipment or utilities; and, working in trenches or confined spaces.

Check the appropriate box for each hazard:			*Description of Hazard(s)*	*Based upon the hazard assessment, the following PPE is required:*
Impact	____ Yes	____ No		
Electrical Shock	____ Yes	____ No		
	____ Yes	____ No		

Noise Hazards

Noise Hazards – Personnel may be exposed to noise hazards when machining, grinding, sanding, using pneumatic equipment, generators, motors, jackhammers, or similar equipment. ADDITIONAL TRAINING/MONITORING IS REQUIRED!

Check the appropriate box for each hazard:			*Description of Hazard(s)*	*Based upon the hazard assessment, the following PPE is required:*
Noise Hazard	____ Yes	____ No		
	____ Yes	____ No		

Foot Hazards – Tasks that can cause foot injury include exposure to chemicals or acids; welding or cutting; foundry operations; materials handling; renovation or construction; electrical work; and spray finishing or other work with flammable or explosive materials.

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	Check the appropriate box for each hazard:			*Description of Hazard(s)*	*Based upon the hazard assessment, the following PPE is required:*
	Chemical Exposure	____ Yes	____ No		
	High Heat/Cold	____ Yes	____ No		
	Impact/Compression	____ Yes	____ No		
	Slips/Trips	____ Yes	____ No		
	Puncture	____ Yes	____ No		
	Slippery/Wet Surfaces	____ Yes	____ No		
	Electrical	____ Yes	____ No		
	Explosive/Flammable Atmosphere.	____ Yes	____ No		
		____ Yes	____ No		
		____ Yes	____ No		

Hand Hazards	**Hand Hazards –** Hand injury can be caused by work with chemicals or acids; exposure to cut or abrasion hazards (i.e., during demolition, renovation, or woodworking); and work with very hot or cold objects or materials. BLOODBORNE PATHOGENS – ADDITIONAL TRAINING/MONITORING IS REQUIRED!				
	Check the appropriate box for each hazard:			*Description of Hazard(s)*	*Based upon the hazard assessment, the following PPE is required:*
	Chemical Exposure	____ Yes	____ No		
	High Heat or Cold	____ Yes	____ No		
	Cuts/Abrasion	____ Yes	____ No		
	Puncture	____ Yes	____ No		
	Electric Shock	____ Yes	____ No		
	Bloodborne Pathogens	____ Yes	____ No		
		____ Yes	____ No		
		____ Yes	____ No		

B o -	**Body/Torso Hazards –** Injury of the body or torso occur during exposure to chemicals, acids, or other hazardous materials; abrasive blasting, welding, cutting, brazing; chipping, sanding, or grinding, use of chainsaws or similar equipment; foundry operations; and, work around electrical arcs

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	Check the appropriate box for each hazard:			*Description of hazard*	*Based upon the hazard assessment, the following PPE is required:*
	Chemical Exposure	____ Yes	____ No		
	Extreme Heat/Cold	____ Yes	____ No		
	Abrasion	____ Yes	____ No		
	Impact	____ Yes	____ No		
	Electrical Arc	____ Yes	____ No		
		____ Yes	____ No		
Respiratory Hazards	**Respiratory Hazards –** Personnel may be exposed to respiratory hazards that require the use of respirators: when using certain chemicals outside of chemical fume hood; when applying paints or chemicals in confined spaces; when welding, cutting, or brazing on certain metals; and, when disturbing asbestos, lead, silica, or other particulate hazards. ADDITIONAL TRAINING/MONITORING IS REQUIRED!				
	Check the appropriate box for each hazard:			*Description of Hazard*	*Based upon the hazard assessment, the following PPE is required:*
	Chemical Exposure	____ Yes	____ No		
	Confined Space Work	____ Yes	____ No		
	Particulate Exposure	____ Yes	____ No		
	Welding/Related Hazard	____ Yes	____ No		
		____ Yes	____ No		
Fall Hazards	**Fall Hazards –** Personnel may be exposed to fall hazards when performing work on a surface with an unprotected side or edge that is; 4 feet (general industry), 6 feet (construction), or 10 feet (scaffold work) above a lower level – always consult the appropriate CFR – Fall protection may also be required when using vehicle manlifts, elevated platforms, tree trimming, performing work on poles, roofs, or fixed ladders. ADDITIONAL TRAINING/MONITORING IS REQUIRED!				
	Check the appropriate box for each hazard:			*Description of Hazard*	*Based upon the hazard assessment, the following PPE is required:*
	Fall Hazard	____ Yes	____ No		
		____ Yes	____ No		
		____ Yes	____ No		
Notes:					

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Safety is an integral part of every job and not a separate entity.

Job Topics To Consider

The Importance of Hazard & Job Safety Analysis

What is a Job Hazard Analysis?

A job hazard analysis (JHA) is a procedure which helps integrate accepted safety and health principles and practices into a particular operation. In a JHA, each basic step of the job is examined by a person capable of identifying the potential hazards and can determine the safest way to do the job. Other terms used to describe this procedure are job safety analysis (JSA) and job hazard breakdown.

What are the benefits of doing a Job Hazard Analysis?

Initial benefits from developing a JHA will become clear in the preparation stage. The analysis process may identify previously undetected hazards and increase the job knowledge of those participating. Safety and health awareness is raised, communication between workers and supervisors is improved, and acceptance of safe work procedures is promoted.

How do I determine which job(s) to do a Job Hazard Analysis on?

Ideally all jobs should be subjected to a JHA. But in reality this is just not always possible. It is usually necessary to identify which jobs are a priority and need to be analyzed immediately. Even if analysis of all jobs is planned, this step ensures that the most critical jobs are examined first.

Factors to be considered in assigning a priority for analysis include:

- Accident frequency and severity: jobs where accidents occur frequently or where they occur infrequently but result in disabling injuries.
- Potential for severe injuries or illnesses: the consequences of an accident, hazardous condition, or exposure to harmful substance are potentially severe.
- Newly established jobs: due to lack of experience in these jobs, hazards may not be evident or anticipated.

When analyzing a job, break it down into areas and ask yourself the important question for each topic:

- **Working With Chemicals:** Is the material toxic? What PPE is required (check the MSDS).
- **Respiratory Protection:** What type of respirator? Correct cartridge? Have employees been fit tested for this type of respirator?
- **Hazardous Waste:** Are approved containers available? Are the containers properly labeled? Emergency contact posted for accidental releases and/or spills?
- **Confined Spaces:** Permit posted? Respiratory protection needed? Air monitor recently calibrated? Emergency retrieval devices needed?
- **Grinding/Chipping:** All combustibles, flammables removed? PPE?
- **Work in elevated areas:** Safety harness required? Ladder secured? Safety net needed?
- **Working below grade level:** Barricade tape? Information tags? PPE? Shoring?
- **Hot Work:** Permit required? Fire Watch required? Fire extinguisher available? Flash shields needed?

How Do I Identify Potential Hazards?

Once the basic steps have been recorded, potential hazards must be identified at each step. Based on observations of the job, knowledge of accident and injury causes, and personal experience, list the things that could go wrong at each step. The following questions can help you identify potential hazards:

1. Can any body part get caught in or between objects?
2. Do tools, machines, or equipment present any hazards?
3. Can the worker make harmful contact with objects?
4. Can the worker slip, trip, or fall?
5. Is the worker exposed to extreme heat or cold? Do weather conditions affect safety?
6. Is excessive noise or vibration a problem?
7. Is there a danger from falling objects?
8. Can contact be made with hot, toxic, or caustic substances?
9. Are there dusts, fumes, mists, or vapors in the air?

When possible, eliminate the hazard.

- **Choose a different process or modify an existing one.**
- **Substitute with less hazardous substance.**
- **Improve environment (ventilation)**
- **Modify or change equipment or tools**

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PPE Checklist

On a construction site there may be hazards that are not completely eliminated by the usual methods. When these situations arise, specific Personal Protective Equipment (PPE) may be needed. Your PPE can save you from injury and even save your life. Follow these guidelines for using PPE:

- Wear your personal protective equipment properly. Ask your supervisor if you're not sure how to use it.
- If working at an existing facility instead of a construction site, always check with your supervisor for any rules the customer may have for PPE guidelines.
- Use Equipment that fits you properly
- Keep your equipment clean.
- Decontaminate your equipment when necessary.
- Follow guidelines for removing contaminated PPE.
- Check your gear for leaks, tears, cracks and other signs of wear before use.
- If your equipment is defective, repair or replace it before use.
- Report any health problems while using your protective equipment.
- Never wear street-wear eyeglasses in place of certified ANSI Z87 Safety Glasses.
- Never store your hard hat in a car, window or other hot place. The sun and heat can reduce its effectiveness.
- Avoid wearing jewelry or long, full or loose clothing with flaps that can catch in machinery.
- Avoid wearing fuzzy or flammable synthetic clothing around flames or sparks.
- Avoid wearing slick-soled shoes, loose or frayed shoelaces or long hems that can make you slip or trip.
- Wear clean clothing. Oily and greasy clothes catch fire more easily and dust and grease can irritate your skin.
- Dress for weather. Wear wool, tightly woven, insulated or layered waterproof clothing for cold and wet weather. In hot weather, wear sunscreen, a hat and lightweight, breathable cotton that protects your skin from sunlight.

Dress For The Job



Some examples of PPE are:

- ***Face & Eye Protection*** - safety glasses, goggles, shields, welding & laser protection.
- ***Head Protection*** - hard hats capable of protection against impact & electrical shocks & burns.
- ***Hearing Protection*** - ear plugs (foam & solid) and ear muffs.
- ***Protective Footwear*** - safety shoes, rubber boots, metatarsal guards, slip-resistant soles.
- ***Respiratory Protection*** - filter respirators, cartridge respirators, supplied-air respirators, & self-contained breathing apparatus.
- ***Body Harness*** and Lanyards & Lifelines.
- ***Special Clothing*** - chemical protective clothing (CPC), hot/cold environment clothes & high visibility clothing (traffic vests).

Use only PPE products that have received approval through recognized safety equipment testing agencies or labs. Examples are:

ANSI - American National Standards Institute
NIOSH - Nat'l Institute for Occupational Safety & Health
SEI - Safety Equipment Institute

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Safety Signs and Tags Policy

Specifications for Accident Prevention Signs and Tags

The purpose of this safety policy is to communicate information and to establish a method for marking physical hazards.



Scope and Applicability

Color coding is a standard way of quickly transmitting information. Master Construction Solutions has adopted color codes based on OSHA and ANSI standards to convey safety information.
This safety policy provides a listing of color codes adopted by Master Construction Solutions and guidelines for accident prevention signs and tags specifications. It includes provisions for training and discussion on the design and messages contained on these accident prevention signs and tags.

Reference

This safety policy is established in accordance with Occupational Safety and Health Standards for General Industry (29 CFR 1910.145) and Occupational Safety and Health Standards for Construction Industry (29 CFR 1926.200), American National Standard Z53.1-1967 and American Society of Agricultural Engineers Emblem for Identifying Slow-Moving Vehicles, ASAE S276.2 (ANSI B114.1-1971)

Policy

It is the policy of Master Construction Solutions to provide a place of employment that is free from recognized hazards that cause or are likely to cause death and physical harm to employees or the public. Therefore, accident prevention signs and tags will be used to establish uniformity and promote a safe working environment throughout Master Construction Solutions. When hazards exist that cannot be eliminated, then engineering practices, administrative practices, safe work practices, and proper training regarding Accident Prevention Signs and Tags will be implemented. These measures will be implemented to ensure appropriate signing, to communicate information regarding potential hazards and to minimize those hazards for the safety of employees and the public.

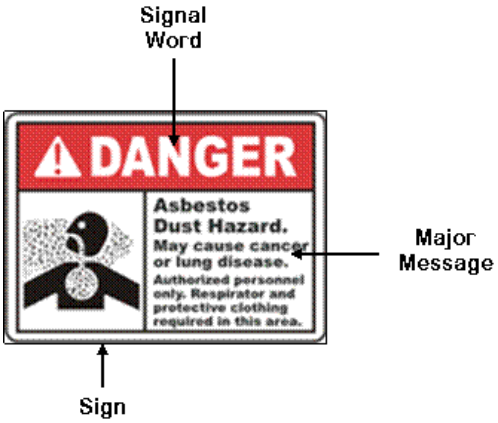
Definition of Terms

Major Message -The portion of a sign or tag that indicates the specific hazardous condition or provides instructions for individuals in proximity to the message.

Sign - A surface prepared to warn or provide safety instructions for workers and/or the public that may be exposed to hazards. This category does not include highway signs or safety posters used for employee education.

Signal Word - The word(s) printed on a sign or tag intended to capture a person's immediate attention.

Tag - A device made of paper, pasteboard, plastic, or other material used to identify a hazardous condition.



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Training

Affected Persons will be trained to recognize and understand the warning information conveyed on accident prevention signs and tags. Training will include:

- The purpose of color codes
- The purpose of accident prevention signs and tags
- The types of accident prevention signs and tags
- The use of accident prevention signs and tags
- The meanings of messages on accident prevention signs and tags
- The special precautions made necessary by messages on accident prevention signs and tags.

Color Codes

Red	Recommended for identifying Fire Protection Equipment, Danger, and Emergency Stops of machines.
Yellow	Because of its high visibility it is the standard color for marking hazards that may result in accidents from slipping, falling, striking against, etc.
Green	In combination with white, such as the green cross on a white background, designates the location of 1st Aid and safety equipment.
Black & White	Combinations of the two in stripes or checks are used for housekeeping and traffic markings.
Orange	Standard color to highlight hazardous parts of machines or electrical equipment, such as exposed edges of cutting devices, the inside of removed guards, and the doors and covers of switch boxes. Orange is also used for biological and similar types of hazards.
Reddish-Purple (Magenta)	Identifies radiation hazards, such as radioactive materials in rooms and/or containers.

Accident Prevention Signs

Accident prevention signs are not considered the final step to be taken against hazards. Whenever possible, the hazards are to be eliminated through engineering or administrative controls.

The design of accident prevention signs will be uniform throughout Master Construction Solutions. These signs must always be visible when work is being performed and/or hazards exist. The messages on these signs will be removed or covered when the hazard no longer exists.

Each accident prevention sign will include a major message that indicates the risk level of the hazard present. The following accident prevention signs are recommended for Master Construction Solutions use:

		
Danger Signs will be red, black and white. They will be used when an immediate hazard exists or when special precautions are necessary. These signs will be conspicuously posted.	**Caution Signs** will have a black upper panel and yellow letters. The lower panel will have a yellow background and black letters. These signs will be used to warn of possible hazards or against unsafe practices.	**Safety Instruction Signs** will be white with a green upper panel and white letters. Additional wording on the sign will be black letters on a white background. These signs will be used where general instructions or guidelines for safety are required.

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Biological Hazard Signs will be florescent orange red with lettering or symbols in a contrasting color. These signs will be used to inform employees of the actual or possible presence of biological hazards.	**Radiation Hazard Signs** will contain the conventional radiation caution colors (Magenta or purple on yellow background) and the standard radiation symbol.	**Exit Signs**, when required, must be lettered in legible red letters not less than 6 inches high on a white field and the principal stroke of the letters must be at least ¾ of an inch wide.
		
Traffic Signs shall be posted in construction areas at points of hazard. Traffic control signs/devices used for protection of employees and the public shall conform to the latest version of the manual on Uniform Traffic Control Devices.	**For Asbestos Areas**, caution labels are to be affixed to all raw materials containing asbestos.	**Slow Moving Vehicle Emblems** will be a yellow-orange triangle with a dark red reflective border. These signs will be used on any vehicle or equipment traveling at a speed of 25 miles per hour or less.

Accident Prevention Tags



Accident prevention tags are a temporary method of warning of a hazardous condition, defective equipment, radiation hazards, etc. However, accident prevention tags will not be used as a substitute for accident prevention signs. The designs of accident prevention tags will be the same as accident prevention signs. The messages on these tags will be removed or covered when the hazard no longer exists.

Accident prevention tags will contain a signal word or emblem (such as *Danger*, *Caution*, or *Biohazard*) and a major message. The signal word will be readable from a distance of at least five feet and will be understandable to all employees. The major message will indicate the hazard involved or instructions to the exposed person. Accident prevention tags will be located and secured as close as possible to the hazard.

Pipe Marking Standards

ANSI separates materials transported in above-ground piping systems into 3 categories:

- **High – Hazard Materials**: Encompasses several hazard areas including corrosive and caustic materials: substances that are toxic or capable of creating toxic gases; explosive and flammable materials; radioactive substances; and materials that, if released, would be hazardous due to extreme pressures or temperatures.
- **Low – Hazard Materials**: Materials that are not inherently hazardous and have a small chance of harming employees through mild temperatures and low pressures.
- **Fire Suppression Materials**: Fire Protection materials such as foam, carbon dioxide (CO_2), Halon and water.

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Label Requirements:

Pipe marking labels must effectively communicate the contents of the pipes and give additional detail if special hazards (i.e., extreme temperatures or pressures) exist.

The legend should be short in length and easy to understand. For example, the legend "Steam 100 PSIG" specifies the contents as well as the additional pressure hazard. An arrow should be used in conjunction with the legend to show which direction the materials flow.



The 3 hazard classes have different color-coded labels associated with them.

- **High - Hazard Materials** use black characters on a yellow background.
- The **Low - Hazard Material** class is divided into 2 different color schemes:
  - Liquids or liquid mixtures use white characters on a green background;
  - Gases or gaseous mixtures use white characters on a blue background;
- **Fire Suppression** class uses white letters on a red background.

Outside Pipe Diameter Letter Height:

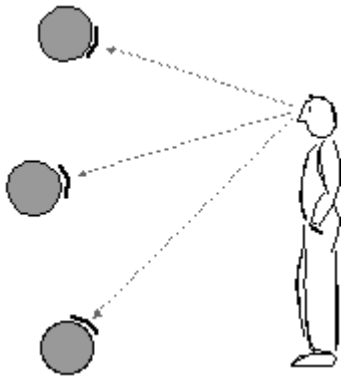
.75" to 1.25"	.5"
1.5" to 2"	.75"
2.5" to 6"	1.25"
8" to 10"	2.5"
Over 10"	3.5"

The letters on pipe labels should be a minimum of ½ inch high and should increase in size as the pipe diameter increases. The following table indicates ANSI-recommended letter height for various pipe sizes.

Label Placement

Labels should be positioned on the pipes so they can be easily read. Proper label placement is:

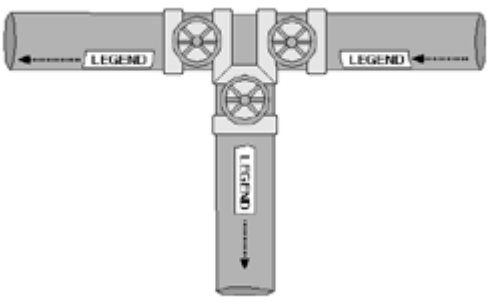
Illustration 1



- On the **lower side of the pipe** if the employee has to **look up** to the pipe;
- On the **upper side of the pipe** if the employee must **look down** towards the pipe; or
- Directly facing the employee on the same level as the pipe.

See illustration 1

Illustration 2



Labels should be located near valves, branches, where a change in direction occurs, on entry/re-entry points through walls or floors, and on straight segments with spacing between labels that allows for easy identification.

See illustration 2

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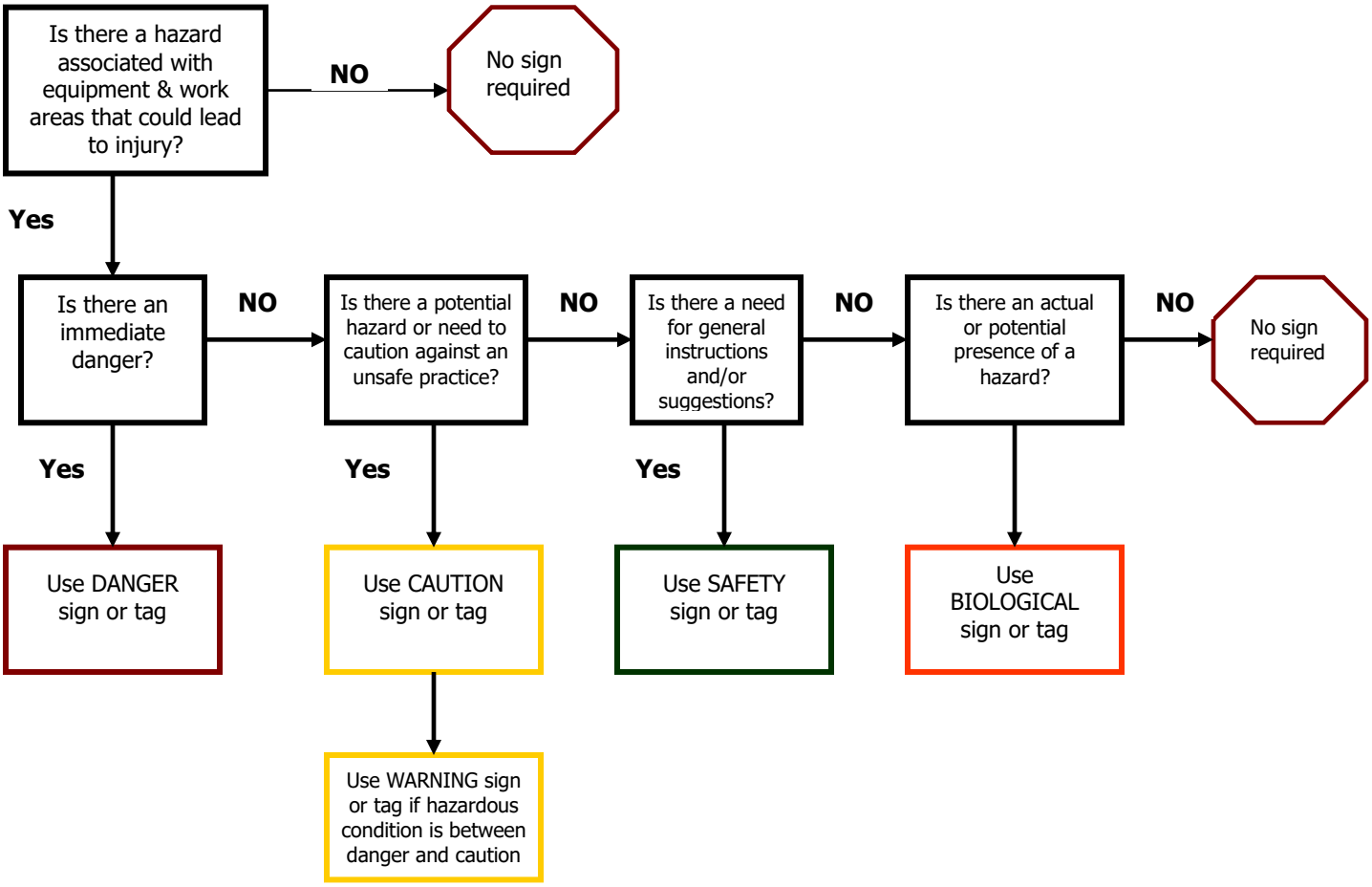
Pipe Marking Guide

Quick reference to the ASME A13.1-1996 Standard

Intrinsically Hazardous • Chemically active • Toxic • Radioactive • High pressure/temperature • Explosive or flammable	**Low Intrinsic Hazard Gas** • Pure gas • Gaseous admixture • Gases not used for fire arresting
USE **BLACK ON YELLOW**	**USE** **WHITE ON BLUE**
Fire Arresting Material • Water • Foam • C02 • Halon	**Low Intrinsic Hazard Liquid** • Pure liquid • Liquid admixture • Water if not used for fire arresting
USE **WHITE ON RED**	**USE** **WHITE ON GREEN**

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Accident Prevention Signs/Tags Flow Chart for Workplace Applications



Placement of Signs

Choosing the right sign for the application is extremely important. However, if the sign is not placed in the proper location, it may not be effective. Placement rules are defined by ANSI as follows:

1. Signs must be placed to alert and inform employees of hazards in a manner that provides sufficient time to avoid the hazard and take appropriate action. Employees should not be in harm's way before seeing the sign.
2. Signs should be located where they are legible, are not a distraction and are not a hazard in themselves.
3. Signs should not be on or adjacent to moveable objects such as doors and windows that will obscure the sign if moved.
4. Where illumination may be necessary under emergency conditions, signs should be equipped with emergency (i.e., battery operated) illumination and/or be reflective or both.

It's also important to note that, while OSHA has general accident prevention sign requirements, there may be more specific requirements that need to be followed based on a particular hazard. Many chemicals (i.e., benzene, lead and cadmium) and other hazardous working conditions have additional sign requirements that need to be followed.

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Barricade Tape

Barricade tapes shall be used to identify a "Temporary" hazard. They shall be used only until such time as the identified hazard is eliminated or the hazardous operation is completed. Barricade tape would be suitable to mark an area affected by a chemical spill or an area where a ladder is being utilized by an employee. Barricade tape shall not be used in place of a permanent sign or label intended for hazards in normal use, operation, or maintenance.

Responsibilities

Managers:

- Responsible for ensuring that adequate funds are available and budgeted for the purchase of accident prevention signs and tags in their areas.
- Managers will obtain and coordinate the required training for affected employees. Managers will also ensure compliance with accident prevention sign and tag specifications through their auditing process.

Supervisors:

- Supervisors will assess and ensure that areas needing accident prevention signs and tags are so marked.
- Supervisors will ensure that an adequate supply and variety of accident prevention signs and tags are made available for use.

Employees:

- Employees shall comply with the warnings and instructions given on accident prevention signs and tags.
- Employees will immediately notify their supervisors about any work area requiring accident prevention signs and tags.

COMPANY Designated Safety Representative:

- Provide prompt assistance to managers, supervisors, or others as necessary on any matter concerning accident prevention signs and tags.
- Work with Purchasing to ensure that all newly purchased accident prevention signs and tags comply with this safety policy.
- Ensure effective implementation of this safety policy, by providing training and audit assistance on accident prevention warning sign and tag selection for each project/division/office/program.

Purchasing Representatives:

- Purchasing shall ensure that accident prevention signs and tags purchased through their oversight are done so in an expedited manner.

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Accident Prevention Signs and Tags Self-Inspection Checklist
Physical Location/Department:
Date of inspection:
Signature of inspector:

Guidelines: This checklist covers the regulations issued by the U.S. Department of Labor - OSHA under the General Industry standards 29 CFR 1910.144 and 1910.145 and the Construction standards 1926.200. It applies to all safety signs except those designed for streets, highways, railroads, and marine regulations. It does not apply to bulletin boards or safety posters. The regulations cited only apply to private employers and their employees, unless adopted by a state agency and applied to other groups such as public employees.

Safety Colors for Marking Physical Hazards		**Please Circle**		
1.	Are safety cans and other cans which contain flammable liquids painted red, with the contents labeled conspicuously in yellow? [29 CFR 1910.144(a)(1)(ii)]	**Y**	**N**	**N/A**
2.	Are all emergency stop bars and buttons and electrical switches marked with red paint? [29 CFR 1910.144(a)(1)(iii)]	**Y**	**N**	**N/A**
3.	Is yellow used to advise caution? For example, against physical hazards such as stumbling, falling, tripping, striking against something or being caught in between two things? [29 CFR 1910.144(a)(3)]	**Y**	**N**	**N/A**
Classification of Signs According to Use		**Please Circle**		
4.	Are **danger signs** used only where an immediate hazard exists? [29 CFR 1910.145(c)(1)(ii) and 1926.200(b)(1)]	**Y**	**N**	**N/A**
5.	Are **caution signs** used only where potential hazards or unsafe practices could exist? [29 CFR 1910.145(c)(2)(i) and 1926.200(c)(1)]	**Y**	**N**	**N/A**
6.	Are **safety instruction signs** used wherever safety instructions or reminders are needed? [29 CFR 1910.145(c)(3)] **Note:** The entrance to all shops, laboratories, or other areas which require industrial quality eye protection must be posted with a sign indicating the requirement. In addition, machines, equipment, or process areas requiring operators to wear specific eye protection should be posted with warning signs.	**Y**	**N**	**N/A**
Sign Design		**Please Circle**		
8.	Do signs have rounded corners, free from sharp edges, burrs, splinters, or other sharp projections? [29 CFR 1910.145(d)(1)]	**Y**	**N**	**N/A**
9.	Are the ends or heads of bolts or other fastening devices attached in such a way that they do not constitute a hazard? [29 CFR 1910.145(d)(1)]	**Y**	**N**	**N/A**
10.	Are **danger signs** red, black, and white? [29 CFR 1910.144(a)(1)(ii), 1910.145(d)(2), and 1926.200(b)(2)]	**Y**	**N**	**N/A**
11.	Do **caution signs** have a yellow background (with black lettering) and a black panel (with yellow lettering)? [29 CFR 1910.145(d)(4) and 1926.200(c)(2) and (3)]	**Y**	**N**	**N/A**
12.	Do **safety instruction signs** have a white background (with black lettering) and a green panel (with white lettering)? 29 CFR 1910.145(d)(6) and 1926.200(e)]	**Y**	**N**	**N/A**

Comments/Corrective Action(s):

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Accident Prevention Tags		Please Circle		
13.	Are **accident prevention tags** used to alert people to hazards which are temporary, out of the ordinary, unexpected or not readily apparent? [29 CFR 1910.145(f)(3) and 1926.200(h)(1)]	**Y**	**N**	**N/A**
14.	Do required tags have a signal word of either **Danger**, **Caution**, Biological Hazard, BIOHAZARD, or the biological hazard symbol? [29 CFR 1910.145(f)(4)(i)(A)]	**Y**	**N**	**N/A**
15.	Do required tags define the specific hazardous condition or the instruction to be communicated, either in words, or pictures, or both? [29 CFR 1910.145(f)(4)(i)(B) and (f)(4)(iii)]	**Y**	**N**	**N/A**
16.	Are signal words readable from a distance of at least five feet, or further if the hazard warrants it? [29 CFR 1910.145(f)(4)(ii)]	**Y**	**N**	**N/A**
17.	Is the tag's signal word and major message understandable to everyone who may be exposed to the hazard? [29 CFR 1910.145(f)(4)(iv)]	**Y**	**N**	**N/A**
18.	Has everyone been told what various tags mean and what special precautions are necessary? [29 CFR 1910.145(f)(4)(v)]	**Y**	**N**	**N/A**
19.	Are tags affixed as close as safely possible to their respective hazards and in a way that prevents their loss or unintentional removal (for example, with string, wire, or adhesive? [29 CFR 1910.145(f)(4)(vi)]	**Y**	**N**	**N/A**
20.	Are **danger tags** used only in situations where an immediate hazard presents a threat of death or serious injury? [29 CFR 1910.145(f)(5)]	**Y**	**N**	**N/A**
21.	Are **caution tags** used only in situations where a non-immediate or potential hazard or unsafe practice presents a minor threat? [29 CFR 1910.145(f)(6)]	**Y**	**N**	**N/A**
22.	Are **warning tags** used to represent a hazard level between **caution** and **danger**? [29 CFR 1910.145(f)(7)]	**Y**	**N**	**N/A**
23.	Are **biological hazard tags** used to identify equipment, containers, rooms, and experimental animals (or combinations thereof) that may include a hazardous biological agent? [29 CFR 1910.145(f)(8)(i)]	**Y**	**N**	**N/A**
Misc./Other (i.e., machine specific) Describe as required		**Please Circle**		
24.		**Y**	**N**	**N/A**
25.		**Y**	**N**	**N/A**
26.		**Y**	**N**	**N/A**
27.		**Y**	**N**	**N/A**
28.		**Y**	**N**	**N/A**
29.		**Y**	**N**	**N/A**
30.		**Y**	**N**	**N/A**

Comments/Corrective Action(s):

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Scaffolding Policy

Scaffolding has a variety of applications. It is used in:



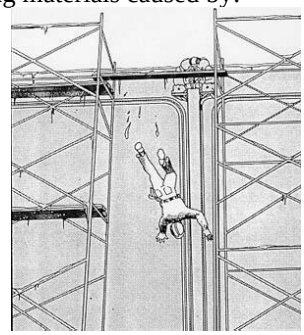
- New Construction
- Alteration
- Routine Maintenance
- Renovation
- Painting
- Repairing
- Removal Activities

Scaffolding offers a safer and more comfortable work arrangement compared to leaning over edges, stretching overhead, and working from ladders. Scaffolding provides employees safe access to:

- Work Locations
- Level and Stable Working Platforms
- Temporary storage for tools and materials for performing immediate tasks.

Scaffolding accidents mainly involve personnel falls and falling materials caused by:

- Equipment Failure
- Failure to Train Employees
- Incorrect Operating Procedures
- Environmental Conditions
- Scaffolding Overloading



This policy has been developed to meet the requirements in 29CFR part 1926, subpart L. Scaffolds used in general industry must meet these same requirements. This policy does not apply to aerial lifts.

Competent Person

For the purposes of this plan a Competent Person is defined as a… **"**Person capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees and who has the authorization to take prompt corrective measures to eliminate them."

The **Competent Person** will oversee the scaffold selection, erection, use, movement, alteration, dismantling, maintenance, and inspection.

- The Competent Person will be knowledgeable about proper selection, care, and use of the fall protection equipment.
- Additionally, the Competent Person shall assess hazards.

Training

- All Master Construction Solutions employees and subcontractors shall receive, at a minimum, the following training:
  - The type(s) of scaffold which they are to use.
- Training will focus on:
  - Proper erection of the scaffold;

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- Handling;
- Use;
- Inspection;
- Care;
- Installation of fall protection;
- Guardrails; and
- The proper use and care of fall arrest equipment.

➢ This training shall be done upon initial job assignment. Refresher training shall be provided when job conditions change. Periodic refresher training shall be done at the discretion of Master Construction Solutions Management and/or the Work Site Supervisor.

➢ **Training for the Competent Person** will consist of:

- OSHA Regulations/General Safety
- Frame Scaffolding Components
- Frame Scaffolding Erection
- Rolling Tower Scaffold Erection
- Scaffold Planking
- Tube & Clamp Scaffolding
- Systems Scaffolding
- Scaffold Inspections
- Electrical Hazards
- Material Handling Hazards

Definition of Terms

Bearer: A horizontal member of a scaffold upon which the platform rests and which may be supported by ledgers.
Brace: A tie that holds one scaffold member in a fixed position with respect to another member. Brace also means a rigid type of connection holding a scaffold to a building or structure.
Bricklayer's Square Scaffold: A scaffold the platform of which is supported on built-up squares secured to each other by full and continuous diagonal bracing.
Carpenter's Bracket Scaffold: A scaffold the platform of which is supported on triangular braced brackets fastened to the side of the structure.
Chimney, Stack, or Tank Bracket Scaffold: A scaffold composed of a platform supported by wood or steel brackets, hooked over a steel wire rope that surrounds the circumference of the chimney, stack, or tank.
Coupler: A device for locking together the component tubes of a tube and coupler scaffold.
Double Pole or Independent Pole Scaffold: A scaffold supported from the base by a double row of uprights, independent of support from the walls and constructed of uprights, ledgers, horizontal platform bearers and diagonal bracing.
Elevating Assembly: A mechanical, hydraulic, or other type of mechanism used to elevate and lower a work platform.
Float or Ship Scaffold: A scaffold hung from overhead supports by means of ropes and consisting of a platform having diagonal bracing underneath, resting upon, and fastened to two parallel plank bearers at right angles to the span.
Foot Scaffold: A scaffold used to give additional height, the platform of which does not exceed 18 inches above the supporting surface.
Harness: A design of straps which are secured about the employee in a manner to distribute the arresting forces over at least the thighs, shoulders, and pelvis, with provisions for attaching a lanyard, lifeline, or deceleration device.
Heavy Duty Scaffold: A scaffold designed and constructed to carry a working load in excess of 50 pounds, but no more than 75 pounds per square foot.
Hoist: A mechanical device to raise or lower a suspended scaffold. It can be mechanically powered or manually operated.
Horizontal Wire Rope Supported Scaffold: The platform of which is supported at least two or more points by horizontal wire ropes.
Horse Scaffold: A scaffold for light or medium duty, composed of horses supporting a work platform.
Interior Hung Scaffold: A scaffold suspended from the ceiling or roof structure.
Ladder Jack Scaffold: A light duty scaffold supported by brackets attached to ladders.
Lean-to or Shore Scaffold (*USE PROHIBITED*): A scaffold whose platform is supported on members consisting of a putlog or bearer, knee braced to two diverging inclined legs on a plane substantially traverse to the putlog or bearer, while the inner end of the bearer or putlog rests on or against the structure or on a bearing block attached to the structure.
Ledgers or Stringers: A horizontal scaffold member which extends from post to post at right angles to the putlogs or bearers, supports the putlogs or bearers, and forms a tie between the posts and becomes a part of the scaffold bracing.

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Light Duty Scaffold: A scaffold designed and constructed to carry a working load of no more than 25 pounds per square foot.
Manually Propelled Mobile Scaffold: A portable rolling scaffold equipped with casters.
Mason's Adjustable Multiple-Point Suspension Scaffold: A scaffold having a continuous platform supported by bearers suspended by wire rope from overhead supports, so arranged and operated as to permit the raising or lowering of the platform to desired working positions.
Maximum Intended Load or Maximum Rated Load: The total load of all employees, equipment, tools, materials, and other loads reasonably anticipated to be applied to a scaffold or scaffold components at any one time.
Mechanically Powered Hoist: A hoist that is powered by other than human energy.
Medium Duty Scaffold: A scaffold designed to and constructed to carry a working load in excess of 25 pounds but no more than 50 pounds per square foot.
Needle Beam Scaffold: A cantilevered light duty scaffold consisting of two parallel horizontal beams called needle beams supporting a platform.
Outriggers: The structural member of a supported scaffold used to increase the base width of a scaffold to provide greater stability for the scaffold.
Outrigger Scaffold: A scaffold supported by outriggers or thrustouts projecting beyond the wall or face of the building or structure, the inboard ends of which are secured inside the wall or face of such building or structure.
Pick Plank: A platform, similar in construction to a narrow ladder with light decking strung upon and attached to the rungs, which rests upon horizontal and parallel stringers, or other bearers, and is movable along the course of the stringer.
Platform: The temporary flat working surface, of a scaffold, used to support employees, material, and equipment.
Putlog: A scaffold member upon which the platform rests (also see Bearer).
Runner: The lengthwise horizontal bracing or bearing members, or both.
Safety Belt: A strap with means for securing the waist or body and for attaching to a lanyard, lifeline, or deceleration device.
Scaffold: Any temporary elevated or suspended platform and its supporting structure used for supporting employees or materials or both, except this term does not include crane or derrick suspended personnel platforms.
Single-Point Adjustable Suspension Scaffold: A manually or power operated unit designed for light duty use, supported by a single wire rope from an overhead support so arranged and operated as to permit the raising or lowering of platform to desired working positions.
Single-Pole Scaffold: Platforms resting on putlogs or crossbeams, the outside ends of which are supported on ledgers secured to a single row of posts or uprights, and the inner ends of which are supported on or in a wall.
Stack Bracket Scaffold: See "Chimney Bracket Scaffold."
Standard Guardrail: Rails secured to uprights and erected along the exposed sides and ends of platforms. Top railing being at 42 inches, midrail at 21 inches.
Suspended Scaffold: A scaffold supported from above, the platform of which is supported at more than two points from overhead outriggers that are fastened to the framework of the structure. It can be manually, or power operated.
Tank Bracket Scaffold: See "Chimney Bracket Scaffold."
Toeboard: A barrier secured along the sides and ends of a platform to guard against the falling of materials (4-inch minimum height).
Tube and Coupler Scaffold: An assembly consisting of tubing that serves as posts, bearers, braces, ties, and runner, a base supporting the posts, and special couplers that serve to connect the uprights and to join the various members.
Tubular Welded Frame Scaffold: A sectional panel or frame metal scaffold built up of prefabricated welded sections which consist of posts and horizontal bearers with intermediate members.
Two-Point Suspension Scaffold or Swinging Scaffold: The platform of which is supported by stirrups or hangers at two points to permit raising or lowering, suspended from overhead supports.
Window Jack Scaffold: The platform of which is supported by a jack or thrustout that projects through a window opening.
Working Load: The load on the scaffold imposed by employees, material, and equipment.

General Requirements for All Scaffolds

- The footing or anchorage for scaffolds shall be sound, rigid, and capable of carrying four times the maximum rated load without settling or displacement. Unstable or loose objects shall not be used to support scaffolds.
- Scaffolds and their components shall be capable of supporting without failure no less than four times the maximum rated load.
- Any scaffold including accessories, such as braces, brackets, trusses, screw legs, ladders, etc., damaged or weakened from any cause shall be immediately repaired or replaced.
- **Guardrails and Toeboards:**

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- Standard guardrails and toeboards shall be installed on all open sides and end of platforms more than 10 feet above the ground or floor, except on needle beam scaffolds and floats.

- Where employees are required to work or pass under the scaffold, the scaffold shall be provided with a screen between the toeboard and guardrail, extending along the entire opening, consisting of No. 18 Gauge, U.S. Standard wire ½ inch mesh, or the equivalent.
- Nails provided for the construction of scaffolds shall be no less than eight-penny common.
- All planking shall be Scaffold Grade, or equivalent, as recognized by approved grading rules for the species of wood use.
- All planking of platforms shall be overlapped a minimum of 12 inches or secured from movement.
- An access ladder or equivalent safe access shall be provided for all scaffolds (see the "Company's" Ladder Safety Policy and Procedure).
- Scaffold planks shall extend over end supports no less than 6 inches and no more than 12 inches, unless, cleated to prevent movement; or employees are blocked from entering the cantilevered area.
- The poles, legs, or uprights of scaffolds shall be plumb and securely and rigidly braced to prevent swaying and displacement.
- Overhead protection shall be provided for employees on a scaffold exposed to hazards from overhead.
- Reasonable care shall be taken to maintain all scaffold surfaces free of debris and slippery substances.
- No welding, burning, riveting, or open flame work shall be performed on any scaffolding suspended by means of fiber or synthetic rope. Only fiber or synthetic ropes, properly treated or protected, shall be used for or near any work involving the use of corrosive substances or chemicals.
- Wire, synthetic, or fiber rope used for scaffold suspension shall be capable of supporting no less than six times the maximum rated load.
- The use of shore or lean-to scaffolds is prohibited.
- When there is danger of material being hoisted striking against the scaffold, a tag line shall be provided.
- The free ends of fall lines from scaffolds shall be guarded.

Wood Pole Scaffolds

- **Scaffold poles** shall bear on a foundation of sufficient size and strength to spread the load from the pole over a sufficient area to prevent settlement. All poles shall be set plumb.
- **Where poles are spliced,** the ends shall be squared, and the upper section shall rest squarely on the lower section. Wood splice plates shall be provided on no less than two adjacent sides and shall be no less than 4 feet in length, overlapping the abutted ends equally, and have the same width and no less than the cross-sectional area of the pole. Splice plates or other materials or equivalent strength may be used.
- **Independent pole scaffolds** shall be set as near to the wall of the building as practicable.
- All pole scaffolds shall be securely guyed or tied to the building or structure. Where the height of length exceeds 25 feet, the scaffold shall be secured at intervals no greater than 25 feet vertically and horizontally.
- **Putlogs or bearers** shall be set with the greater dimension vertical, long enough to project over the ledgers of the inner and outer rows of poles no less than 3 inches for proper support.
- Every wooden putlog on single pole scaffolds shall be reinforced with a 3/16" x 2" steel strip, or equivalent, secured to its lower edge throughout its entire length.
- **Ledgers** shall be long enough to extend over two pole spaces. Ledgers shall not be spliced between the poles. Ledgers shall be reinforced by bearing blocks securely fastened to the side of the pole to form a support for the ledger.
- **Diagonal bracing** shall be provided to prevent the poles from moving in a direction parallel with the wall of the building, and from buckling.
- **Cross bracing** shall be provided between the inner and outer sets of poles in independent pole and scaffolds. The free ends of pole scaffolds shall be cross braced.
- **Full diagonal face bracing** shall be erected across the entire face of pole scaffolds in both directions. The braces shall be spliced only at the poles. The inner row of poles on medium and heavy-duty scaffolds shall be braced in a similar manner.
- **Platform planks** shall be laid with their edges butted together so the platform shall be tight with no spaces through which tools or fragments of material can fall.
- **Where planking is lapped**, each plank shall lap its end supports no less than 12 inches. Where the ends of planks abut each other to form a flush floor, the butt joint shall be at the centerline of a pole. The abutted ends shall rest on separate bearers. Intermediate beams shall be provided where necessary to prevent dislodgment of planks due to deflection, and the ends shall be secured to prevent their dislodgment.

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- **When a scaffold materially changes its direction**, the platform planks shall be laid to prevent tipping. The planks that meet the corner putlog at an angle shall be laid first, extending over the diagonally placed putlog far enough to have a good safe bearing, but not far enough to involve any danger from tipping. The planking running in the opposite direction at an angle shall be laid to extend over and rest on the first layer of planking.
- **When moving platforms to the next level**, the old platform shall be left undisturbed until the new putlogs or bearers have been set in place, ready to receive the platform planks.
- **All wood pole scaffolds 60 feet or less in height** shall be constructed and erected in accordance with Tables 1 through 6 (on the following pages). If they are over 60 feet in height, they shall be designed by a professional engineer competent in this field and shall be constructed and erected in accordance with such design.

Table 1. - Minimum nominal size & maximum spacing of members of single-pole-scaffolds
Light DUTY

Description	**Maximum Height of Scaffold**	
	20 Feet	60 Feet
Uniformly distributed load	Not to exceed 25 p.s.f.	
Poles or uprights	2 x 4 in.	4 x 4 in.
Pole spacing (longitudinal)	6 ft. 0 in.	10 ft. 0 in.
Maximum width of scaffold	5 ft. 0 in.	5 ft. 0 in.
Bearers or putlogs to 3 ft. 0 in. width	2 x 4 in.	2 x 4 in.
Bearers or putlogs to 5 ft. 0 in. width	2 x 6 in. or 3 x 4 in.	2 x 6 in. or 3 x 4 in. (rough)
Ledgers	1 x 4 in.	1¼ in. x 9 in.
Planking	1¼ in. x 9 in. (rough)	2 x 10 in.
Vertical spacing of horizontal members	7 ft. 0 in.	9 ft. 0 in.
Bracing, horizontal and diagonal	1 x 4 in.	1 x 4 in.
Tie-ins	1 x 4 in.	1 x 4 in.
Toeboards	4 in. high (minimum)	4 in. high (minimum)
Guardrails	2 x 4 in.	2 x 4 in.

All members except planking shall be used on edge.

Table 2. - Minimum nominal size & maximum spacing of members of single-pole-scaffolds
Medium DUTY

Uniformly distributed load.	Not to exceed 50 p.s.f.
Maximum height of scaffolds.	60 ft.
Poles or uprights	4 x 4 in.
Pole Spacing (longitudinal)	8 ft. 0 in.
Maximum width of scaffold.	5 ft. 0 in.
Bearers or Putlogs	2 x 10 in. or 3 x 4 in.
Spacing of bearers or putlogs.	8 ft. 0 in.
Ledgers	2 x 10 in.
Vertical spacing of horizontal members.	7 ft. 0 in.
Bracing, Horizontal	1 x 6 in. or 1¼ in. x 4 in.
Bracing, Diagonal	1 x 4 in.
Tie-ins	1 x 4 in.
Planking	2 x 10 in.
Toeboards	4 in. high (minimum)
Guardrail	2 x 4 in.

All members except planking shall be used on edge.

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Table 3 - Minimum nominal size & maximum spacing of members of single-pole-scaffolds

Heavy DUTY

Uniformly distributed load.	Not to exceed 75 p.s.f.
Maximum height of scaffolds.	60 ft.
Poles or uprights	4 x 6 in.
Pole Spacing (longitudinal)	6 ft. 0 in.
Maximum width of scaffold.	5 ft. 0 in.
Bearers or Putlogs	2 x 10 in. or 3 x 5 in.
Spacing of bearers or putlogs.	6 ft. 0 in.
Ledgers	2 x 10 in.
Vertical spacing of horizontal members.	6 ft. 6 in.
Bracing, Horizontal & Diagonal	2 x 4 in.
Tie-ins	1 x 4 in.
Planking	2 x 10 in.
Toeboards	4 in. high (minimum)
Guardrail	2 x 4 in.

All members except planking shall be used on edge.

Table 4 - Minimum nominal size & maximum spacing of members of independent-pole-scaffolds

LIGHT DUTY

Description	**Maximum Height of Scaffold**	
	20 Feet	60 Feet
Uniformly distributed load	Not to exceed 25 p.s.f.	
Poles or uprights	2 x 4 in.	4 x 4 in.
Pole spacing (longitudinal)	6 ft. 0 in.	10 ft. 0 in.
Pole spacing (transverse)	6 ft. 0 in.	10 ft. 0 in.
Ledgers	1¼ x 4 in.	1¼ x 9 in.
Bearers to 3 ft. 0 in. span	2 x 4 in.	2 x 4 in.
Bearers to 10 ft. 0 in. span	2 x 6 in. or 3 x 4 in.	2 x 10 (rough) or 3 x 8 in.
Planking	1¼ x 9 in.	2 x 10 in.
Vertical spacing of horizontal members	7 ft. 0 in.	7 ft. 0 in.
Bracing, horizontal and diagonal	1 x 4 in.	1 x 4 in.
Tie-ins	1 x 4 in.	1 x 4 in.
Toeboards	4 in. high	4 in. high (minimum)
Guardrails	2 x 4 in.	2 x 4 in.

All members except planking shall be used on edge.

Table 5 - Minimum nominal size & maximum spacing of members of independent pole scaffolds

Medium DUTY

Uniformly distributed load.	Not to exceed 50 p.s.f.
Maximum height of scaffold.	60 ft.
Poles or uprights	4 x 4 in.
Pole Spacing (longitudinal)	8 ft. 0 in.
Pole Spacing (transverse)	8 ft. 0 in.
Ledgers	2 x 10 in.
Vertical spacing of horizontal members.	6 ft. 0 in.
Spacing of bearers	8 ft. 0 in.
Bearers	2 x 10 in.
Bracing, Horizontal	1 x 6 in. or 1¼ x 4 in.
Bracing, Diagonal	1 x 4 in.
Tie-ins	1 x 4 in.
Planking	2 x 10 in.
Toeboards	4 in. high (minimum)
Guardrail	2 x 4 in.

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All members except planking shall be used on edge.

Table 6 - Minimum nominal size & maximum spacing of members of independent pole scaffolds
Heavy DUTY

Uniformly distributed load.	Not to exceed 75 p.s.f.
Maximum height of scaffold.	60 ft.
Poles or uprights	4 x 4 in.
Pole Spacing (longitudinal)	6 ft. 0 in.
Pole Spacing (transverse)	8 ft. 0 in.
Ledgers	2 x 10 in.
Vertical spacing of horizontal members.	6 ft. 0 in.
Bearers	2 x 10 in. (rough)
Bracing, horizontal & diagonal	2 x 4 in.
Tie-ins	1 x 4 in.
Planking	2 x 10 in.
Toeboards	4 in. high (minimum)
Guardrail	2 x 4 in.

All members except planking shall be used on edge.

Tube and Coupler Scaffolds

- The material used for couplers shall be of a structural type, such as drop-forged steel, malleable iron, or structural grade aluminum.
- **A light duty tube and coupler scaffold** shall have all posts, bearers, runners, and bracing of nominal 2 inch outside diameter (O.D.) steel tubing. The posts shall be spaced no more than 6 feet apart in width and 10 feet apart in length. Other structural metals when used must be designed to carry an equivalent load. No dissimilar metals shall be used together.
- **A medium duty tube and coupler scaffold** shall consist of no less than nominal 2-inch O.D. steel tubing in all posts, runners, and bracing. Where the posts are spaced no farther apart than 5 feet by 8 feet, the bearers shall also be no less than nominal 2-inch O.D. steel tubing. Where the posts are spaced at greater distance apart than 5 feet by 8 feet, the bearers shall be of no less than nominal 2½ inch O.D. steel tubing but, in no event, may the posts of a medium duty tube and coupler scaffold be spaced farther apart than 5 feet by 8 feet. Other structural metals, when used, must be capable of carrying a load equivalent to the load supportable by the prescribed tube and coupler scaffold. No dissimilar metals shall be used together.
- **A heavy-duty tube and coupler scaffold** shall have all posts, runners, and bracing of nominal 2 inch O.D. steel tubing, with the posts spaced no more than 6 feet by 6 feet 6 in. Other structural metals, when used, must be designed to carry an equivalent load. No dissimilar metals shall be used together.
- **Tube and coupler scaffolds shall be limited in heights and working levels** to those permitted in Tables 7 through 9 (see this section). Drawings and specifications of all tube and coupler scaffolds above the limitations in Tables 7 through 9 shall be designed by a qualified engineer competent in this field.
- **Posts** shall be accurately spaced, erected on suitable bases, and maintained plumb.
- **Runners** shall be erected along the length of the scaffold, located on both the inside and the outside posts at even heights. Runners shall be interlocked to the inside and the outside posts at even heights. Runners shall be interlocked to form continuous lengths and coupled to each post. The bottom runners shall be located as close to the base as possible. Runners shall be placed no more than 6 feet 6 inches on centers.
- **Bearers** shall be installed transversely between posts and shall be securely coupled to the posts bearing on the runner coupler. When coupled directly to the runners, the coupler must be kept as close to the posts as possible.
    - Bearers shall be no less than 4 inches and no more than 12 inches longer than the post spacing or runner spacing.
- **Cross bracing** shall be installed across the width of the scaffold no less than every third set of posts horizontally and every fourth runner vertically. Such bracing shall extend diagonally from the inner and outer runners upward to the next outer and inner runners.
- **Longitudinal diagonal bracing** on the inner and outer rows of poles shall be installed at approximately a 45-degree angle from near the base of the first outer post upward to the extreme top of the scaffold.
    - Where the longitudinal length of the scaffold permits, such bracing shall be duplicated beginning at every fifth post.

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- In a similar manner, longitudinal diagonal bracing shall also be installed from the last post extending back and upward toward the first post. Where conditions preclude the attachment of this bracing to the posts, it may be attached to the runners.

➢ The entire scaffold shall be tied to and securely braced against the building at intervals not to exceed 30 feet horizontally and 26 feet vertically.

Table 7 - Tube and Coupler Scaffolds

Light Duty

Uniformly distributed load	Not to exceed 25 p.s.f.
Post spacing (longitudinal)	10 ft. 0 in.
Post spacing (transverse)	6 ft. 0 in.

Working Levels	Additional Planked Levels	Maximum Height
1	8	125 ft.
2	4	125 ft.
3	0	91 ft. 0 in.

Table 8 - Tube and Coupler Scaffolds

Medium Duty

Uniformly distributed load	Not to exceed 50 p.s.f.
Post spacing (longitudinal)	8 ft. 0 in.
Post spacing (transverse)	6 ft. 0 in.

Working Levels	Additional Planked Levels	Maximum Height
1	6	125 ft.
2	0	78 ft. 0 in.

Table 9 - Tube and Coupler Scaffolds

Heavy Duty

Uniformly distributed load	Not to exceed 75 p.s.f.
Post spacing (longitudinal)	6 ft. 6 in.
Post spacing (transverse)	6 ft. 0 in.

Working Levels	Additional Planked Levels	Maximum Height
1	6	125 ft.

Tubular Welded Framed Scaffolds

➢ Scaffolds shall be properly braced by diagonal braces for securing vertical members together laterally, and the cross braces shall be of such length as will automatically square and align vertical members so that the erected scaffold is always plumb, square, and rigid. All brace connections shall be made secure.

➢ **Scaffold legs** shall be set on adjustable bases or plain bases placed on mudsills or other foundations adequate to support four times the maximum rated load.

➢ **The frames** shall be placed one on top of the other with coupling or stacking pins to provide proper vertical alignment of the legs.

➢ **Where uplift** may occur, panels shall be locked together vertically by pins or other equivalent suitable means.

➢ **To prevent movement**, the scaffold shall be secured to the building or structure at intervals not to exceed 30 feet horizontally and 26 feet vertically.

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- **Maximum permissible spans or planking** shall be in conformity with this policy and procedure.

Manually Propelled Mobile Scaffolds

- When free-standing mobile scaffold towers are used, the height of the work platform shall be:
- 4 x the minimum base.
- **Casters** shall be properly designed for strength and dimensions to support four times the maximum rated load. All casters shall be provided with a locking device to hold the scaffold in position.
- **Scaffolds** shall be properly braced by cross bracing and horizontal bracing conforming to section 4.1 of this policy and procedure.
- Platforms shall be tightly planked for the full width of the scaffold except for necessary entrance opening.
    - Platforms shall be secured in place.
- **A ladder or stairway** shall be provided for proper access and exit and shall be affixed or built into the scaffold and so located that when in use it will not tend to tip the scaffold.
    - A landing platform must be provided at intervals not to exceed 35 feet.
- Provisions shall be made to stabilize the tower during movement from one location to another.
    - Master Construction Solutions does not allow any employee to ride on manually propelled scaffolds.

Elevated Work Platforms and Self-Propelled Elevated Work Platforms

- **The minimum rated workload** of a platform shall be no less than 250 pounds. The work platform and all structural components shall have a factor of safety of no less than four.
- Any work platform when raised to its **maximum working height** shall be capable of sustaining without reaching instability, a horizontal force of 50 pounds applied to any point on the platform while the platform is carrying the working load.
- **The base** shall not be used or placed on an inclined surface unless leveled by a device that is part of the unit.
- **Work platform elevating assemblies:**
    - **Factors of safety of elevating assembly** – Where the platform is supporting its working load by a system of wire ropes or lift, chains, or both, the factor of safety of the rope or chain shall be no less than six.
    - **All critical components of a hydraulic or pneumatic system** used in a work platform shall have a bursting strength that exceeds the pressure attained when the system is subjected to the equivalent of four times the maximum rated load. Critical components are those in which a failure would result in a free fall. All noncritical hydraulic components shall have a bursting factor of safety of no less than two.
- **Systems Protection:**
    - Where the elevation of the platform is accomplished by an electromechanical assembly, or a hydraulic or pneumatic cylinder assembly, the system shall be so equipped as to prevent free fall in the event of a power failure.
    - Where the elevation of the platform is accomplished by a hydraulic or pneumatic cylinder assembly, the system shall be so equipped as to prevent free fall in the event of a hydraulic or pneumatic line failure.
    - Where the elevation of the platform is accomplished by a single hoist cable, the system shall be protected by a broken-cable safety device.
    - Where the elevation of the platform is accomplished by manual-mechanical or manual-hydraulic assembly, the assembly shall be equipped to prevent free fall in case of failure.
- **Controls:**
    - Any powered work platform shall have both upper and lower control devices. Controls shall be plainly marked as to their function and guarded to prevent accidental operation. The upper control device shall be in or beside the platform, within easy reach of the operator. The lower control device shall have the capability to lower the platform where the operator's safety is in jeopardy.
    - All self-propelled platforms shall be equipped with a device that will not allow them to travel unless the platform is lowered to no more than two times the width of the wheelbase.
    - Each elevated work platform shall be equipped with a clear visible instruction plate stating:
        - Rated Capacity;
        - Maximum Platform Height; and
        - Special Warning or Restrictions Necessary for Safe Operations
- **Protection to Personnel:**
    - Pinch points and shear points shall be guarded with a barrier to prevent accidental or inadvertent entrapment of personnel while the work platform is being operated.

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- All rotating shafts, gearing, and other moving parts shall be guarded.

Outrigger Scaffolds

- **Outrigger beams** shall extend no more than 6 feet beyond the face of the building. The inboard end of the outrigger beams, measured from the fulcrum point to anchorage point, shall be no less than 1½ times the outboard end in length. The beams shall rest on edge, the sides shall be plumb, and the edges shall be horizontal. The fulcrum point of the beam shall rest on a secure bearing no less than 6 inches in each horizontal dimension. The beam shall be secured in place against movement and shall be securely braced at the fulcrum point against tipping.
- **The inboard ends of outrigger beams** shall be securely anchored either by means of struts bearing against sills in contact with the overhead beams or ceiling, or by means of tension members secured to the floor joists underfoot, or by both if necessary. The inboard ends of outrigger beams shall be secured against tipping and the entire supporting structure shall be securely braced in both directions to prevent any horizontal movement.
- **Unless outrigger scaffolds are designed by a professional engineer** competent in this field, they shall be constructed and erected in accordance with Table 10. Outrigger scaffolds, designed by a professional engineer, shall provide equivalent or greater safeguards than those required herein.
- **Planking** shall be laid tight and shall extend to within 3 inches of the building wall. Planking shall be secured to the beams.

Table 10 - Minimum nominal size & maximum spacing of members of outrigger scaffolds

Maximum Scaffold Load	**Light Duty** 25 p.s.f.	**Medium Duty** 50 p.s.f.
Outrigger Size	2 x 10 in.	3 x 10 in.
Maximum Outrigger Spacing	10 ft. 0 in.	6 ft. 0 in.
Planking	2 x 10 in.	2 x 10 in.
Guardrail	2 x 4 in.	2 x 4 in.
Guardrail Uprights	2 x 4 in.	2 x 4 in.
Toeboards	4 in. (minimum)	4 in. (minimum)

Mason's Adjustable Multiple-Point Suspension Scaffolds

- The scaffold shall be capable of sustaining a working load of 50 pounds per square foot and shall not be loaded in excess of that figure.
- The scaffold shall be provided with hoisting machines that meet the requirements of Underwriters' Laboratories or Factory Mutual Engineering Corporation.
- The platform shall be supported by wire ropes, capable of supporting no less than six times the intended load, suspended from overhead outrigger beams.
- **The scaffold outrigger beams** shall consist of structural metal securely fastened or anchored to the frame or floor system of the building or structure.
- **Where an outrigger beam does not project more than 6 feet 6 inches** beyond the bearing point, it shall be equivalent in strength to no less than a standard 7 inch, fifteen and three-tenths-pound steel I-beam no less than 15 feet long.
- **Where the overhang exceeds 6 feet 6 inches**, outrigger beams shall be composed of stronger beams or multiple beams, providing proportionally greater strength than that required in section 8.5 of this policy and procedure.
- **All outrigger beams shall be set and maintained** with their webs in a vertical position.
- A stop bolt shall be placed at each end of every outrigger beam.
- **The outrigger beam** shall rest on suitable wood bearing blocks.
- The free end of the suspension wire ropes shall be equipped with proper size thimbles and secured by splicing or other equivalent means. The running ends shall be securely attached to the hoisting drum and no less than four turns of wire rope shall always remain on the drum. **The use of fiber rope is prohibited**.
- Where a single outrigger beam is used, the steel shackles or clevises with which the wire ropes are attached to the outrigger beams shall be placed directly over the hoisting drum.
- The scaffold platform shall be equivalent in strength to no less than 2-inch planking.

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- When employees are at work on the scaffold and a hazard exists from overhead, overhead protection shall be provided on the scaffold, no more than 9 feet above the platform, consisting of 2-inch planking, or material of equivalent strength, laid tight, and extending no less than the width of the scaffold.

Carpenter's Bracket Scaffolds

- The brackets shall consist of a triangular wood frame no less than 2 inches by 3 inches in cross section, or of metal of equivalent strength. Each member shall be properly fitted and securely joined.
- Each bracket shall be secured to the structure by a means that shall provide a factor of safety of no less than four.
- The brackets shall be spaced no more than 8 feet apart.
- The platform shall consist of no less than two 2-inch by 10-inch Scaffold Grade planks extending.
- No more than 12 inches, unless employees are blocked from entering the cantilevered portion, or less than 6 inches (unless secured against displacement) beyond each end support.

Foot Scaffolds

- Foot scaffolds shall not exceed 18 inches in height, measured from the level upon which the supports are placed.
- Foot scaffolds imposed on other scaffolds when supported on brick or tile, shall be limited to 18 inches in height and have a bearing surface of no less than 96 square inches. Supports shall be no more than 7 feet center to center.

Chimney, Stack, or Tank Bracket Scaffolds

- **Minimum Width –**The minimum width of platform shall be no less than 18 inches.
- **Spacer Blocks –** Spacer blocks, large enough to hold the suspending cable away from the structure, shall be provided.
- **Ascending & Descending –** For ascending to and descending from a chimney, stack, or tank bracket scaffold, a scaling ladder or boatswain's chair shall be provided.
- **Platforms on masonry chimneys or stacks –** Platforms supported on the rim of masonry chimneys or stacks are prohibited.
- **Inside Scaffolds –** In construction of chimneys or stacks where an inside scaffold is being used, the working platform shall be no less than 18 inches below the top of the wall.
- **Guardrails –** Chimney, stack, or tank bracket scaffolds shall be provided with standard guardrails, but no guardrail is **required when safety belts with lifelines are provided.**

Interior Hung Scaffolds

- An interior hung scaffold shall be hung or suspended from a structure capable of providing a factor of safety of no less than four.
- The suspending wire or fiber rope shall be capable of supporting no less than six times the maximum rated load.
- The scaffold shall be designed to sustain a working load with a safety factor of no less than four.
- For wood scaffolds, the following minimum Scaffold Grade material shall be used:
    - Supporting bearers, 2 inches by 10 inches on edge;
    - Planking, 2 inches by 10 inches, with maximum span of 7 feet for heavy duty and 10 feet for light duty or medium duty.
- Steel tube and coupler members may be used for such type scaffolds.

Ladder Jack Scaffolds

- All ladder jack scaffolds shall be limited to light duty and shall not exceed a height of 20 feet above the floor or ground.
- All ladders used in connection with ladder jack scaffolds shall be heavy duty ladders. Cleated ladders shall not be used for this purpose.
- The ladder jack shall be so designed and constructed that it will bear on the side rails in addition to the ladder rungs, or if bearing on rungs only, the bearing area shall be no less than 10 inches on each rung.
- Ladders used in conjunction with ladder jacks shall be placed, fastened, held, or equipped with devices to prevent slipping.

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- The platform shall be Scaffold Grade, 2-inch by 10-inch plank, or material of equal strength. Planks shall overlap the bearing surface no less than 6 inches or more than 12 inches. The span between supports shall not exceed 8 feet. Platform width shall be no less than 18 inches and provide a factor of safety of no less than four.

Form Scaffolds

- **General Requirements for all form scaffolds:**
  - All form scaffolds and their components shall be capable of supporting without failure no less than four times the maximum rated load.
  - Maximum permissible spans shall not exceed 8 feet on centers for 2-inch by 10-inch Scaffold Grade planking. Scaffold planks shall be securely fastened to the ledgers or of such length that they overlap the ledgers no less than 6 inches. Unsupported projecting ends of scaffolding planks of all form scaffolds shall be limited to a maximum overhang of 12 inches.
- Figure-four scaffolds:
  - Figure four form scaffolds are intended for light duty and shall not be used to support loads exceeding 25 pounds per square foot.
  - Frames shall be spaced no more than 8 feet on centers. For minimum design criteria, see Table 11.

Table 11 - Minimum Design Criteria for Figure-Four Form Scaffolds

Members	Dimensions
Uprights	2 x 4 in. or 2 x 6 in.
Outrigger ledgers (two)	1 x 6 in.
Braces	1 x 6 in.
Guardrails	2 x 4 in.
Guardrail Height	Approximately 42 in.
Intermediate Guardrails	1 x 6 in.
Toeboards	4 in. (minimum)
Maximum Length of Ledgers	3 ft. 6 in. (unsupported)
Planking	2 x 10 in.
Upright Spacing	8 ft. 0 in. (on centers)

- **Metal bracket form scaffolds:**
  - Metal brackets or scaffold jacks that are an integral part of the form shall be securely bolted or welded to the form. Folding type brackets shall be either bolted or secured with a locking-type pin when extended for use.
  - "Clip-On" or "Hook-Over" brackets may be used, provided the form walers are bolted to the form or secured by snap ties or shea-bolt extending through the form and securely anchored.
  - Metal brackets shall be spaced no more than 8 feet on center.
  - Scaffold planks shall be either bolted to the metal brackets or of such length that they overlap the brackets at each end by no less than 6 inches. Unsupported projecting ends of scaffold planks shall be limited to maximum overhang of 20 inches.
  - Metal bracket form scaffolds shall be equipped with standard guardrails and toeboards, meeting the minimum dimensions shown in Table 12.

Table 12 - Minimum Design Criteria for Metal Bracket Form Scaffolds

Members	Dimensions
Uprights	2 x 4 in.
Guardrails	2 x 4 in.
Guardrail Height	Approximately 42 in.
Intermediate Guardrails	1 x 6 in.
Toeboards	4 in. (minimum)
Planking	2 x 9 in.

- **Wooden bracket form scaffolds:**

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- Wooden bracket form scaffolds shall be in integral part of the form panel. The minimum design criteria set forth herein and in Table 13 cover scaffolding intended for light duty and shall not be used to support loads exceeding 25 pounds per square foot, unless specifically designed for heavier loading.

Table 13 - Minimum Design Criteria for Wooden Bracket Form Scaffolds

Members	Dimensions
Uprights	2 x 4 in. or 2 x 6in.
Support Ledgers	2 x 6 in.
Maximum Scaffold Width	3 ft. 6 in.
Braces	1 x 6 in.
Guardrails	2 x 4 in.
Guardrail Height	Approximately 42 in.
Intermediate Guardrails	1 x 6 in.
Toeboards	4 in. (minimum)
Upright Spacing	8 ft. 0 in. (on centers)

Safety Requirements for Scaffolds

- The footing or anchorage for scaffolds shall be sound, rigid, and capable of carrying the maximum intended load without settling or displacement. Unstable objects such as barrels, boxes, loose brick, or concrete blocks shall not be used to support scaffolds or planks.
- No scaffold shall be erected, moved, dismantled, or altered except under the supervision of the Competent Persons.
- Guardrails and toeboards shall be installed on all open sides and end of platforms more than 10 feet in.
- Guardrails must be 2 x 4 inches, or the equivalent, not less than 36 inches or more than approximately 43 inches high, with a midrail, when required, of 1 x 4-inch lumber, or the equivalent. Supports must be at intervals not to exceed 8 feet. Toeboard and the guardrail shall extend along the entire opening.
- Scaffolds and their components must be capable of supporting without failure at least 4 times the maximum intended load.
- Any scaffold, including accessories such as braces, brackets, trusses, screw legs, ladders, couplers, etc., damaged or weakened from any cause must be repaired or replaced immediately, and shall not be used until repairs have been completed.
- All load-carrying timber members of scaffold framing shall be a minimum of 1,500 fiber (Stress Grade) construction grade lumber.
- All planking must be Scaffold Grades, or equivalent, as recognized by approved grading rules for the species of wood used. The maximum permissible span for 2 x 9 inch or wider planks is shown in Table 14.

Table 14

	Full Thickness Undressed Lumber			**Nominal Thickness Lumber**	
Working load (p.s.f.)	25	50	75	25	50
Permissible Span (ft.)	10	8	6	8	6

- The maximum permissible span for 1¼ x 9 inch or wider plank of full thickness shall be 4 feet with medium duty loading of 50 p.s.f.
- All planking or platforms must be overlapped (minimum 12 inches) or secured from movement.
- As access ladder or equivalent safe access must be provided.
- Scaffold plank must extend over their end supports not less than 6 inches or more than 12 inches.
- The poles, legs, or uprights of scaffolds must be plumb and securely and rigidly braced to prevent swaying and displacement.
- Overhead protection must be provided for employees on scaffolds exposed to overhead hazards.
- Slippery conditions on scaffolds shall be eliminated immediately after they occur.

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- No welding, burning, riveting, or open flame work shall be performed on any staging suspended by means or fiber of synthetic rope. Only treated or protected fiber or synthetic ropes shall be used for or near any work involving the use of corrosive substances or chemicals.
- Wire, synthetic, or fiber rope used for scaffold suspension shall be capable of supporting at least 6 times the intended load.
- Scaffold shall not be used during high wind and storms.
- Ladders and other devices shall not be used to increase working heights on scaffold platforms.
- Loose materials, debris, and/or tools shall not be accumulated to cause a hazard.
- Employees working on suspended scaffolds shall employ a fall-arrest system.
- Scaffold components shall not be mixed or forced to fit which may reduce design strength.
- Scaffolds and components shall be inspected at the erection location. Scaffolds shall be inspected before each work shift, after changing weather conditions, or after prolonged work interruptions.
- Casters and wheel stems shall be pinned or otherwise secured in scaffold legs. Casters and wheels must be positively locked if in a stationary position.
- Tube and coupler scaffolds shall be tied to and securely braced against the building at intervals not to exceed 30 feet horizontally and 26 feet vertically.

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Scaffold Inspection Checklist

Date:	**Location:**

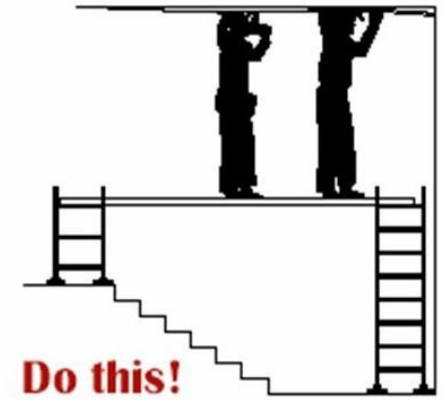
Footings		**Bracing**		**Planking/Picks**	
Soft & Uneven		Façade & Ledger		Bad Boards	
No Base Plates		Some Missing		Trap Boards	
No Mud Sills		Loose		Incomplete Boarding	
Undermined		Wrong Fittings		Insufficient Supports	
Satisfactory		Satisfactory		Satisfactory	
Standards		**Couplings**		**Guard Rails & Toe Boards**	
Not Plumb		Wrong Fittings		Wrong Height	
Joined At Same Height		Loose		Some Missing	
Wrong Spacing		Damaged		Loose	
Damaged		No Check Couplers		Damaged	
Satisfactory		Satisfactory		Satisfactory	
Ledgers		**Ties/Guys & Kickers**		**Ladders**	
Not Level		Some Missing		Insufficient Length	
Joined In Same Bays		Loose		Not Tied	
Loose		Damaged		Damaged	
Damaged		Other		Other	
Satisfactory		Satisfactory		Satisfactory	

Comments:

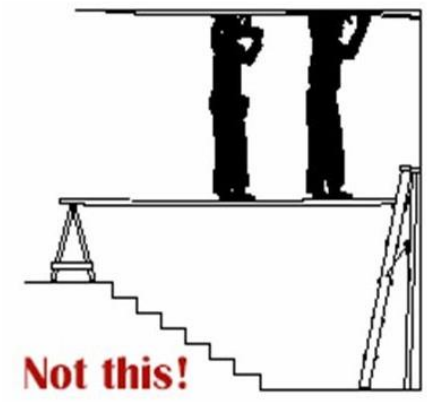
Inspected By:	**Position:**
Signature:	**Date Of Inspection:**

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Scaffold Platform Construction



When you're working in enclosed or tight spaces, use appropriate scaffolding frames, platforms, and connecting components. Don't improvise for the sake of convenience. To make sure your scaffold is safe, have it checked by a Competent Person.



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Platform Gaps — Platform units must be placed so that the spaces between the units do not exceed one inch — unless more space is necessary; for example, fitting around uprights with side brackets to extend platform width. The maximum opening cannot exceed 9½ inches.

Platform & Walkway Widths — Platforms and walkways must be at least 18 inches wide. If work areas are too narrow for 18-inch platforms or walkways, workers can use narrower platforms but they must be protected from fall hazards by guardrails and/or personal fall arrest systems. OSHA allows 12-inch widths for ladder jack, top-plate bracket, roof bracket, and pump-jack scaffolds.

Front Edge of Platforms — The front edge of a scaffold platform cannot be more than 14 inches from the face of a structure unless guardrails or personal fall arrest systems are used to protect workers from falling between the structure and the platform. There are two exceptions to this requirement: (1) the front edge distance for outrigger scaffolds must be no more than three inches, and (2) scaffolds used for plastering and lathing work can be no more than 18 inches from the face of a structure.

Platform Lengths — A platform 10 feet or less in length must extend at least 6 inches, but no more than 12 inches, beyond its support unless the excess length is guarded or can support workers and material without tipping. A platform longer than 10 feet can extend no more than 18 inches beyond a support unless the excess length is guarded or has been designed, and installed, so that the cantilevered portion is able to support workers and material without tipping.

Abutted Planks — When platform planks are abutted to create a long platform, each abutted end must rest on a separate support. Abutted planks touch end to end on separate support surfaces; they do not rest on one another.

Overlapped Planks — Platform planks overlapped to create a long platform must overlap at least 12 inches over supports unless the planks are nailed together or otherwise restrained so they do not move.

Direction Changes — Any platform that rests on a bearer at an angle other than a right angle must be laid first. Platforms that rest at right angles over the same bearer must rest on top of the first platform. Make sure that all platform planks are fully bearing to eliminate potential instability.

Paint (Opaque) Finishes — Wood platforms cannot be covered with opaque finishes, because opaque finishes cover defects in wood. Wood platform edges, however, may be marked for identification. Preservatives or slip-resistant and fire-retardant finishes are acceptable as long as the finish does not cover structural defects or make them hard to spot.

Mixed or Modified Components — Scaffold components made by different manufacturers cannot be mixed unless they fit together easily and do not change the scaffold's integrity. Components made by different manufacturers cannot be modified to intermix unless Competent Person approves.

Components Made From Different Metals — Scaffold components made from different metals cannot be used together unless a Competent Person approves. If a Competent Person determines that mixing components made from different metals could reduce their strength, the employer must take corrective action. If a Competent Person can't make the determination, then different metals must not be used.

Respirable Crystalline Silica Policy

Purpose

The purpose of this plan is to protect workers from the potential exposure to harmful airborne respirable crystalline silica dust and to comply with the Occupational Health and Safety 29 Code of Federal Regulations 1926.1153.

Control measures will be used to meet the expectations of this policy.

Master Construction Solutions commits to being persistent in our efforts to provide the most effective control methods available and to ensure that best practices are followed in our facility and on our job sites.

Responsibilities

Due to the significant risk posed by respirable silica dust, it is critical that all employees involved in operations that could potentially create silica dust take appropriate measures to ensure that a hazard is not created.

Master Construction Solutions is responsible for:

- Substitution of less hazardous products for those that contain silica if possible.
- Ensuring that tools, equipment, personal protective equipment, and other resources to prevent potential silica exposure are available.
- Master Construction Solutions will outline in detail each position that has the possibility of exposure to crystalline silica and the work methods and practices utilized to protect workers that be followed. Considerations should include the following:
    - Control methods to be used and level of respiratory protection required.
    - Determination use of either Specified exposure control methods (Table 1, 29 CFR 1926.1153(c)-(c)(3), or Alternative exposure control methods (performing exposure assessments to determine worker exposure to silica) as per 29 CFR 1926.1153 (d)(2)(iii)-(d)(2)(vi), Scheduled monitoring option.
    - Ensuring supervisors and workers are trained to recognize the hazards of silica dust.
    - Maintaining records of fit testing, training, objective sampling data and medical surveillance documentation.
    - Coordinating work with any contractors and other employees to ensure a safe work environment.

The Competent Person is responsible for:

- Providing instruction to employees on the hazards of silica-containing materials and identifying areas where silica dust may be present.
- Ensuring that workers have been properly fit tested, trained and are wearing the appropriate respirators.
- Directing the work to ensure the risk to workers is minimized and controlled.
- Communicating with all workers to ensure a safe work environment.

The worker is responsible for:

- Knowing the hazards of silica dust exposure
- Properly using and maintaining the assigned personal protective equipment
- Following all work procedures as directed by the supervisor
- Reporting any unsafe conditions to the supervisor

Silica Properties

Silica is a naturally occurring mineral and makes up nearly all sand and rock. Silica exists in many forms; one of these, “crystalline” (quartz) silica, is the most widely used and poses the highest concern for health effects. The following is a list of common materials that contain silica:

- Sand, rock and mortar, concrete and cement
- Masonry, tile, and brick

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- Granite, slate, and sandstone
- Any asphalt that contains rock or gravel

Silica is a main component of numerous construction materials and silica dust can be created during many construction activities. Some of these activities include:

- Abrasive blasting on concrete structures
- Chipping or drilling rock or concrete
- Cutting tiles or bricks
- Sawing or grinding concrete
- Tuck point grinding
- Dumping, loading and hauling gravel
- Demolition of concrete structures
- Dry sweeping concrete dust

Health Hazards

Silica exposure has been connected to many adverse health effects including silicosis, lung cancer, pulmonary tuberculosis, and other respiratory diseases. Silica dust can cause a disabling and often fatal disease called silicosis. Silica dust particles travel to the lungs, causing thickening and scarring of the lung tissue. The scar tissue restricts the lungs' ability to extract oxygen from the air. This damage is permanent. Silicosis symptoms may go unnoticed for many years.

Workers exposed to silica dust may develop any of three types of silicosis:

- Chronic silicosis—After 10 or more years of exposure to silica at low concentrations
- Accelerated silicosis—5 to 10 years after initial exposure to silica at high concentrations
- Acute silicosis—within a few weeks, or 4 to 5 years, after exposure to very high concentrations of silica

Workers with silicosis may experience:

- Shortness of breath
- Severe cough
- Weakness

Master Construction Solutions recognizes these health hazards and is committed to the mitigation and reduction of employee exposure to respirable crystalline silica to protect workers' health.

Elimination, Engineering, and Work Practice Controls

Master Construction Solutions recognizes that effective control methods must be used to eliminate or reduce the risk of silica dust exposure. The following hierarchy of control measures must be followed:

- Elimination or substitution (using products that do not contain silica)
- Engineering controls (The use of water, local exhaust ventilation or enclosure.)
- Work practice controls (The establishment of efficient process and/or procedures to reduce worker exposure
- The correct use of PPE such as gloves, coveralls, respirators, and eye protection when workers may be exposed to silica.

Elimination and Substitution

We recognize the importance of planning work to minimize the possibility of generating silica dust. Before committing to a project, we will advocate for methods that reduce the potential for silica exposures.

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Engineering Control of Dust

Local Exhaust Ventilation
When local exhaust ventilation, or any method that captures dust from the point of generation, i.e.: dust shrouds are used, we will apply the following systems and work practices:

- Master Construction Solutions will utilize local ventilation and/or HEPA vacuums with high-efficiency particulate air (HEPA) filters. The HEPA vacuum must use a filter that is at least 99.97 percent efficient in removing particles of 0.3 micrometers in diameter when collecting silica dust.
- If applicable, HEPA vacuum attachment systems, such as extractors or dust shrouds will be used to capture and control the dust at its source whenever possible.
- All employees utilizing such equipment will be trained on proper use and maintenance of the equipment according to the manufacture's recommendations

Wet Methods for Dust Control
When wet methods consisting of the application of water or foam at the point of dust generation, are utilized, the following procedure should be followed:

- When applicable, Master Construction Solutions will use wet methods to control and reduce employee exposure to silica dust.
- Pressure and flow rates of water will be controlled in accordance with manufacturers' specifications
- When sawing concrete or masonry, Master Construction Solutions will use only saws that apply water to the blade.
- Any wet leftover residue will be cleaned from work surfaces when the work is completed using wet vacuum or wet sweeping.

Isolation: Barriers and Enclosures
Isolation may be used when deemed appropriate by Master Construction Solutions. This practice, when utilized, will separate employees from the generation of respirable crystalline silica dust by containment of the dust, or by the isolation of employees.
If the application of barriers or enclosures is deemed appropriate, we will follow these safe work practices:

- A designated competent person will determine the type and design of barrier or enclosure based on the work activity and the work area.
- When constructing a full enclosure, it is recommended to use negative pressure for this containment.

Work Practice Control of Dust

Master Construction Solutions will follow these safe work practices:

- Proper inspection and maintenance of controls to prevent or remedy malfunctions that may result in increased exposures
- Confirmation of the correct use of wet controls, such as water is being sprayed at the point of dust generation
- Confirmation of the correct use of local exhaust ventilation, such as any hoods and/or any vacuum attachment systems positioned at the point of dust generation
- Wetting of silica dust prior to sweeping
- Scheduling of work to ensure the least amount of employee exposure during the completion of any potentially high exposure tasks

Specified Exposure Control Methods
If applicable, Master Construction Solutions has determined certain tasks performed by our employees can be classified fully and properly performed utilizing the specifications listed in 29 CFR 1926.1153, Table 1. These tasks, the engineering/work practice controls and required respiratory protection can be found in Appendix A of this document.

Exposure Assessments
If applicable, Master Construction Solutions has performed an exposure assessment for certain specified tasks for the determination of employee exposures to respirable crystalline silica. Master Construction Solutions has selected the Scheduled monitoring option for these tasks as per 29 CFR 1926.1153 (d)(2)(iii)-(d)(2)(vi), Scheduled

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monitoring option. A description of these tasks and results of the exposure assessments can be found in Appendix B of this document.

Personal Protective Equipment

Master Construction Solutions recognizes that, if a hazard to respirable crystalline silica cannot be removed from the workplace or engineered out through controls and/or work practices, or, if so required by the implementation of Table 1, then, and only then, will we consider PPE for our employees.

Respiratory protection

- All workers required to wear respirators will do so in accordance with our respiratory protection program
- Respirators must be selected based upon measured exposure levels and the assigned protection factor of respirators.
- Workers who wear respirators must be clean-shaven.
- All workers who wear respirators must be medically cleared and fit-tested prior to the use of respirators
- At a minimum, the employer shall provide additional medical evaluations if: an employee reports medical signs or symptoms that are related to ability to use a respirator; a physician or other licensed health care professional (PLHCP), supervisor, or the respirator program administrator informs the employer that an employee needs to be reevaluated; information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation; or a change occurs in workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on an employee
- Fit testing for respirator use will be completed annually for each employee, for each type of respirator the employee is required to wear. If the employee experiences difficulty with their respirator, or their facial structure changes in the course of the year, retesting will take place prior to the annual testing date
- Workers will be trained in the proper use of respirators, inspection, and maintenance.
- Respirators will be worn if and where exposures exceed the PEL during periods necessary to install or implement feasible engineering and work practice controls
- Respirators will be worn if, where and when exposures exceed the PEL during any maintenance and/or repair tasks for which engineering, or work practice controls are not feasible
- Respirators will be worn during tasks in which, if applicable, Master Construction Solutions has implemented all feasible engineering and work practice controls, but exposures remain above the PEL
- Respirators will be worn while employee is in a regulated area
- As indicated by Table 1

Housekeeping

Master Construction Solutions does not permit dry brushing or dry sweeping, unless methods such as wet sweeping and HEPA-filtered vacuuming are not feasible, nor do we permit cleaning of surfaces with compressed air, unless the compressed air is used together with a ventilation system that effectively captures the dust cloud or no other cleaning method is feasible.

Competent Person

Master Construction Solutions has designated a competent person(s) who we feel is/can identify existing and foreseeable hazards regarding respirable crystalline silica. This individual(s) has the authorization to promptly eliminate or minimize silica hazards and has the knowledge and ability to implement our silica exposure control plan. The identity of the designated competent person(s) can be found in Appendix C of this document.

Silica Exposure Control

Master Construction Solutions has developed a silica exposure control plan which identifies the following:

- Description of all workplace tasks involving exposures to respirable crystalline silica.
- Description of engineering controls, work practices and respiratory protection used to limit exposure to respirable crystalline silica for each task
- A description of control methods that are not working effectively if applicable
- Description of housekeeping methods used to limit employee exposure to respirable crystalline silica (with acceptable cleaning methods used to prevent exposures and any protections that are needed if certain cleaning methods must be used. i.e.: use of compressed air)
- Procedures used to restrict work areas when necessary

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This control plan will be implemented by the designated competent person(s). Master Construction Solutions will conduct an annual review of the Silica Exposure Control Plan with any revisions documented in the Appendix D section of this document.

Health monitoring
Exposures to airborne concentrations of silica must be kept below the permissible exposure limit of 50 micrograms per cubic meter calculated as an 8-hour time weighted average as stated in 29 CFR 1910.1053 (c).

Medical Surveillance
If applicable, Master Construction Solutions shall make medical surveillance available at no cost to the employee, and at a reasonable time and place, for each employee who will be required to wear a respirator for 30 or more days in a year.

Initial Examination
Master Construction Solutions shall make available an initial 'baseline' medical examination within 30 days after initial assignment, unless the employee has received a medical examination that meets the requirements of this section within the last three years. The medical examination requirements can be found in CFR 1926.1153(h)-(h)(2)(vi).

Periodical Examination
The employer shall make available medical examinations that include the procedures described in paragraph 29 CFR 1926.1153 (h)(2) at least every three years, or more frequently if recommended by the physician or other licensed health care professional.

Additional Examinations
If the physician or other licensed health care professional recommends that the employee be seen by a specialist, Master Construction Solutions shall offer this exam at no cost to the employee. This additional exam shall also be conducted within 30 days of the initial recommendation from the physician or other licensed health care professional.

Education and Training
Training is required for any employee prior to using silica-containing materials or working in an environment known to contain airborne concentrations of silica. Periodic training will be conducted to refresh employees of the silica hazards.

- Hazards associated with exposure to silica dust, including cancer, lung effects, immune system effects and kidney effects
- Specific workplace tasks that could expose employees to silica
- Specific measures Master Construction Solutions has or will be implementing to protect employees from exposure to respirable crystalline silica, including engineering and work practice controls as well as respirators to be used (if applicable)
- Signs that controls may not be working properly
- If applicable, training on any built-in equipment controls operated by the employee designed to reduce silica exposures
- The contents and requirements of 29 CFR 1926.1153
- The identity of the designated competent person(s)
- The purpose and a description of the medical surveillance program covered by 29 CFR 1910.1053
- A copy of the standard 29 CFR 1926.1153 will be made available to our employees at no cost

Master Construction Solutions will ensure employee training will take place each time an employee is assigned to a position involving exposure to respirable crystalline silica. Additional training will be provided as necessary to ensure employees have a thorough knowledge and understanding of the topic of respirable crystalline silica.

Recordkeeping
Master Construction Solutions will retain the following records:

- All employees engaged in work tasks with any exposure to respirable silica dust
- Air monitoring data and any objective data used, if applicable, to comply with 29 CFR 1926.1153
- Medical Surveillance documentation
- Silica Training documentation
- Respirator fit-testing
- Equipment maintenance and repair

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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)**		**What does *full and proper* implementation require?***
		≤ 4 hours /shift	**> 4 hours /shift**	
(i) Stationary masonry saws 	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None	Water Controls: ■ An adequate supply of water for dust suppression is used; ■ The spray nozzle is working properly to apply water at the point of dust generation; ■ The spray nozzle is not clogged or damaged; and ■ All hoses and connections are intact.
(ii) Handheld power saws (any blade diameter) 	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. ■ When used outdoors. ■ When used indoors or in an enclosed area.	None APF 10	APF 10 APF 10	Water Controls: ■ An adequate supply of water for dust suppression is used; ■ The spray nozzle is working properly to apply water at the point of dust generation; ■ The spray nozzle is not clogged or damaged; ■ All hoses and connections are intact.

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		≤ 4 hours /shift	**> 4 hours /shift**	
(iii) Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less) 	For tasks performed outdoors only: ■ Use saw equipped with commercially available dust collection system. ■ Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. ■ Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.	None	None	Dust Collection Systems: ■ The shroud or cowling is intact and installed in accordance with the manufacturer's instructions; ■ The hose connecting the tool to the vacuum is intact and without kinks or tight bends; ■ The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions to prevent clogging; and ■ The dust collection bags are emptied to avoid overfilling.
(iv) Walk-behind saws 	Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. ■ When used outdoors. ■ When used indoors or in an enclosed area.	None APF 10	None APF 10	Water Controls: ■ An adequate supply of water for dust suppression is used; ■ The spray nozzles are working properly to apply water at the point of dust generation; ■ The spray nozzles are not clogged or damaged; and ■ All hoses and connections are intact.

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Equipment/Task	**Engineering and Work Practice Control Methods**	**Required Respiratory Protection and Minimum Assigned Protection Factor (APF)**		**What does *full and proper* implementation require?***
		≤ 4 hours /shift	**> 4 hours /shift**	
(v) Drivable saws 	For tasks performed outdoors only: ■ Use saw equipped with integrated water delivery system that continuously feeds water to the blade. ■ Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None	Water Controls: ■ An adequate supply of water for dust suppression is used; ■ The spray nozzles produce a pattern that applies water at the point of dust generation; ■ The spray nozzles are not clogged or damaged; and ■ All hoses and connections are intact.
(vi) Rig-mounted core saws or drills 	■ Use tool equipped with integrated water delivery system that supplies water to cutting surface. ■ Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None	Water Controls: ■ An adequate supply of water for dust suppression is used; ■ The spray nozzles produce a pattern that applies water at the point of dust generation; ■ The spray nozzles are not clogged or damaged; and ■ All hoses and connections are intact.

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)**		**What does *full and proper* implementation require?***
		≤ 4 hours /shift	**> 4 hours /shift**	
(vii) Handheld and stand-mounted drills (including impact and rotary hammer drills) 	■ Use drill equipped with commercially available shroud or cowling with dust collection system. ■ Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. ■ 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. ■ Use a HEPA-filtered vacuum when cleaning holes.	None	None	Dust Collection Systems: ■ The shroud or cowling is intact and installed in accordance with the manufacturer's instructions; ■ The hose connecting the tool to the vacuum is intact and without kinks or tight bends; ■ The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions; and ■ The dust collection bags are emptied to avoid overfilling.

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Equipment/Task	**Engineering and Work Practice Control Methods**	**Required Respiratory Protection and Minimum Assigned Protection Factor (APF)**		**What does *full and proper* implementation require?***
		≤ 4 hours /shift	**> 4 hours /shift**	
(viii) Dowel drilling rigs for concrete 	For tasks performed outdoors only: ■ 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. ■ Use a HEPA-filtered vacuum when cleaning holes.	APF 10	APF 10	Dust Collection Systems: ■ The shroud is intact and installed in accordance with the manufacturer's instructions; ■ The hose connecting the tool to the vacuum is intact and without kinks or tight bends; ■ The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions; and ■ The dust collection bags are emptied to avoid overfilling.

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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)		What does *full and proper* implementation require?*
		≤ 4 hours /shift	> 4 hours /shift	
(ix) Vehicle-mounted drilling rigs for rock and concrete 	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. OR Operate from within an enclosed cab and use water for dust suppression on drill bit.	None None	None None	Dust Collection Systems: ■ The shroud or hood is intact and installed in accordance with the manufacturer's instructions; ■ The hose connecting the tool to the vacuum is intact and without kinks or tight bends; ■ The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions; and ■ The dust collection bags are emptied to avoid overfilling. Water Controls: ■ An adequate supply of water for dust Suppression is used; ■ The spray nozzles are working properly and produce a pattern that applies water on the discharge point from the dust collector; ■ The spray nozzles are not clogged or damaged; and ■ All hoses and connections are intact.

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Equipment/Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)		What does *full and proper* implementation require?*
		≤ 4 hours /shift	> 4 hours /shift	
(x) Jackhammers and handheld powered chipping tools 	Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact. ■ When used outdoors. ■ When used indoors or in an enclosed area. OR Use tool equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 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. ■ When used outdoors. ■ When used indoors or in an enclosed area.	None APF 10 None APF 10	APF 10 APF 10 APF 10 APF 10	Water Controls‡: ■ An adequate supply of water for dust suppression is used; ■ The water sprays are working properly and produce a pattern that applies water at the point of dust generation; ■ The spray nozzles are not clogged or damaged; and ■ All hoses and connections are intact. Dust Collection Systems: ■ The shroud is intact and installed in accordance with the manufacturer's instructions; ■ The hose connecting the tool to the vacuum is intact and without kinks or tight bends; ■ The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions; and ■ The dust collection bags are emptied to avoid overfilling.

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Equipment/Task	**Engineering and Work Practice Control Methods**	**Required Respiratory Protection and Minimum Assigned Protection Factor (APF)**		**What does *full and proper* implementation require?***
		≤ 4 hours /shift	**> 4 hours /shift**	
(xi) Handheld grinders for mortar removal (i.e., tuckpointing) 	Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 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.	APF 10	APF 25	Dust Collection Systems: ■ The shroud is intact, encloses most of the grinding blade, and is installed in accordance with the manufacturer's instructions; ■ The hose connecting the tool to the vacuum is intact and without kinks or tight bends; ■ The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions; ■ The dust collection bags are emptied to avoid overfilling; ■ The blade is kept flush against the surface whenever possible; and ■ The tool is operated against the direction of blade rotation, whenever practical.

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Equipment/Task	**Engineering and Work Practice Control Methods**	**Required Respiratory Protection and Minimum Assigned Protection Factor (APF)**		**What does *full and proper* implementation require?***
		≤ 4 hours /shift	**> 4 hours /shift**	
(xii) Handheld grinders for uses other than mortar removal 	For tasks performed outdoors only: Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. OR Use grinder equipped with commercially available shroud and dust collection system. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 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. ■ When used outdoors. ■ When used indoors or in an enclosed area.	None None None	None None APF 10	Water Controls§: ■ An adequate supply of water for dust suppression is used; ■ The spray nozzles are working properly and produce a pattern that applies water at the point of dust generation; ■ The spray nozzles are not clogged or damaged; and ■ All hoses and connections are intact. Dust Collection Systems: ■ The shroud is intact and installed in accordance with the manufacturer's instructions; ■ The hose connecting the tool to the vacuum is intact and without kinks or tight bends; ■ The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions; and ■ The dust collection bags are emptied to avoid overfilling.

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Equipment/Task	Engineering and Work Practice Control Methods	Required Respiratory Protection and Minimum Assigned Protection Factor (APF)		What does *full and proper* implementation require?*
		≤ 4 hours /shift	> 4 hours /shift	
(xiii) Walk-behind milling machines and floor grinders 	Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. OR Use machine equipped with dust collection system recommended by the manufacturer. Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. 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. When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.	None None	None None	Water Controls: ■ An adequate supply of water for dust suppression is used; ■ The spray nozzles are working properly and produce a pattern that applies water at the point of dust generation; ■ The spray nozzles are not clogged or damaged; and ■ All hoses and connections are intact. Dust Collection Systems: ■ The hose connecting the tool to the vacuum is intact and without kinks or tight bends; ■ The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions to prevent clogging; and ■ The dust collection bags are emptied to avoid overfilling.

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)**		**What does *full and proper* implementation require?***
		≤ 4 hours /shift	**> 4 hours /shift**	
(xiv) Small drivable milling machines (less than half-lane) 	Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None	None	Water Controls: ■ An adequate supply of water for dust suppression is used; ■ The spray nozzles are working properly and produce a pattern that applies water at the point of dust generation; ■ The spray nozzles are not clogged or damaged; and ■ All hoses and connections are intact.

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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)**		**What does *full and proper* implementation require?***
		≤ 4 hours /shift	**> 4 hours /shift**	
(xv) Large drivable milling machines (half-lane and larger) 	For cuts of any depth on asphalt only: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions. For cuts of four inches in depth or less on any substrate: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. Operate and maintain machine to minimize dust emissions. OR Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant. Operate and maintain machine to minimize dust emissions.	None None None	None None None	No additional information provided. Refer to the engineering and work practice control methods outlined.

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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)**		**What does *full and proper* implementation require?***
		≤ 4 hours /shift	**> 4 hours /shift**	
(xvi) Crushing machines 	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). Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.	None	None	Water Controls††: ■ Nozzles are located upstream of dust generation points and positioned to thoroughly wet the material; ■ The volume and size of droplets is adequate to sufficiently wet the material (optimal droplet size is between 10 and 150 µm); and ■ Spray nozzles are located far enough from the target area to provide complete water coverage but not so far that the water is carried away by wind.

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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)**		**What does *full and proper* implementation require?***
		≤ 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	No additional information provided. Refer to the engineering and work practice control methods outlined.

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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)		What does *full and proper* implementation require?*
		≤ 4 hours /shift	> 4 hours /shift	
(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	The following scenarios are examples of when the employer must use water and/or dust suppressants as necessary to minimize dust emissions: ■ Equipment for grading and excavating is not equipped with enclosed, pressurized cabs. OR ■ Employees other than the operator are engaged in the task. If water or dust suppressants are applied as necessary to minimize visible dust, the employer need not provide an enclosed, filtered cab for the operator.

APF 10 (requires fit testing)		APF 25	
			
Dust Mask/Half Mask	Half Mask (Elastomeric)	Loose-Fitting Powered Air-Purifying Respirator (PAPR)	Hooded Powered Air-Purifying Respirator (PAPR)

† (1) When implementing the control measures specified in Table 1, each employer shall:

i. *For tasks performed using wet methods*, apply water at flow rates sufficient to minimize release of visible dust. The appropriate water flow rates for controlling silica dust emissions can vary; therefore, it is necessary to follow manufacturers' instructions when determining the required flow rate for dust suppression systems on a given worksite. Integrated water systems must be developed specifically for the type of tool in use so they will apply water at the appropriate dust emission points based on tool configuration and do not interfere with other tool components or safety devices.

Any slurry generated when using water to suppress dust should be cleaned up to limit secondary exposure to silica dust when the slurry dries following procedures described in the employer's *Written Exposure Control Plan*.

When working in cold temperatures, where there is a risk of water freezing, additional work practices such as insulating drums, wrapping drums with gutter heat tape or adding environmentally-friendly antifreeze.

ii. *For tasks performed using commercially available, dust collection systems (i.e. LEV)*, use equipment that is designed to effectively capture dust generated by the tool being used and does not introduce new hazards such as obstructing or interfering with safety mechanisms. The "commercially available" limitation is meant only to eliminate on-site improvisations of equipment by the employer. When employers use methods other than commercially available systems for dust suppression, they must conduct exposure assessments and comply with the PEL.

Some Table 1 entries for dust collection systems specify use of cyclonic pre-separators and filter cleaning mechanisms to prevent buildup of debris on filters that result in less dust capture. A cyclonic pre-separator collects large debris before the air reaches the filters. A filter cleaning mechanism prevents the need for manually cleaning filters to prevent buildup of debris (caking). Some vacuums are equipped with a gauge indicating filter pressure or an equivalent device (*e.g.*, timer to periodically pulse the filter) to help employees in determining when it is time to run a filter cleaning cycle.

i. *For tasks performed indoors or in enclosed areas*, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust. Indoors or in an enclosed areas mean areas where airborne dust can build up unless additional exhaust is used. Sufficient air circulation in enclosed or indoor environments is important to ensure the effectiveness of the control strategies and to prevent the accumulation of airborne dust. The means of exhaust necessary could include: the use of portable fans (box fans, floor fans, and axial fans), portable ventilation systems, or other systems that increase air movement and assist in the removal and dispersion of airborne dust. To be effective, the ventilation must be set up so that movements of employees during work, or the opening of doors and windows, will not negatively affect the airflow.

ii. *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.

(2) 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.

* Refer to OSHA's Small Entity Compliance Guide for more information.

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‡ The water delivery system is not required to be integrated or mounted on the tool; it can be assembled and installed by the employer. Acceptable water delivery systems include direct connections to fixed water lines or portable water tank systems. These water delivery systems can be operated by one worker or could require a second worker to supply the water at the point of impact.

§ The integrated water delivery system can be a free-flowing water system designed for blade cooling as well as manufacturers' systems designed for dust suppression alone. This option applies only when grinders are used outdoors.

†† The water spray systems can be installed so that they can be activated by remote control.

** NOTE: When the operator exits the enclosed cab and is no longer actively preforming the task, the operator is considered to have stopped the task. However, if other abrading, fracturing, or demolition work is performed by other heavy equipment and utility vehicles in the area while an operator is outside the cab, that operator is considered to be an employee "engaged in the task" and must be protected by the application of water and/or dust suppressants.

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Appendix B

Specified Exposure Control Methods: Table 1 Tasks

Date of Exposure Assessment	Employee Name and Job Title	Employee Equipment/Work Task Description	Engineering/Work Practice Control Methods	Required and Assigned Respiratory Protection, ≤4 hours/shift or > 4 hours/shift

Appendix C

Employee Exposure Assessments

Date of Exposure Assessment	Employee Name and Job Title	Employee Work Task Description	Engineering/Work practice Controls/PPE	Results of Air Monitoring (TWA µg/m³)

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Appendix D
Competent Person(s)

Date	Name of Designated Competent Person(s)	Job Title	Work Site (if applicable)

Appendix E

Written Exposure Control Plan

Company:_____
Person Completing the Plan, Title:_____
Description of Task:

_____
_____
_____
_____

Task/Engineering Control Description:

_____
_____
_____
_____

Work Practices (for tasks described above that use wet method controls):

_____
_____
_____
_____

Work Practices (for tasks described above that use local ventilation or vacuum controls):

_____
_____
_____
_____

Respiratory Protection:

_____
_____
_____
_____

Housekeeping:

_____
_____
_____
_____

Procedures Used to Restrict Access to Work Areas*:*

_____
_____
_____
_____

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Appendix F

Revision History/Annual Review of Control Plan

Revision Number	Description of Change	Written by	Approved by	Revision Date	Effective date

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Subcontractor Management Plan Policy

The Subcontractor Management Plan is designed to protect Master Construction Solutions and Subcontractor employees, equipment and facilities from injury, accident, or loss. Subcontractors are persons not directly employed by Master Construction Solutions who provide specific services or labor.

Examples of Subcontractor Employees

- Construction Crews
- Utility Service or Repair Companies
- Electricians
- Masons
- Pest Control Services
- Janitorial Services
- Transportation and Shipping Services

As a condition of doing business with Master Construction Solutions, all Subcontractors must comply with applicable local, state, federal regulatory requirements and Master Construction Solutions safety policies and procedures. All subcontractors will be pre-qualified prior to the start of work to ensure their compliance. Prequalification will include, but is not limited to the review of:

- Written safety programs
- Safety training programs
- Safety statistics (using safety metrics such as: TRIR, EMR, DART & fatality rate as criteria for selecting subcontractors).

Any subcontractor not meeting Master Construction Solutions's predetermined requirements will not be permitted to work for Master Construction Solutions.

Responsibilities

Management:

- Ensure contracts for bids contain appropriate information concerning the Subcontractor Management Plan including specific requirements.
- Provide access to SDS material upon request of subcontractors.
- Monitor all subcontractor activity at Master Construction Solutions jobsites.
- Ensure the area in which the subcontractor employees are working is maintained safe and free from hazards.
- Provide subcontractors with specific safety program requirements.
- Include subcontractors in all pre-job meetings, safety orientations, tailgate meetings, job safety analysis/hazard assessments and safety inspections, etc.

Subcontractors:

- Conduct daily safety inspections of all assigned areas.
- Identify and correct hazards.
- Provide Subcontractor Employees with required personal protective equipment.
- Ensure Subcontractor Employees have the proper training for assigned tasks.
- Coordinate with Master Construction Solutions for safety related issues.
- Maintain required insurance coverage.
- Establish and maintain an effective Safety and Health Program.
- Establish and maintain an effective Housekeeping Program.
- Attend all pre-job meetings, safety orientations, tailgate meetings, job safety analysis/hazard assessments and safety inspections, etc.

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Minimum Insurance Requirements

Subcontractors and Vendors are required to meet minimum Insurance Requirements according to the following schedule:

Coverage Minimum Per Occurrence Limits:

- Automobile Liability $ _____
- General Liability $ _____
- Products Liability $ _____
- Completed Operations Liability $ _____
- Workmen's Compensation $ _____

Certificates of Insurance:

Subcontractors must provide Master Construction Solutions with a Certificate of Insurance. The Certificate must list Master Construction Solutions, its Divisions and Subsidiaries, as a Certificate Holder with notification of cancellation or non-renewal. Without the Certificate, Master Construction Solutions may have to assume the liabilities and responsibilities for the Subcontractor.

Training

Information on the types of training required by Master Construction Solutions will be made available to Subcontractors in the form of an outline listing requirements of individual safety policies and procedures and employee training. Written programs from the Required Training list, based on hazard exposure, are to be presented to Master Construction Solutions by the subcontractor prior to the beginning of any work activity.

Required Training for Subcontractor Employees

The required training will be clearly listed and could include all or any number of the following:

- General Safety Rules, including reporting of Unsafe Conditions.
- Hazard Communication and Chemical Safety.
- Lockout-Tagout
- GFCI & Electrical Safety
- Hot Work Program
- Confined Space Program
- Personal Protective Equipment
- Fall Prevention
- Respiratory Protection
- First Aid/Bloodborne Pathogens
- Ladder Safety
- Hand Tool & Power Tool Safety

Safety Reviews

A comprehensive pre-work safety review should be conducted for all Subcontractor work that involves:

- Construction & Renovation
- Equipment Installation & Repair
- Utility Modifications
- Electrical & Plumbing Work
- Concrete Mixing & Pouring
- Confined Space Entry
- Use of Toxic Substances
- Hot Work or Welding

Safety review participants will consist of Master Construction Solutions and Subcontractor safety representatives. All task specific safety concerns shall be addressed and resolved prior to commencement of work by the Subcontractor.

Hazardous Chemical/Substance Notification

All Subcontractors must follow the OSHA Hazard Communication Standard requirements including use, safe handling, and storage of chemicals. Subcontractors are required to inform Master Construction Solutions of all hazardous substances which may be brought on to Master Construction Solutions's property or worksites, including providing the most current

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Safety Data Sheet (SDS) for each substance. All spills and leaks of hazardous chemicals must be immediately reported to a supervisory employee of Master Construction Solutions.

Welding and Hot-Work Permit Program

All subcontractor hot work and welding operations must be conducted under the control of a Hot Work Permit that has been pre-approved by Master Construction Solutions.

Confined Space Entry

Subcontractor employees are not authorized to enter any confined spaces on Master Construction Solutions property and/or Master Construction Solutions controlled work sites unless specifically required by the service or construction contract. All confined space work will be done in accordance to 29 CFR 1910.146 and Master Construction Solutions's Confined Space Entry Policies and Procedures.

Work at Elevated Locations

Required fall protection equipment shall be used by all Subcontractor Employees when working at elevated locations as specified in 29 CFR 1926.501 through 1926.503.

Othe Policies and Procedures

All subcontractor employees shall adhere to all other Master Construction Solutions policies, including but not limited to drug and alcohol policies, Master Construction Solutions equipment, use of controlled substances, firearm & explosive restrictions, harassment of other persons, traffic and parking regulations.

Post Job Safety Review

At the completion of every subcontractor job Master Construction Solutions will conduct a post job safety review for each subcontractor to ensure all safety requirement were met. This may include safety audits, training documentation, incident reports, etc.

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Insert LOGO

Subcontractor Safety Work Permit

Subcontractor					
Project Description					
Location					
Start Date		Completion Date		Review Date	
Subcontractor Safety Officer				Phone #	
Subcontractor Insurance Reviewed				Date	
Permit Prepared By				Date	
Permit Approved By				Date	

Check if Project Involves	Yes	No	Initial After Review of Subcontractor Safety Procedures	
			Completed	Comments
Hot Work – Welding, etc.				
Electrical Systems				
Rigging or Heavy Lifting				
Elevated Work				
Confined Space Entry				
Hazardous Chemicals				
Ladders/Scaffolds				
Powered Industrial Trucks				
Respirators				
Roof Work				
Concrete Mixing & Pouring				
Structural Work				

Notes & Updates

Issued by:

Signature	Title	Date

This Permit is void after: _____

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Insert LOGO

Subcontractor Safety Audit Form

Worksite/Project Identifying Name:	**Physical Address:**	
Name of Person Performing Audit:	**Signature or Person Performing Audit:**	**Date:**

Area	Satisfactory	Action Required	Corrective Action Taken (Date)
Employee Knowledge			
Last Date of Training			
Subcontractor Requirements			
Program Administration			
Last Audit Date			
Written Program			
Company Safety Contact for Subcontractors			
Records			
Subcontractor Training			
Inspections			
Subcontractor Insurance			
Subcontractor Agreements			
Subcontractor Agreements			
Safeguards			
Engineering Safeguards			
Administrative Safeguards			
Training Safeguards			
Area Inspection			
Subcontractor Areas Isolated			
PPE Used by Subcontractors			
Signs Posted (if applicable)			
Notes			

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Tool Safety Policy

Use of tools makes many tasks easier. However, the same tools that assist us, if improperly used or maintained, can create significant hazards in our work areas. Employees who use tools must be properly trained to use, adjust, store, and maintain tools properly. This policy and procedure cover hand, electrical, pneumatic, powder driven, and hydraulic tool safety.

Responsibilities

Management:

- Provide correct tools for assigned tasks.
- Ensure tools are used, maintained, and stored safely.
- Provide employee training.
- Provide for equipment repair.

Employees:

- Follow proper tool safety guidelines including inspection and use requirements.
- Remove defective or deficient tool from service and report to management.
- Properly store tools when work is completed.

Hazard Controls

Engineering:

- Properly designed tools.
- Guards and Safety Devices.

Administrative:

- Tool sharpening program.
- Use of Personal Protective Equipment (PPE).
- Control of tool issue.
- Employee training.
- Controlled access to equipment and tool areas.

General Safety Precautions

Employees who use hand and power tools and who are exposed to the hazards of falling, flying, and abrasive objects, or exposed to harmful dusts, fumes, mists, vapors, or gases must be provided with the PPE to protect them from the hazard.

All hazards involved in the use of tools can be prevented by following the five basic safety rules:

- Keep all tools in good condition with regular maintenance.
- Use the right tool for the job.
- Examine each tool for damage before use.
- Operate according to the manufacturer's instructions.
- Provide and use the proper PPE.

Guards: Hazardous moving parts of a power tool need to be safeguarded. For example, belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating, or moving parts of equipment must be guarded.

Guards, as necessary, should be provided to protect the operator and others from the following:

- Point of Operation
- In-Running Nip Points
- Rotating Parts, and
- Flying Chips and Sparks
- Safety guards must never be removed when a tool is being used. For example, portable circular saws must be equipped with guards. An upper guard must cover the entire blade of the saw. A retractable lower guard must cover the teeth of the saw, except when it makes contact with the work material. The

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lower guard must automatically return to the covering position when the tool is withdrawn from the work.

When the periphery of the blades of a fan is less than 7 feet above the floor or working level, the blades shall be guarded. The guard shall have openings no larger than 1/2 inch.

Machines designed for a fixed location shall be securely anchored to prevent walking or moving (i.e. pedestal grinder, drill press, etc.).

Hand Tools

- Hand tools are non-powered. They include anything from axes to wrenches. The greatest hazards posed by hand tools result from misuse and improper maintenance. All hand tools must be inspected prior to use to eliminate the potential for employees being exposed to hazards caused by damaged or defective tools. Some examples of misuse and damage are:
  - Using a screwdriver as a chisel may cause the tip of the screwdriver to break and fly, hitting the user or other employees.
  - If a wooden handle on a tool such as a hammer or an axe is loose, splintered, or cracked, the head of the tool may fly off and strike the user or another worker.
  - Wrenches must not be used if their jaws are sprung, because it might slip.
  - Impact tools such as chisels, wedges, or drift pins are unsafe if they have mushroomed heads. The heads might shatter on impact, sending sharp fragments flying.
- Appropriate PPE (i.e., safety goggles, gloves, etc.), should be worn due to hazards that may be encountered while using portable power tools and hand tools.
- Floors shall be kept as clean and dry as possible to prevent accidental slips with or around dangerous hand tools.
- Around flammable substances, sparks produced by iron and steel hand tools can be a dangerous ignition source. Where this hazard exists, spark-resistant tools made from brass, plastic, aluminum, or wood will provide safety.

Power Tool Precautions

- Power tools can be hazardous when improperly used. There are several types of power tools, based on the power source they use: electric, pneumatic, liquid fuel, hydraulic, and powder actuated. The following general precautions should be observed by power tool users.
  - Never carry or hoist a tool by the cord or hose.
  - Electric power operated tools shall either be of the approved double-insulated type or grounded in accordance with the company's electrical safety policy.
  - Never yank the cord or the hose to disconnect it from the receptacle.
  - Keep cords and hoses away from heat, oil, and sharp edges.
  - Disconnect tools when not in use, before servicing, and when changing accessories such as blades, bits, and cutters.
  - All observers should be kept at a safe distance away from the work area.
  - Secure work with clamps or a vise, freeing both hands to operate the tool.
  - Avoid accidental starting. The worker should not hold a finger on the switch button while carrying a plugged-in tool.
  - Tools should be inspected and maintained with care. They should be kept sharp and clean for the best performance. Follow instructions in the user's manual for lubricating and changing accessories.
  - Be sure to keep good footing and maintain good balance.
  - The proper apparel should be worn. Loose clothing, ties, or jewelry can become caught in moving parts.
  - All tools that are damaged shall be removed from use and tagged "Do Not Use."
- Safety Switches
  - The following hand-held powered tools are to be equipped with a momentary contact "on-off" control switch:
  - Drills
  - Tappers
  - Fastener Drivers
  - Horizontal, Vertical and Angle Grinders with wheels larger than 2 inches in diameter.

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- Disc & Belt Sanders
- Reciprocating and Saber Saws
- Other Similar Tools
- Other hand-held powered tools such as circular saws having a blade diameter greater than 2 inches, chain saws, and percussion tools without positive accessory holding means must be equipped with a constant pressure switch that will shut off the power when the pressure is released.

Electric Tools

Among the chief hazards of electric-powered tools are burns and slight shocks that can lead to injuries or even heart failure. Under certain conditions, even a small amount of current can result in severe injury and eventual death. A shock also can cause the user to fall off a ladder or other elevated work surface.

- To protect the user from shock, tools must have a three-wire cord with ground and be grounded, be double insulated, or be powered by a low-voltage isolation transformer. Three-wire cords contain two current-carrying conductors and a grounding conductor. One end of the grounding conductor connects to the tool's metal housing. The other end is grounded through a prong on the plug. The third prong should never be removed from the plug.
- Double insulation is more convenient. The user and the tools are protected in two ways: by normal insulation on the wires inside, and by a housing that cannot conduct electricity to the operator in the event of a malfunction.
    - Electric Power Tool General Safety Practices:
        - Electric tools should be operated within their design limitations.
        - Gloves and safety footwear are recommended during use of electric tools.
        - When not in use, tools should be stored in a dry place.
        - Electric tools should not be used in damp or wet locations.
        - Work areas should be well lit.

Pneumatic Tools

Pneumatic tools are powered by compressed air and include chippers, drills, hammers, and sanders. There are several dangers encountered in the use of pneumatic tools. The main one is the danger of getting hit by one of the tool's attachments or by some kind of fastener the worker is using with the tool. Eye protection is required, and face protection is recommended for employees working with pneumatic tools. Working with noisy tools such as jackhammer requires proper, effective use of hearing protection.

- All manufacturers' safe operating guideline must be followed.
- When using pneumatic tools, employees are to check to see that they are fastened securely to the hose to prevent them from becoming disconnected. A positive locking device attaching the air hose to the tool will serve as an added safeguard.
- All pneumatically driven nailers, staplers, and other similar equipment provided with automatic fastener feed, which operate at more than 100 p.s.i. pressure at the tool shall have a safety device on the muzzle to prevent the tool from ejecting fasteners, unless the muzzle is in contact with the work surface.
- A safety clip or retainer must be installed to prevent attachments, such as chisels on a chipping hammer, from being unintentionally shot from the barrel.
- Screens must be set up to protect nearby workers from being struck by flying fragments around chippers, riveting guns, staplers, or air drills.
- Compressed air guns should never be pointed toward anyone. Users should never "dead-end" it against themselves or anyone else.
- Compressed air shall not be used for cleaning purposes except when reduced to less than 30 p.s.i. and then only with effective chip guarding and personal protective equipment. The 30 p.s.i. requirement does not apply for concrete form; mill scale and similar cleaning purposes.
- Hoses cannot be used for hoisting or lowering tools.
- All hoses exceeding ½-inch inside diameter shall have a safety device at the source of supply or a branch line to reduce pressure in case of failure.
- Airless spray guns of the type which atomize paints and fluids at high pressures (1,000 pounds or more per square inch) shall be equipped with automatic or visible manual safety devices which will prevent pulling of the trigger to prevent release of the paint or fluid until the safety device is manually released. In lieu of the above, a diffuser nut which will prevent high pressure, high velocity release, while the nozzle tip is removed, plus a nozzle tip guard

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which will prevent the tip from coming into contact with the operator, or other equivalent protection, shall be provided.

Fuel Powered Tools

Fuel powered tools can present multiple flammable and toxic hazards in addition to the inherent tool hazards. Special precautions may be required when using fuel powered tools to maintain a safe working environment for exposed workers.

- Fuel Powered Tools Safety:
  - All fuel powered tools shall be stopped while being refueled, serviced, or maintained, and fuel shall be transported, handled, and stored according to company policy.
  - When fuel powered tools are used in enclosed spaces, the applicable requirements for concentrations of toxic gases and use of personal protective equipment, as outlined in the company Confined Space policy must be adhered to.

Powdered-Actuated Tools

Powder-actuated tools operate like a loaded gun and should be treated with the same respect and precautions. In fact, they are so dangerous that they must be operated only by specially trained employees (i.e., trained by the manufacturer or other Competent Person).

- **Powder Actuated Tools Safety**
  - These tools should not be used in an explosive or flammable atmosphere.
  - Before using the tool, the worker should inspect it to determine that it is clean, that all moving parts operate freely, and that the barrel is free from obstructions.
  - The tool must be inspected according to the manufacturer's recommendations and shall be immediately removed from service and not used until properly repaired.
  - If the tool develops a defect during use it should be tagged and taken out of service immediately until it is properly repaired.
  - The tool should never be pointed at anybody.
  - The tool should not be loaded unless it is to be used immediately. A loaded tool shall not be left unattended, especially where it would be available to unauthorized persons.
  - Hands should be kept clear of the barrel end. To prevent the tool from firing accidentally, two separate motions are required for firing:
    - One to bring the tool into position, and
    - Another to pull the trigger.

  The tools must not be able to operate until they are pressed against the work surface with a force of at least 5 pounds greater than the total weight of the tool.
  - If a powder-actuated tool misfires, the employee should wait at least 30 seconds, then try firing it again. If it still will not fire, the user should wait another 30 seconds so that the faulty cartridge is less likely to explode, then carefully remove the load. The bad cartridge should be put in water.
  - Suitable eye and face protection are essential when using a powder-actuated tool.
  - The muzzle end of the tool must have a protective shield or guard centered perpendicularly on the barrel to confine any flying fragments or particles that might otherwise create a hazard when the tool is fired. The tool must be designed so that it will not fire unless it has this kind of safety device.
  - All powder-actuated tools must be designed for varying powder charges so that the user can select a powder level necessary to do the work without excessive force.

- **Powder-Actuated Tool Fasteners:**
  - When using powder-actuated tools to apply fasteners, there are some precautions to consider. Fasteners must not be fired into material that would let them pass through to the other side. The fastener must not be driven into materials like brick or concrete any closer than 3 inches to an edge or corner. In steel, the fastener must not come any closer than ½ inch from a corner or edge. Fasteners must not be driven into very hard or brittle materials that might chip or splatter or make the fastener ricochet.
  - An alignment guide must be used when shooting a fastener into an existing hole. A fastener must not be driven into a spalled area caused by an unsatisfactory fastening.

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Hydraulic Power Tools

The fluid used in hydraulic power tools must be an approved fire-resistant fluid and must retain its operating characteristics at the most extreme temperatures to which it will be exposed. The manufacturer's recommended safe operating pressure for hoses valves, pipes, filters, and other fittings must not be exceeded.

Jacks:

- All jacks - lever and ratchet jacks, screw jacks, and hydraulic jacks – must have a device that stops them from jacking up too high. Also, the manufacturer's load limit must be permanently marked in a prominent place on the jack and should not be exceeded.
- A jack should never be used to support a lifted load. Once the load has been lifted, it must immediately be blocked up.
- Use wooden blocking under the base if necessary to make the jack level and secure. If the lift surface is metal, place a 1-inch-thick hardwood block or equivalent between it and the metal jack head to reduce the danger of slippage.
- To set up a jack, make certain of the following:
    - The base rests on a firm level surface.
    - The jack is correctly centered.
    - The jack head bears against a level surface, and
    - The lift force is applied evenly.
- Proper maintenance of jacks is essential for safety. All jacks must be inspected before each use and lubricated regularly. If a jack is subjected to an abnormal load or shock, it should be thoroughly examined to make sure it has not been damaged.
- Hydraulic jacks exposed to freezing temperatures must be filled with adequate antifreeze liquid.

Abrasive Wheels and Tools

Fuel powered tools can present multiple flammable and toxic hazards in addition to the inherent tool hazards. Special precautions may be required when using fuel powered tools to maintain a safe working environment for exposed workers.

- **Abrasive Wheel and Tool Safety**
    - Power:
    - All grinding machines shall be supplied with sufficient power to maintain the spindle speed at safe levels under all conditions of normal operation.
    - Guarding:
        - Grinding machines and their guards must comply with all national standards regarding their design, use, care, and protection.
        - Modifications to machine guards is prohibited.
        - The spindle end, nut, and outer flange may be exposed on machines designed as portable saws.
- Use of abrasive wheels.
    - Floor stand and bench mounted abrasive wheels, used for external grinding, shall be provided with safety guards (protection hoods).
    - Floor and bench-mounted grinders shall be provided with work rests which are rigidly supported and readily adjustable. Such work rests shall be kept at a distance not to exceed one-eighth inch from the surface of the wheel.
    - Cup type wheel used for external grinding must be protected by either a revolving cup guard or a band type guard according to ANSI requirements except when the work location makes it impossible, when wheels 2" or less in diameter are securely mounted on the end of a steel mandrel, or if the work is entirely within the work being ground while in use. When work location makes guarding impossible the wheel must be equipped with safety flanges.
    - All abrasive wheels shall be closely inspected and ring-tested before mounting to ensure that they are free from cracks or defects.
    - Grinding wheels shall fit freely on the spindle and shall not be forced on. The spindle nut shall be tightened only enough to hold the wheel in place.
    - All employees using abrasive wheels shall be protected by eye protection equipment, except when adequate eye protection is afforded by eye shields which are permanently attached to the bench or floor stand.

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- On offhand grinding machines, work rests shall be used to support the work. They shall be of rigid construction and designed to be adjustable to compensate for wheel wear. Work rests shall be kept adjusted closely to the wheel with a maximum opening of 1/8 inch (0.3175 cm) to prevent the work from being jammed between the wheel and the rest, which may cause wheel breakage. The work rest shall be securely clamped after each adjustment. The adjustment shall not be made with the wheel in motion.

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Portable Grinder Safety

Inspection & Testing

- Upon obtaining a portable grinder, check that it does not vibrate or operate roughly.
- Before an abrasive wheel is mounted, it must be inspected closely for cracks and defects. And ring test if recommended by the manufacturer.
- To test a wheel, tap it gently with a light, non-metallic instrument. If the wheel emits a cracked or dead sound, it must not be used because it could fly apart in operation. A stable or undamaged wheel will give a clear metallic tone or ring when tapped.
- Any equipment or parts that do not pass inspection or are not operating properly should be removed from service and tagged "Do Not Use" until they are repaired.

Operating the Grinder

- Portable grinders should be equipped with guards. Guards provide protection against abrasive wheel breakage while rotating during grinding/buffing operations. If a damaged guard is observed, it should be replaced immediately.
- Preparation. Before starting the grinder, personnel not involved with the immediate work should remain at a safe distance. Flammable materials should also be removed from the work area. Work should be secured with clamps or a vice to free both hands to operate the tool.
- Starting. Employees should ensure a secure base and stable footing by keeping the work area free of tripping hazards. When starting the grinder, workers should stand away from the wheel and prepare for a kick back. To avoid accidental starting, instruct employees not to keep their fingers on the switch button while carrying or plugging in tool.

Changing Wheels

Abrasive wheels should not be forced onto a grinder nor should the mounting hole sizes be changed. To control cracking of the abrasive wheels, they must fit freely on the spindle and be tightened to hold the wheel in place without distorting the flange. In addition, the mounting nut should not be tighten excessively. Always follow the manufacturer's instructions.

Other precautions:

- Ensure that equipment will not operate when unattended by checking the constant pressure (dead man) switch.
- Do not use liquid coolants with portable grinders. It could cause the metal to shatter.
- Do not wear loose fitting clothing, jewelry or other items that could become entangled in moving parts.
  - Tuck or secure long hair.

Maintenance and Storage

Make these tips part of your procedures to maintain and store portable grinders:

- Store portable grinders on racks or hooks, not on the ground.
- Clean and service grinders according to the manufacturer's recommendations, including lubricating and changing accessories.
- Keep a written maintenance record on portable grinders, as well as other power tools.

Electrical Hazards

- An additional hazard from grinder use is electrical shock, which can lead to injuries or even burns and heart failure. Under certain conditions, even a small amount of electric current can result in fibrillation of the heart and death.
- Shock can also cause a secondary type accident such as a fall or struck-against incident.

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Hand Tools

General Safety Rules

Appropriate personal protective equipment, e.g., eye wear, gloves, etc., should be worn due to hazards that may be encountered while using portable power tools and hand tools.

Safety requires that floors be kept as clean and dry as possible to prevent accidental slips with or around dangerous hand tools.

When working around flammable substances, sparks produced by iron and steel hand tools can be a dangerous ignition source. Where this hazard exists, spark-resistant tools made from brass, plastic, aluminum, or wood will provide for safety.

Saw blades, knives, or other tools should be directed away from aisle areas and other employees working in close proximity. Knives and scissors must be sharp. Dull tools can be more hazardous than sharp ones.

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Hand tools are hand operated implements, which call for a certain degree of safety, while using them.

Do's :

- Always wear eye protection when using hand tools.
- Always wear appropriate clothing when working with hand tools.
- Treat/handle all hand tool instruments with care.
- Be knowledgeable as to the proper hand tools to use for various jobs.

Don'ts :

- Don't use torque wrenches to pry apart components.
- Don't use leverage extension "cheater bars" on a wrench handle.
- Never pull on a loosely adjusted wrench.
- Be certain wrench fits nut tightly.
- Don't hammer on a wrench.
- Wrenches are to be used with muscle power only.
- Pipe wrenches are for turning and holding, don't use them for lifting or bending.
- Never expose pliers to excessive heat.
- Don't hammer with pliers.
- Never cock or tilt an open-end wrench.
- Don't bend stiff wire with plier's tip.
- Don't bend heavy bars on light duty vises.
- Don't use pliers on round shank or handle of screwdrivers for added turning power.
- Don't use sheet metal cutting snips to cut heavy wire. There are tools for this purpose.
- Don't use screwdrivers to pry anything apart.
- Don't use a tool box, chest or cabinet as an anvil or for a similar purpose.
- Don't use a screwdriver as a punch or chisel.
- Don't use a screwdriver to test for current.
- Never use a striking or struck tool with a loose or damaged handle. Replace or secure properly.
- Never use any struck tool with a mushroomed, chipped or damaged head.
- Never strike chisels or other hard objects with a nail hammer, as the hammer may chip and cause eye or other bodily injury.
- Never strike one hammer with another or with a hatchet.
- Never use a hot chisel for cutting stone, concrete or cold metal.
- Never strike a metal object with the striking face of an axe.
- The axe striking face should only be used to drive soft objects such as wood or plastic stakes.
- Never use a bricklayer's hammer to strike metal or other tools.
- Don't use brick chisels on metal. They are strictly for masonry.
- Never drive one maul by striking with another maul, sledge or other striking tool.
- Never use a drift pin as a punch.

Every tool has a correct use; Always use the right tool for the job!

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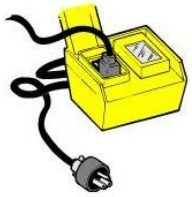
Power Tool Safety Tips

Portable power tools present greater accident hazards than hand tools. Nearly all power tool accidents are caused by improper handling and poor maintenance. Power tools should be used only after becoming thoroughly familiar with their controls, safety requirements and operating procedures. The categories which most power tools fall under are electric power tools, fuel-powered tools, powder-actuated tools, pneumatic power tools and hydraulic power tools.

- Wear the proper personal protective equipment for the job.
- Before you use it, inspect the tool for broken parts, loose bolts, defective or broken cord insulation, plugs or switches, or improper connections.
- Only use equipment that's in good condition.
- Test the tool before you use it. For example, for a cutting tool, test its sharpness with a piece of wood, not your fingers.
- To prevent shock, make sure your tool is properly grounded and double-insulated.
- Keep power cords away from heat, sharp objects and chemicals that could damage their insulation.
- Be sure to keep your work area dry.
- Never use electrical equipment when your hands are wet or any part of you is touching water.
- If you must work in a wet area, keep the power cord clear of wet surfaces and use a ground fault circuit interrupter (GFCI).



- Keep your work area free of debris.



- Use tools in well-lit areas.
- Never use electric tools where flammable vapors or gases are present.
- Report unsafe conditions, such as defective cord insulation, poor connections to terminals, broken switches or plugs, sparking or overheating equipment, and outlets without GFIC's in damp areas.
- Never carry a power tool by the cord or hose.
- Disconnect tools before changing accessories, such as blades, bits or cutters, and before servicing or inspecting them.
- Secure your work material with clamps or a vise if possible.
- Avoid wearing clothing or jewelry that may become caught in a tool.
- Report equipment as unsafe if it has insulation defects, if it sparks or if you feel any shock or tingling when using it.
- Start and end from "off." Make sure the power switch is off before plugging in equipment. When you're finished, turn the equipment off before unplugging it to protect yourself and the next user.
- When you turn off a tool, let it stop completely before putting it down in a safe place.
- Never horseplay around power tools.
- Avoid kinking, cutting or crushing any electrical cord.
- If equipment has a three-prong plug, use a three-slot outlet or extension cord.
- Avoid overstraining equipment by using it improperly.
- Service Equipment regularly and repair or replace it as needed.
- Pay attention to the direction of the tool's rotation. You're responsible for seeing that no one is in the path of flying objects.
- Use the switch lock only when the tool is in a stand or jig.
- Make sure you have good footing when you're using heavy tools or working at an awkward angle, such as overhead.
- Portable electric saws usually include the necessary guards to protect the operator. Never operate electric power saws with guards that are not functioning properly or are missing.



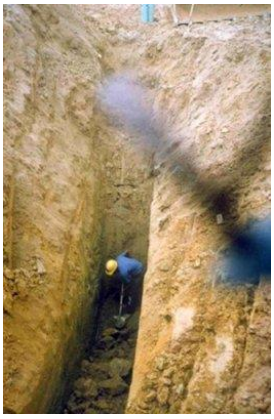
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Trenching and Excavating Policy

In the construction industry, excavation work such as trenching can be extremely hazardous. A trench is defined as a narrow excavation made below ground in which the depth is greater than the width, which is 15 feet or less.

The most common type of trenching accident, cave-in, is also the deadliest. Cave-ins are usually the result of unsafe work practices:

- Not using shoring;
- Using inadequate shoring;
- Excavating too close to a building or utility pole;
- Misjudging the stability of the soil;
- Vibrations caused by construction work; or
- Weather conditions that change the soil around the excavation.



General Requirements

- **Surface Encumbrances –** All surface encumbrances, such as trees, boulders, adjacent structures, utility poles, large equipment, etc. that are located to create a hazard to employees will be removed or supported as necessary to safeguard employees against cave-ins. **Underground Installations –** Before any excavation, underground installations must be determined. This can be accomplished by either contacting the local utility companies or the local "one-call" center for the area. All underground utility locations must be documented on the proper forms. All overhead hazards (surface encumbrances) that create a hazard to employees must be removed or supported to eliminate the hazard.
  - If underground installations are uncovered, they will be properly supported to protect employees.
- **Access & Egress –** A stairway, ladder, ramp, or other means of egress will be located in any trench that is 4 feet or more in depth so as to require no more than 25 feet of lateral travel for employees.
  - Ladders must be secured at the top and extend a minimum of 36 inches above the top of the excavation.
  - Metal ladders should be used with extreme caution, particularly when electrical utilities are present.
  - Structural ramps may be designed by a "Competent Person" unless they are used by equipment. If this is the case, the design will be developed by a "Competent Person" qualified in structural design.
- **Vehicular Traffic –** Employees exposed to vehicular traffic shall be provided with and required to wear reflective vests or other suitable garments marked with or made of reflectorized or high-visibility materials.
  - Trained flag persons signs and barricades must be utilized to ensure the safety of employees, vehicular traffic, and pedestrians.
- **Exposure to Falling Loads –** All employees, subcontractors, and visitors on a Master Construction Solutions excavation site must wear hard hats. (See Master Construction Solutions' Personal Protective Equipment Policy).
  - Employees are not allowed to work under raised loads.
  - Employees are not allowed to work under loads being lifted or moved by heavy equipment used for digging or lifting.
  - Employees are required to stand away from equipment that is being loaded or unloaded to avoid being struck by falling materials or spillage.
- **Mobile Equipment –** The following steps should be taken to prevent vehicles from accidentally falling into the trench:
  - **Barricades** must be installed where necessary.
  - **Hand or mechanical signals** must be used as required.
  - **Stop logs** must be installed if there is danger of vehicles falling into the trench. Or a warning system shall be utilized (i.e., barricades, hand, or mechanical signals)
  - **Soil** should be graded away from the excavation; this will assist in vehicle control and channeling of run-off water.
  - **Trenches** left open overnight shall be fenced and barricaded.

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- **Stability of Adjacent Structures –** Support systems such as shoring, bracing, or underpinning will be used to provide stability whenever the stability of adjoining buildings, walls or other structures is endangered by excavation operations.
- Employees should be spaced out in a trench unless there is a necessity to work together. They should also stay out of the immediate area of excavating equipment, and not work ahead of the shoring.
- When employees are working on hard surface roads, where a flow of traffic is being maintained, it is important that small stones be removed off the road. Stones are sometimes thrown at great speed by the tires of passing cars and can cause serious accidents.
- Broken arms and legs and other injuries can result when workers fall into construction trenches. They result because they fail to look where they are going, when they walk too close to the edge, or when they attempt to leap across the trench.
- Rocks and tools thrown near the edge of a trench are not only a hazard to employees working in the trenches but can cause falls into the trench by employees working on the surface.
- Employees should use extra care when venturing near the edges of trenches and other excavations when the weather is bad and there are icy or muddy conditions.

Soil Classification and Identification

The OSHA Standards define soil classifications within the Simplified Soil Classification Systems, which consists of four categories: Stable rock, Type A, Type B, and Type C. Stability is greatest in stable rock and decreases through Type A and B to Type C, which is the least stable. Appendix A of the Standard provides soil mechanics terms and types of field tests used to determine soil classification.

- **Stable Rock –** Natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.
- **Type A Soil –** Most Stable:
  - Cohesive soils with an unconfined compression strength of 1.5 tons per square foot (TSF) or greater.
  - Cemented soils like caliche and hardpan are considered Type A.
  - Soil is not type A if:
    - If is fissured;
    - The soil is subject to vibration form heavy traffic, pile driving or similar effects;
    - The soil has been previously disturbed;
    - The material is subject to other factors that would require it to be classified as a less stable material;
    - The exclusions for Type A most generally eliminate it from most construction situations.
- **Type B Soil –** Medium Stability:
  - Cohesive soil with an unconfined compressive strength greater than .5 TSF, but less than 1.5 TSF.
  - Granular cohesionless soil including angular gravel, silt, silt loam, and sandy loam.
  - The soil has been previously disturbed except that soil classified as Type C soil.
  - Soil that meets the unconfined compressive strength requirements of Type A soil but is fissured or subject to vibration.
  - Dry rock that is unstable.
- Type C Soil – Least Stable:
  - Cohesive soil with an unconfined compressive strength of .5 TSF or less.
  - Granular soils including gravel, sand, and loamy sand.
  - Submerged soil or soil from which water is freely seeping.
  - Submerged rock that is not stable.
- **Layered Geological Strata (where soils are configured in layers) –** The soil must be classified based on the soil classification of the weakest soil layer. Each layer may be classified individually if a more stable layer lies below a less stable layer (i.e., where a Type C soil rests on top of stable rock).
- **Only the "Competent Person" in charge of the excavation may classify the soil as other than a type C,** according to the Testing Methods outlined in this policy and procedure.

Soil Testing Methods

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- The "Competent Person" will classify the soil based on at least one visual and one manual analysis.
- These tests should be run on freshly excavated samples from the excavation and are designed to determine stability based on several criteria:

  - Cohesiveness
  - Presence & Amount of Water
  - Duration of Exposure
  - Presence of Layering
  - Presence of Fissures
  - Unconfined Compressive Strength
  - Undermining
  - Prior Excavation & Vibration

- **Visual Test –** The "Competent Person" should perform a visual test to evaluate the conditions around the site. In a visual test, the entire excavation site is observed, including the soil adjacent to the site and the soil being excavated. The "Competent Person" should also check for vibration.
  - During the visual test, the "Competent Person" should check for crack-line openings along the failure zone that would indicate tension cracks, look for existing utilities that indicate that the soil has been previously disturbed, and observe the open side of the excavation for indications of layered geologic structuring.
  - This person should also look for signs of bulging or sloughing, as well as for signs of surface water seeping from the sides of the excavation or from the water table.
  - The area adjacent to the excavation should be checked for signs of foundations or other intrusions into the failure zone, and the evaluator should check for surcharging and the spoil distance from the edge of the excavation.
- **Manual Tests:**
  - Thumb Penetration Test – Attempt to press the thumb firmly into the soil in question. If the thumb penetrates the full length of the nail, it is probably Type B soil. If the thumb penetrates the full length of the thumb, if is Type C soil. It should be noted that the thumb penetration test is the least accurate testing method.
  - Dry Strength Test – Take a sample of dry soil. If it crumbles freely or with moderate pressure into individual grains it is considered granular (Type C). Dry soil that falls into clumps that subsequently break into smaller clumps (and the smaller clumps can only be broken with difficulty) it is probably clay in combination with gravel, sand, or silt (Type B).
  - Plasticity or Wet Thread Test – Take a moist sample of the soil. Mold it into a ball and then attempt to roll it into a thin thread approximately 1/8 inch in diameter by 2 inches in length. If the soil sample does not break when held by one end, it may be considered Type B.
  - Pocket Penetrometer Test – This instrument is most accurate when soil is nearly saturated. This instrument will give unconfined compressive strength in tons per square foot.
  - Pocket Penetrometer Test (cont.) – The spring-operated device uses a piston that is pushed into a coil up to a calibration groove. An indicator sleeve marks and retains the reading until it is read. The reading is calibrated in tons per square foot (TSF) or kilograms per cubic centimeter.
  - Shearvane Test – Measures the approximate shear strength of saturated cohesive soils. The blades of the vane are pressed into a flat section of undisturbed soil, and the knob is turned slowly until soil failure. The dial is read directly when using the standard vane. The results will be in tons per square foot or kilograms per cubic centimeter.

- The "Competent Person" will perform several tests of the excavation to obtain consistent, supporting data along its depth and length. The soil is subject to change several times within the scope of an excavation and the moisture content will vary with weather and job conditions. The "Competent Person" must also determine the level of protection based on what conditions exist at the time of the test and allow for changing conditions.

Excavation Protection Systems

- All excavations or trenches 5 feet or greater in depth shall be appropriately benched, shored, or sloped according to the procedures and requirements set forth in OSHA's Excavation Standard, 29 CFR 1926.650, .651, and .652.
- Excavations or trenches 20 feet deep or greater must have a protective system designed by a Registered Professional Engineer.
- Excavations under the base of footing of a foundation or wall require a support system designed by a Registered Professional Engineer.
- Sidewalks and pavement shall not be undermined unless a support system or another method of protection is provided to protect employees from their possible collapse.

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- **Sloping –** Maximum allowable slopes for excavations less than 20' based on soil type and angle to the horizontal are as follows:

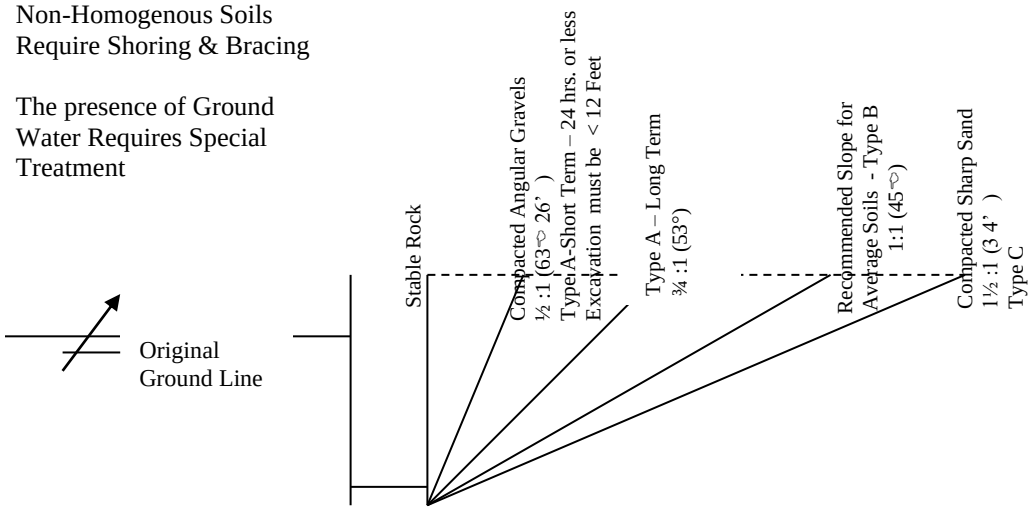
Soil Type	Height/Depth Ratio	Slope Angle
Type B	**1:1**	**45 degrees**
Type C	**1½ : 1**	**34 degrees**

  - A 10-foot-deep trench in Type B soil would have to be sloped to a 45-degree angle or sloped 10 feet back in both directions. Total distance across a 10-foot-deep trench would be 20 feet, plus the width of the bottom of the trench itself.
  - In Type C soil, the trench would be sloped at a 34-degree angle, or 15 feet back in both directions for at least 30 feet across, plus the width of the bottom the trench itself. *(See Illustration 1)*

Illustration 1: Approximate Angle of Repose for Sloping of Sides of Excavations

Note: Clays Silts, Loams or Non-Homogenous Soils Require Shoring & Bracing

The presence of Ground Water Requires Special Treatment



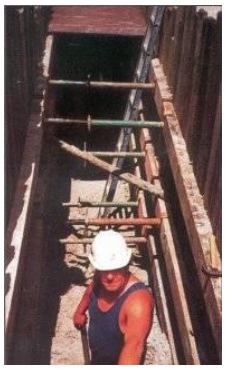
All sloping systems for excavations 5 to 20 feet in depth must be constructed under the instruction of the designated "Competent Person".

- **Benching –** Benching ***is not*** allowed in Type C soil.
  - In Type B soil, the vertical height of the benches must not exceed 4 feet. Benches must be below the maximum allowable slope for that soil type. In other words, a 10-foot-deep trench in Type B soil must be benched back 10 feet in each direction, with the maximum of a 45-degree angle.
  - Benching systems for excavations 5 to 20 feet in depth must be constructed under the instruction of the designated "Competent Person".
- **Shoring/Shielding** is used when the location or depth of the cut makes sloping back to the maximum allowable slope impractical. Shoring utilizes a framework of vertical members (uprights), horizontal members (wales), and cross braces to support the sides of the excavation to prevent a cave-in. Metal (aluminum) Hydraulic, mechanical, or timber shorings are common examples.
  - All shoring shall be installed from the top down and removed from the bottom up.
  - When bracing or shoring of trenches is required, such bracing and shoring shall be carried along with the excavation.
  - Cross braces or trench jacks shall be placed in true horizontal position, be spaced vertically, and be secured to prevent sliding, falling, or kickouts.
  - Shoring Timbers, or wales, should not be used as support for platforms to carry concrete mixtures or other heavy equipment. If it is necessary for a mixer to be over a trench, vertical supporting members should be

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cut in-between the wales, and the load transmitted to the ground through additional vertical members from the bottom wale.

- Backfilling and removal of trench supports shall progress together from the bottom of the trench. Jacks or braces shall be released slowly, and, in unstable soil, employees shall clear the trench before pulling out the jacks or braces with ropes.



- **Timber Shoring -** Minimum requirements for trench bracing and shoring shall be in accordance with Appendix B to this rule.
  - The vertical planks in the bracing system shall extend at least to the top of the trench face.
  - The members of the shoring system that are to be selected using the tables are the cross braces, the uprights, and the wales where wales are required. The Competent Person shall select the size and spacing of members using the appropriate table. The selection is based on the depth and width of the trench where the members are to be installed. In most instances, the selection is also based on the horizontal spacing of the cross braces. Where a choice is available, the horizontal spacing of the cross braces must be chosen before the size of any member can be determined.

- Braces and diagonal shores in a wood shoring system shall not be subjected to compressive stress in excess of values given by the following formula:

$$S = 1300 - \frac{20L}{D} \qquad \text{Maximum Ratio: } \frac{L}{D} = 50$$

Where: L = Length, unsupported, in inches.
D = Least side of the timber in inches.
S = Allowable stress in pounds per square inch of cross section.

- **Hydraulic (Aluminum) Shoring** provides a critical safety advantage over timber shoring because workers do not have to enter the trench to install them. They are also light enough to be installed by one worker; they are gauge-regulated to ensure even distribution of pressure along the trench line; and they can be adapted easily to various trench depths and widths.



  - The top cylinder of hydraulic shoring shall be no more than 18 inches below the top of the excavation.
  - The bottom of the cylinder shall be no higher than 4 feet from the bottom of the excavation. (2 feet of trench wall may be exposed beneath the bottom of the rail or plywood sheeting, if used.)
  - 3 vertical shores, evenly spaced, must be used to form a system.
  - Wales are installed no more than 2 feet from the top, no more than 4 feet from the bottom, and no more than 4 feet apart, vertically.
  - Hydraulic shores must be installed with sheeting in accordance with Appendix C.

- **Shielding (Trench Boxes) –** Unlike sloping and shoring, shielding does not prevent cave-in. Shields are designed to withstand the soil forces caused by a cave-in and protect the employees inside the structure. Most shields consist of two flat parallel metal walls that are held apart by metal cross braces.
  - Shielding design and construction is not covered by OSHA Standards. Shields must be certified in design by a registered professional engineer and must have either a registration plate on the shield or registration papers from the manufacturer on file at the worksite. Any repairs or modifications must be approved by the manufacturer.

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- The excavated area between the outside of the trench box and the face of the trench should be as small as possible. The space between the trench box and the excavation side must be backfilled to prevent lateral movement of the box. Shields may not be subjected to loads exceeding those which the system was designed to withstand.
- Trench boxes are generally used in open areas, but they also may be used in combination with sloping and benching.
- Shields must not have any lateral movement when installed.
- The shield must extend at least 18 inches above the point where proper sloping begins (the height of the shield must be greater than the depth of the excavation).
- Shields may ride 2 feet above the bottom of an excavation, provided they are calculated to support the full depth of the excavation and there is no caving under or behind the shield.
- Employees will be protected from cave-ins when entering and exiting the shield (i.e., ladder within the shield or a properly sloped ramp at the end).
- Employees are not allowed in the shield during installation, removal, or during any vertical movement.
- The open end of the shield must be protected from the exposed excavation wall. The wall must be sloped, shored, or shielded. Engineer designed end plates can be mounted on the ends of the shield to prevent cave-ins.

Hazardous Atmospheres and Confined Spaces

- Employees shall not be permitted to work in hazardous and/or toxic atmospheres. Such atmospheres include those with:
  - Less than 19.5% oxygen;
  - A combustible gas concentration greater than 20% of the lower flammable limit; and
  - Concentrations of hazardous substances that exceed those specified in the Threshold Limit Values for airborne contaminants established by the American Conference of Governmental Industrial Hygienists (ACGIH).
- All operations involving such atmospheres must be conducted in accordance with OSHA requirements for occupational health and environmental controls for personal protective equipment and for lifesaving equipment. Engineering controls (i.e., ventilation) and respiratory equipment may be required.
- When **internal combustion engines** are used in or near trenches, precautions should be taken against exhaust gases entering the trenches. Where necessary, ducts should be attached to the exhaust to conduct the gases away from the trench.
- **Testing for Atmospheric Contaminants** – If there is any possibility that the trench or excavation could contain a hazardous atmosphere (i.e., trenching in the vicinity of gasoline storage tanks, underground pipelines or sewer lines, a landfill area), atmospheric testing must be conducted, by a "Competent Person" prior to entry.
  - Testing should be conducted not only before employees enter the trench, but regularly to ensure that the trench remains safe. The frequency of testing should be increased if equipment is operating in the trench.
  - Testing frequency should also be increased if welding, cutting, or burning is done in the trench.
  - Employees required to wear respiratory protection must be trained, fit-tested, and enrolled in Master Construction Solutions's respiratory protection program.
  - Some trenches qualify as confined spaces. When this occurs, compliance with Master Construction Solutions's Confined Space program is required.

Standing Water and Water Accumulation

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- Methods for controlling standing water and water accumulation must be provided and should consist of the following if employees must work in the excavation.
    - Use of special support or shield systems approved by a registered professional engineer.
    - Water removal equipment, such as well pointing, used, and monitored by a "Competent Person".
    - Safety harnesses and lifelines, used in accordance with Master Construction Solutions's Fall Protection program.
    - Employees removed from the trench during rainstorms.
    - Trenches carefully inspected by a "Competent Person" after each rain and before employees are permitted to re-enter the trench.
- **Working below the water line** – In these conditions, to guard against an unstable excavation bottom, sheeting may have to be driven below the bottom of such an excavation to add to the soil stability.
- **Diversion Dikes and ditches** or other suitable means will be used to prevent surface water from entering an excavation and to provide adequate drainage of the area adjacent to the excavation. Water causes soil erosion and softening and should not be allowed to accumulate in a trench or excavation.

Superimposed Loads and Vibrations

- Superimposed loads in the vicinity of a trench or excavation will increase the pressure on excavation walls. Heavy equipment and materials such as pipes or timbers will be kept as far back from the excavation as possible.
- When heavy loads must be located near an excavation, the walls must be braced, sheet-piled, or shored to safely support the extra weight. In some cases, it may be necessary to lessen the pressure of these loads.
- Buildings, curbs trees, utility poles and other structures adjoining the excavation area also can place more stress on a trench side than it can safely accommodate. In these instances, Master Construction Solutions requires that shoring, bracing, or underpinning be provided as necessary not only to protect workers, but also to prevent the dislocation of the soil beneath the structures in the vicinity.
- **Spoil –** Temporary Spoil**,** the excavated material, can exert great pressure on the excavation walls.
    - Temporary spoil shall be placed no closer than 2 feet from the surface edge of the excavation, measured from the nearest base of the spoil to the cut. This distance should not be measured from the crown of the spoil deposit. This distance requirement ensures that loose rock or soil from the temporary spoil pile will not fall on employees in the trench.
    - Spoil should be placed so that it channels rainwater and other run-off water away from the excavation. Spoil should be placed so that it cannot accidentally run, slide, or fall back into the excavation.
    - Permanent Spoil should be placed at a much greater distance from the excavation. **This distance will be determined by the "Competent Person".**
- **Vibrations** or sudden shock from passing vehicles or railways, blasting, equipment such as trucks or pile drivers, and some tools can create enough vibration to endanger a shoring system. If these conditions exist near an excavation site, stronger support is vital.

Surface Crossing of Trenches

- Surface crossing of trenches should not be made unless necessary. However, if necessary, they are only permitted under the following conditions:
    - **Vehicle crossings** must be designed by and installed under the supervision of a Registered Professional Engineer.
- Walkways or bridges must:
    - Have a minimum clear width of 20 inches.
    - Be fitted with standard guardrails (as outlined in Master Construction Solutions's Fall Protection Plan).
    - Extend a minimum of 24 inches past the surface edge of the trench.
- **"Jump-Overs"** of trenches are strictly prohibited on any Master Construction Solutions worksite.

Inspections

- **Daily Inspection** of excavations, the adjacent areas and protective systems shall be made by the "Competent Person" for evidence of a situation that could result in a cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions.
- **The "Competent Person"** shall conduct inspections:

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- Daily and before the start of each shift.
- As dictated by the work being done in the trench.
- After every rainstorm.
- After other events that could increase hazards, such as snowstorm, windstorm, thaw, earthquake, dramatic change in weather, etc.
- When fissures, tension cracks, sloughing, undercutting, water seepage, bulging at the bottom, or other similar conditions occur.
- When there is a change in the size, location, or placement of the spoil pile.
- When there is any indication of change or movement in adjacent structures.

- **Whenever a possible hazardous condition** is detected, the "Competent Person" will instruct exposed employees to immediately leave the excavation or trench until an adequate means of protection is provided.
- A **"Daily Excavation Inspection Form"** shall be completed for excavations 4 feet or greater in depth.
    - All documented inspections will be kept on file in the worksite safety files and forwarded to the Safety Manager weekly.

Competent Person(s)

- The OSHA Standards require that the ***"Competent Person"*** must be capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and have authorization to take prompt corrective measures to eliminate them and if necessary, to stop the work.
- A "Competent Person" is required to:
    - Have a complete understanding of the applicable safety standards and any other data provided (29 CFR 1926 Subpart P).
    - Assure the proper locations of underground installations or utilities, and that the proper utility companies have been contacted.
    - Conduct soil classification tests and reclassify soil after any condition changes.
    - Determine adequate protective systems (sloping, shoring, and shielding systems) for employee protection.
    - Conduct all air monitoring for potential hazardous atmospheres and can detect and deal with other hazards associated with confined spaces.
    - Conduct daily and periodic inspections of excavations and trenches.
    - Approve design of structural ramps, if used.
    - Have the authority to take prompt corrective measures to eliminate existing and predictable hazards and to stop work when required.
- Each site covered in this procedure will have a Competent Person who will evaluate conditions and remain at the site if employees are working in the trench or excavation.
- The Competent Person will evaluate the work site prior to excavation and determine what utilities will be affected. Utility companies will be notified at least 48 hours prior to starting work unless emergency conditions exist.
- The Competent Person will choose either sloping or shielding/shoring as the protective system.
- The Competent Person will inspect and document the condition of the trench or excavation and protective system prior to each workshift, throughout each workshift, and after a rainstorm or other hazard-increasing event.
- If a hazard is detected, the Competent Person will not permit employees to enter or will immediately remove employees from the trench or excavation until proper protective measures have been taken.
- The Competent Person will ensure mobile equipment working near the edge of a trench or excavation has a positive warning system such as stop logs or hand signals.
- The Competent Person will ensure that testing with a multigas meter is conducted whenever the possibility of atmospheric hazards in the trench or excavation exists.
- The Competent Person will ensure that information on the site evaluation and protective system selected is available on-site.

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Competent Person Job Reminder Checklist

Date	Name of Competent Person	Name of RPE (If Applicable):
Project I.D. No./Name	Physical Location of Project	

Pre-Inspect Jobsite	
What is the best protection method? (i.e., sloping, shoring, shielding)	
How likely are utilities?	
What additional equipment is necessary?	
Is water removal needed?	
Will air monitoring be required?	
Ladders?	
Soil Testing?	
Stop logs?	
Employee and Equipment Access	
Employee ramp designed by Competent Person.	
Equipment ramp designed by person qualified in structural design.	
Exit means located within 25’ of employees and securely attached.	
Determine Soil Conditions	
All soil is to be classified as type “C” and proper protection used based on “C”.	
Record results on testing record.	
Inspect excavation for changing soil conditions.	
Protection Systems	
Appropriate protection system selected.	
Installed according to manual or tabulated data.	
Inspect equipment at start of shift	
Remove employee(s) working outside protected area(s).	
Monitor Environment Conditions	
Remove employees from trench where water is accumulating.	
Monitor use of water removal equipment.	
Monitor air quality levels if hazardous atmospheres are suspected.	
Required to Consult w/Registered Professional Engineer (RPE) When:	
Trenches are over 20’ deep.	
Specifically designed shoring or bracing is required.	
Excavation or trench endangers nearby structure.	
Standard protection measures cannot be used.	
May Consult with RPE When:	
Unusual or changing soil conditions exist or are anticipated.	
Soil is unusually good and shoring reduction is required.	
Soil is unusually poor and may require going to a more protective system.	

Notes:

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Soil Analysis Checklist

Date	Name of Competent Person	Weather Conditions
Project I.D. No./Name	Physical Location of Project	

Where was sample taken from?	Excavation length, depth & width	L:	D:	W:

Visual Test

Particle Type	Fine Grained (Cohesive)	Granular (Sand/Silt or Gravel)	Other (Describe)

Notes:

Water Conditions	Wet	Dry	Seeping Water	Surface Water Present	Submerged

Notes:

Yes	**No**	**N/A**	**Description**
			Layered Soils Dipping excavation? If yes, describe:
			Excavation exposed to vibrations? If yes, describe:
			Previously disturbed soils?
			Crack like openings or sprawlings observed?
			Underground Utilities? If yes, what type?
			Layered Soils? (Note: The least stable layer controls the soil type)

Manual Test

Plasticity	Cohesive	Non-Cohesive	Dry Strength	Cohesive (broken w/difficulty)	Granular

Wet Shake	Water comes to surface (granular material)	Surface remains dry (clay material)

Thumb Test (Used to estimate unconfined compression strength of cohesive soil)

Test Performed	Yes	No	N/A, Explain:

Soil indented by thumb with very great effort?	Type A
Soil indent by thumb with some effort?	Type B
Soil easily penetrated several inches by thumb with little or no effort. NOTE: If soil is submerged, seeping water, subjected to surface water, runoff, exposed to wetting.	Type C

Penetrometer or Shearvane Test (Used to estimate unconfined compressive strength of cohesive soils.)

Test Performed	Yes	No	Device Used/Serial Number:

Soil with unconfined compressive strength of 1.5 tsf or greater.	Type A
Soil with unconfined compressive strength of greater than 0.5 tsf and less than 1.5 tsf.	Type B
Soil with unconfined compressive strength of 0.5 tsf or less. NOTE: If the soil is submerged, seeping water, subjected to surface water, runoff, exposed to wetting.	Type C

Soil Classification

Stable Rock	Type A	Type B	Type C

Selection of Protective System (Refer to Appendix F of 29 CFR 1926)

Sloping (Appendix B) Specify Angle:	Timber Shoring (Appendix C)	Trench Shield Max. depth in this soil:	Hydraulic Shoring (Appendix D)

Additional Notes or Comments:

Keep one copy of each Soil Analysis Checklist on site for project duration
Forward the original to the main office

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Aluminum Hydraulic Shoring

Soil Type A Vertical Shores

Depth Of Trench (Feet)	Hydraulic Cylinders				
	Maximum Horizontal Spacing (Feet)	Maximum Vertical Spacing (Feet)	Width of Trench (Feet)		
			Up to 8	Over 8 Up to 12	Over 12 Up To 15
Over 5 Up To 10	8		2 Inch Diameter	2 Inch Diameter Note (2)	3 Inch Diameter
Over 10 Up To 15	8	4			
Over 15 Up To 20	7				
Over 20	Note (1)				

Footnotes to tables, and general notes on hydraulic shoring are found in Appendix D, Item (g).

Note (1): Appendix D, Item (g) (1) – For applications other than those listed in the tables, refer to 1926.652 (c) (2) for use of manufacturer's tabulated data. For trench depths more than 20 feet, refer to 1926.652 (c) (2) and 1926.652 (c) (3).

Note (2): Appendix D, Item (g) (2) – 2-inch diameter cylinders, at this width, shall have structural steel tube (3.5 x 3.5 x 0.1875) oversleeves, or structural oversleeves of manufacturer's specification, extending the full, collapsed length.

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Soil Type B Vertical Shoring

Depth Of Trench (Feet)	Hydraulic Cylinders				
	Maximum Horizontal Spacing (Feet)	Maximum Vertical Spacing (Feet)	Width of Trench (Feet)		
			Up to 8	Over 8 Up to 12	Over 12 Up To 15
Over 5 Up To 10	8		2 Inch Diameter	2 Inch Diameter Note (2)	3 Inch Diameter
Over 10 Up To 15	6.5	4			
Over 15 Up To 20	5.5				
Over 20	Note (1)				

Footnotes to tables, and general notes on hydraulic shoring are found in Appendix D, Item (g).

Note (1): Appendix D, Item (g) (1) – For applications other than those listed in the tables, refer to 1926.652 (c) (2) for use of manufacturer's tabulated data. For trench depths more than 20 feet, refer to 1926.652 (c) (2) and 1926.652 (c) (3).

Note (2): Appendix D, Item (g) (2) – 2-inch diameter cylinders, at this width, shall have structural steel tube (3.5 x 3.5 x 0.1875) oversleeves, or structural oversleeves of manufacturer's specification, extending the full, collapsed length.

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Soil Type B Waler Systems

Depth Of Trench (Feet)	Wales		Hydraulic Cylinders						Timber Uprights		
	Vertical Spacing (Feet)	Section Modulus (in^3)	Width of Trench (Feet)						Max. Horiz. Spacing (On Center)		
			Up to 8		Over 8 Up to 12		Over 12 Up To 15				
			Horiz. Spac.	Cyldr. Diam.	Horiz. Spac.	Cyldr. Diam.	Horiz. Spac.	Cyldr. Diam.	Solid Sheet	2 ft.	3 ft.
Over 5 Up To 10	4	3.5	8.0	2 in.	8.0	2 in. (Note 2)	8.0	3 in.			3x12
		7	9.0	2 in.	9.0	2 in. (Note 2)	9.0	3 in.			
		14	12.0	3 in.	12.0	3 in.	12.0	3 in.			
Over 10 Up To 15	4	3.5	6.0	2 in.	6.0	2 in. (Note 2)	6.0	3 in.		3x12	
		7	8.0	3 in.	8.0	3 in.	8.0	3 in.			
		14	10.0	3 in.	10.0	3 in.	10.0	3 in.			
Over 15 Up To 20	4	3.5	5.5	2 in.	5.5	2 in. (Note 2)	5.5	3 in.	3x12		
		7	6.0	3 in.	6.0	3 in.	6.0	3 in.			
		14	9.0	3 in.	9.0	3 in.	9.0	3 in.			
Over 20	Note (1)										

Footnotes to tables, and general notes on hydraulic shoring are found in Appendix D, Item (g).

Note (1): Appendix D, Item (g) (1) – For applications other than those listed in the tables, refer to 1926.652 (c) (2) for use of manufacturer's tabulated data. For trench depths more than 20 feet, refer to 1926.652 (c) (2) and 1926.652 (c) (3).

Note (2): Appendix D, Item (g) (2) – 2-inch diameter cylinders, at this width, shall have structural steel tube (3.5 x 3.5 x 0.1875) oversleeves, or structural oversleeves of manufacturer's specification, extending the full, collapsed length.

* Consult product manufacturer and/or qualified engineer for Section Modulus of available wales.

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Soil Type C Waler Systems

Depth Of Trench (Feet)	Wales		Hydraulic Cylinders						Timber Uprights		
	Vertical Spacing (Feet)	Section Modulus (in^3)	Width of Trench (Feet)						Max. Horiz. Spacing (On Center)		
			Up to 8		Over 8 Up to 12		Over 12 Up To 15				
			Horiz. Spac.	Cyldr. Diam.	Horiz. Spac.	Cyldr. Diam.	Horiz. Spac.	Cyldr. Diam.	Solid Sheet	2 ft.	3 ft.
Over 5 Up To 10	4	3.5	6.0	2 in.	6.0	2 in. (Note 2)	6.0	3 in.	3x12		
		7	6.5	2 in.	6.5	2 in. (Note 2)	6.5	3 in.			
		14	10.0	3 in.	10.0	3 in.	10.0	3 in.			
Over 10 Up To 15	4	3.5	4.0	2 in.	4.0	2 in. (Note 2)	4.0	3 in.	3x12		
		7	5.5	3 in.	5.5	3 in.	5.5	3 in.			
		14	8.0	3 in.	8.0	3 in.	8.0	3 in.			
Over 15 Up To 20	4	3.5	3.5	2 in.	3.5	2 in. (Note 2)	3.5	3 in.	3x2		
		7	5.0	3 in.	5.0	3 in.	5.0	3 in.			
		14	6.0	3 in.	6.0	3 in.	6.0	3 in.			
Over 20	Note (1)										

Footnotes to tables, and general notes on hydraulic shoring are found in Appendix D, Item (g).

Note (1): Appendix D, Item (g) (1) – For applications other than those listed in the tables, refer to 1926.652 (c) (2) for use of manufacturer's tabulated data. For trench depths more than 20 feet, refer to 1926.652 (c) (2) and 1926.652 (c) (3).

Note (2): Appendix D, Item (g) (2) – 2-inch diameter cylinders, at this width, shall have structural steel tube (3.5 x 3.5 x 0.1875) oversleeves, or structural oversleeves of manufacturer's specification, extending the full, collapsed length.

* Consult product manufacturer and/or qualified engineer for Section Modulus of available wales.

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Timber Trench Shoring

Minimum Requirements*
Soil Type A P_2 = 25 x H + 72 psf (2 ft. Surcharge)

Depth Of Trench (feet)	Size (actual) and Spacing of Mmbrs **													
	Cross Braces							Wales		Uprights				
	Horiz.	Width of Trench (feet)					Vertical	Size	Vertical	Max. Allow. Horiz. Spacing (ft.)				
	Spacing (ft)	Up to 4	Up to 6	Up to 9	Up to 12	Up to 15	Spacing (ft.)	(in.)	Spacing (ft.)	Close	4	5	6	8
5 To 10	Up to 6	4x4	4x4	4x6	6x6	6x6	4	Not Req'd	---				2x6	
	Up to 8	4x4	4x4	4x6	6x6	6x6	4	Not Req'd	---					2x8
	Up to 10	4x6	4x6	4x6	6x6	6x6	4	8x8	4			2x6		
	Up to 12	4x6	4x6	6x6	6x6	6x6	4	8x8	4				2x6	
10 To 15	Up to 6	4x4	4x4	4x6	6x6	6x6	4	Not Req'd	---				3x8	
	Up to 8	4x6	4x6	6x6	6x6	6x6	4	8x8	4		2x6			
	Up to 10	6x6	6x6	6x6	6x8	6x8	4	8x10	4			2x6		
	Up to 12	6x6	6x6	6x6	6x8	6x8	4	10x10	4				3x8	
15 To 20	Up to 6	6x6	6x6	6x6	6x8	6x8	4	6x8	4	3x6				
	Up to 8	6x6	6x6	6x6	6x8	6x8	4	8x8	4	3x6				
	Up to 10	8x8	8x8	8x8	8x8	8x10	4	8x10	4	3x6				
	Up to 12	8x8	8x8	8x8	8x8	8x10	4	10x10	4	3x6				
Over 20	See Note 1													

* Mixed oak or equivalent with a bending strength of not less than 850 psi.
** Manufactured members of equivalent strength may be substituted for wood.

Note (1): Appendix D, Item (g) (1) – For applications other than those listed in the tables, refer to 1926.652 (c) (2) for use of manufacturer's tabulated data. For trench depths more than 20 feet, refer to 1926.652 (c) (2) and 1926.652 (c) (3).

Note (2): Appendix D, Item (g) (2) – 2-inch diameter cylinders, at this width, shall have structural steel tube (3.5 x 3.5 x 0.1875) oversleeves, or structural oversleeves of manufacturer's specification, extending the full, collapsed length.

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Minimum Requirements*
Soil Type B P_2 = 45 x H + 72 psf (2 ft. Surcharge)

Depth Of Trench (feet)	Size (actual) and Spacing of Mmbrs **													
	Cross Braces							Wales		Uprights				
	Horiz. Width of Trench (feet)						Vertical Spacing (ft.)	Size (in.)	Vertical Spacing (ft.)	Max. Allow. Horiz. Spacing (ft.)				
	Spacing (ft)	Up to 4	Up to 6	Up to 9	Up to 12	Up to 15				Close	2	3		
5 To 10	Up to 6	4x6	4x6	6x6	6x6	6x6	5	6x8	5			2x6		
	Up to 8	6x6	6x6	6x6	6x8	6x8	5	8x10	5			2x6		
	Up to 10	6x6	6x6	6x6	6x8	6x8	5	10x10	5			2x6		
	See Note 1													
10 To 15	Up to 6	6x6	6x6	6x6	6x8	6x8	5	8x8	5		2x6			
	Up to 8	6x8	6x8	6x8	8x8	8x8	5	10x10	5		2x6			
	Up to 10	8x8	8x8	8x8	8x8	8x10	5	10x12	5		2x6			
	See Note 1													
15 To 20	Up to 6	6x8	6x8	6x8	8x8	8x8	5	8x10	5	3x6				
	Up to 8	8x8	8x8	8x8	8x8	8x10	5	10x12	5	3x6				
	Up to 10	8x10	8x10	8x10	8x10	10x10	5	12x12	5	3x6				
	See Note 1													
Over 20	See Note 1													

* Mixed oak or equivalent with a bending strength of not less than 850 psi.
** Manufactured members of equivalent strength may be substituted for wood.

Note (1): Appendix D, Item (g) (1) – For applications other than those listed in the tables, refer to 1926.652 (c) (2) for use of manufacturer's tabulated data. For trench depths more than 20 feet, refer to 1926.652 (c) (2) and 1926.652 (c) (3).

Note (2): Appendix D, Item (g) (2) – 2-inch diameter cylinders, at this width, shall have structural steel tube (3.5 x 3.5 x 0.1875) oversleeves, or structural oversleeves of manufacturer's specification, extending the full, collapsed length.

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Minimum Requirements*
Soil Type C P_2 = 80 x H + 72 psf (2 ft. Surcharge)

Depth Of Trench (feet)	Size (actual) and Spacing of Mmbrs **												
	Cross Braces						Wales		Uprights				
	Horiz. Spacing (ft)	Width of Trench (feet)				Vertical Spacing (ft.)	Size (in.)	Vertical Spacing (ft.)	Max. Allow. Horiz. Spacing (ft.)				
		Up to 4	Up to 6	Up to 9	Up to 12	Up to 15			Close				
5 To 10	Up to 6	6x8	6x8	6x8	8x8	8x8	5	8x10	5	2x6				
	Up to 8	8x8	8x8	8x8	8x8	8x10	5	10x12	5	2x6				
	Up to 10	8x10	8x10	8x10	8x10	10x10	5	12x12	5	2x6				
	See Note 1													
10 To 15	Up to 6	8x8	8x8	8x8	8x8	8x10	5	10x12	5	2x6				
	Up to 8	8x10	8x10	8x10	8x10	10x10	5	12x12	5	2x6				
	See Note 1													
	See Note 1													
15 To 20	Up to 6	8x10	8x10	8x10	8x10	10x10	5	12x12	5	3x6				
	See Note 1													
	See Note 1													
	See Note 1													
Over 20	See Note 1													

* Mixed oak or equivalent with a bending strength of not less than 850 psi.
** Manufactured members of equivalent strength may be substituted for wood.

Note (1): Appendix D, Item (g) (1) – For applications other than those listed in the tables, refer to 1926.652 (c) (2) for use of manufacturer's tabulated data. For trench depths more than 20 feet, refer to 1926.652 (c) (2) and 1926.652 (c) (3).

Note (2): Appendix D, Item (g) (2) – 2-inch diameter cylinders, at this width, shall have structural steel tube (3.5 x 3.5 x 0.1875) oversleeves, or structural oversleeves of manufacturer's specification, extending the full, collapsed length.

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Minimum Requirements*
Soil Type A P_2 = 25 x H + 72 psf (2 ft. Surcharge)

Depth Of Trench (feet)	Size (S4S) and Spacing of Mmbrs **													
	Cross Braces							Wales		Uprights				
	Horiz. Spacing (ft)	Width of Trench (feet)					Vertical Spacing (ft.)	Size (in.)	Vertical Spacing (ft.)	Max. Allow. Horiz. Spacing (ft.)				
		Up to 4	Up to 6	Up to 9	Up to 12	Up to 15				Close	4	5	6	8
5 To 10	Up to 6	4x4	4x4	4x4	4x4	4x6	4	Not Req'd	Not Req'd				4x6	
	Up to 8	4x4	4x4	4x4	4x6	4x6	4	Not Req'd	Not Req'd					4x8
	Up to 10	4x6	4x6	4x6	6x6	6x6	4	8x8	4			4x6		
	Up to 12	4x6	4x6	4x6	6x6	6x6	4	8x8	4				4x6	
10 To 15	Up to 6	4x4	4x4	4x4	6x6	6x6	4	Not Req'd	Not Req'd				4x10	
	Up to 8	4x6	4x6	4x6	6x6	6x6	4	6x8	4		4x6			
	Up to 10	6x6	6x6	6x6	6x6	6x6	4	8x8	4			4x8		
	Up to 12	6x6	6x6	6x6	6x6	6x6	4	8x10	4				4x10	
15 To 20	Up to 6	6x6	6x6	6x6	6x6	6x6	4	6x8	4	3x6				
	Up to 8	6x6	6x6	6x6	6x6	6x6	4	8x8	4	3x6	4x12			
	Up to 10	6x6	6x6	6x6	6x6	6x8	4	8x10	4	3x6				
	Up to 12	6x6	6x6	6x6	6x8	6x8	4	8x12	4	3x6	4x12			
Over 20	See Note 1													

* Douglas Fir or equivalent with a bending strength of not less than 1500 psi.
** Manufactured members of equivalent strength may be substituted for wood.

Note (1): Appendix D, Item (g) (1) – For applications other than those listed in the tables, refer to 1926.652 (c) (2) for use of manufacturer's tabulated data. For trench depths more than 20 feet, refer to 1926.652 (c) (2) and 1926.652 (c) (3).

Note (2): Appendix D, Item (g) (2) – 2-inch diameter cylinders, at this width, shall have structural steel tube (3.5 x 3.5 x 0.1875) oversleeves, or structural oversleeves of manufacturer's specification, extending the full, collapsed length.

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Minimum Requirements*
Soil Type B P_2 = 45 x H + 72 psf (2 ft. Surcharge)

Depth Of Trench (feet)	Size (S4S) and Spacing of Mmbrs **													
	Cross Braces						Wales		Uprights					
	Horiz. Spacing (ft)	Width of Trench (feet)				Vertical Spacing (ft.)	Size (in.)	Vertical Spacing (ft.)	Max. Allow. Horiz. Spacing (ft.)				
		Up to 4	Up to 6	Up to 9	Up to 12	Up to 15			Close	2	3	4	5
5 To 10	Up to 6	4x6	4x6	4x6	6x6	6x6	5	6x8	5			3x12 4x8		4x12
	Up to 8	4x6	4x6	6x6	6x6	6x6	5	8x8	5		3x8		4x8	
	Up to 10	4x6	4x6	6x6	6x6	6x8	5	8x10	5			4x8		
	See Note 1													
10 To 15	Up to 6	6x6	6x6	6x6	6x8	6x8	5	8x8	5	3x6	4x10			
	Up to 8	6x8	6x8	6x8	8x8	8x8	5	10x10	5	3x6	4x10			
	Up to 10	6x8	6x8	8x8	8x8	8x8	5	10x12	5	3x6	4x10			
	See Note 1													
15 To 20	Up to 6	6x8	6x8	6x8	6x8	8x8	5	8x10	5	4x6				
	Up to 8	6x8	6x8	6x8	8x8	8x8	5	10x12	5	4x6				
	Up to 10	8x8	8x8	8x8	8x8	8x8	5	12x12	5	4x6				
	See Note 1													
Over 20	See Note 1													

* Douglas Fir or equivalent with a bending strength not less than 1500 psi.
** Manufactured members of equivalent strength may be substituted for wood.

Note (1): Appendix D, Item (g) (1) – For applications other than those listed in the tables, refer to 1926.652 (c) (2) for use of manufacturer's tabulated data. For trench depths more than 20 feet, refer to 1926.652 (c) (2) and 1926.652 (c) (3).

Note (2): Appendix D, Item (g) (2) – 2-inch diameter cylinders, at this width, shall have structural steel tube (3.5 x 3.5 x 0.1875) oversleeves, or structural oversleeves of manufacturer's specification, extending the full, collapsed length.

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Minimum Requirements*
Soil Type C P_2 = 80 x H + 72 psf (2 ft. Surcharge)

Depth Of Trench (feet)	Size (S4S) and Spacing of Mmbrs **													
	Cross Braces						Wales		Uprights					
	Horiz. Spacing (ft)	Width of Trench (feet)				Vertical Spacing (ft.)	Size (in.)	Vertical Spacing (ft.)	Max. Allow. Horiz. Spacing (ft.)					
		Up to 4	Up to 6	Up to 9	Up to 12	Up to 15			Close					
5 To 10	Up to 6	6x6	6x6	6x6	6x6	8x8	5	8x8	5	3x6				
	Up to 8	6x6	6x6	6x6	8x8	8x8	5	10x10	5	3x6				
	Up to 10	6x6	6x6	8x8	8x8	8x8	5	10x12	5	3x6				
	See Note 1													
10 To 15	Up to 6	6x8	6x8	6x8	8x8	8x8	5	10x10	5	4x6				
	Up to 8	8x8	8x8	8x8	8x8	8x8	5	12x12	5	4x6				
	See Note 1													
	See Note 1													
15 To 20	Up to 6	8x8	8x8	8x8	8x10	8x10	5	10x12	5	4x6				
	See Note 1													
	See Note 1													
	See Note 1													
Over 20	See Note 1													

* Douglas Fir or equivalent with a bending strength not less than 1500 psi.
** Manufactured members of equivalent strength may be substituted for wood.

Note (1): Appendix D, Item (g) (1) – For applications other than those listed in the tables, refer to 1926.652 (c) (2) for use of manufacturer's tabulated data. For trench depths more than 20 feet, refer to 1926.652 (c) (2) and 1926.652 (c) (3).

Note (2): Appendix D, Item (g) (2) – 2-inch diameter cylinders, at this width, shall have structural steel tube (3.5 x 3.5 x 0.1875) oversleeves, or structural oversleeves of manufacturer's specification, extending the full, collapsed length.

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Daily Excavation Safety Checklist

NOTE: Trenches over 4 feet in depth are considered excavations. Any items marked NO on this form MUST be remediated prior to any employees entering the excavation.				
Date	Name of Competent Person	Weather Conditions Approx. Temp. Approx. Wind Dir.		
Project I.D. No./Name	Physical Location of Project			
Soil Classification	Excavation length, depth & width	L:	D:	W:
Protective System Used				
Activities in Excavation				
Excavation > 4 feet deep? ☐ Yes ☐ No If **Yes**, fill out a Confined Space Permit **Prior** to **Any** person entering the excavation.				

Yes	No	N/A	Description
			Employees protected from cave-ins & loose rock/soil that could roll into the excavation.
			Spoils, materials & equipment set back at least 2 feet from the edge of the excavation.
			Engineering designs for sheeting and/or manufacturer's data on trench box capabilities of site.
			Adequate signs posted and barricades provided
			Training (toolbox meeting) conducted w/employees prior to entering excavation.
			Utilities
			Utility company contacted and given 24 hours notice and/or utilities already located & marked.
			Overhead lines located, noted and reviewed with operator.
			Utility locations reviewed with the operator, & precautions taken to ensure contact does not occur.
			Utilities crossing the excavation supported, and protected from falling materials.
			Underground installations protected, supported or removed when excavation is open.
			Wet Conditions
			Precautions taken to protect employees from water accumulation (continuous dewatering).
			Surface water or runoff diverted/controlled to prevent accumulation in the excavation.
			Inspection made after every rainstorm or other hazard increasing occurrence.
			Hazardous Atmospheres
			Air in the excavation tested for oxygen deficiency, combustibles, and other contaminants.
			Ventilation used in atmospheres that are oxygen rich/deficient &/or contains hazardous substances.
			Ventilation provided to keep LEL below 10%
			Emergency equipment available where hazardous atmospheres could or do exist.
			Safety Harness and lifeline used.
			Supplied air necessary (if yes, contact President).
			Entry & Exit
			Exit (i.e., ladder, sloped wall) no further than 25 feet from **ANY** employee.
			Ladders secured and extended 3 feet above the edge of the trench.
			Wood ramps constructed of uniform material thickness, cleated together @ bottom.
			Employees protected from cave-ins when entering or exiting the excavation.

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Trenching and Excavating



More than 100 workers die each year in excavation cave-ins and for every 1 fatality an estimated 50 workers are injured or permanently disabled. By careful planning and follow-through combined with on-the-job awareness, you can help prevent the next tragic accident.

Let's review a few general requirements:

1. Before you dig, contact utility companies within established or customary local response times and advise of proposed work. (OUPS)
2. While the excavation is open, underground installations shall be protected, supported or removed.
3. Don't work underneath loads handled by lifting or digging equipment.
4. Test the atmosphere of the trench excavation where oxygen deficiency or hazardous atmosphere could reasonably be expected to exist.

Water in excavations or trenches can cause wall cave-ins. Never work in areas where water may accumulate unless:

1. The site is protected.
2. Surface water is diverted with dikes and ditches.
3. Water is drained by well points or pumps.

There are several other safety precautions which are important for everyone's protection.

1. Clear the worksite of any vegetation, large rocks, or any other obstructions that may create a hazard.
2. Keep dirt and debris away from the edge of the excavation, and be sure that the spoil pile is at least two feet from the edge.
3. Never allow anyone to be in an excavation unless absolutely necessary.
4. When in the excavation, never walk under walkways in use or place any part of your body under a hoisted load.
5. All excavations 4 feet or more in depth require ladders, steps, or ramps as a means of exit. These exits should be within 25 feet of the workers. When ladders are used, they should extend 3 feet above the surface and be secured.
6. Employees should never ride the bucket to the bottom of the excavation. Ladders should be used at all times.
7. Have emergency equipment available and know how to use it.

As work progresses, the excavation must be inspected daily and periodically, especially when there is any change in weather or environment that could affect the soil and when work is interrupted for lunch or shift breaks.

Safety is the responsibility of each worker involved in the project, not just the supervisor. Stay alert at all times and never assume someone else will look out for your safety. Here are some things each of you can do while on the jobsite:

1. Keep all trash and debris away from the site.
2. Keep tools and shoring materials not in immediate use out of the excavation and away from the edge.
3. Keep walkways and emergency exits clear of obstructions.
4. Make sure that barricades remain properly placed to protect workers and the general public

And above all, don't risk your life—or anyone else's. The results can be devastating.

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Vehicle Safety Policy

Vehicles account for a large share of the accidental injuries and deaths on worksites and highways. But most of these accidents can be avoided by obeying traffic rules and speed limits and by performing frequent and thorough safety inspections of all work vehicles. This policy and procedure have been developed to aid Master Construction Solutions in establishing vehicle inspection guidelines and standard operating guidelines and requirements for its drivers and equipment.

Vehicle Operation

- **General Guidelines:**
  - All drivers shall be properly licensed.
  - Supervisors shall verify that drivers are capable and qualified on each type of vehicle before allowing the vehicle to be operated unsupervised.
  - Drivers shall perform a pre-operational check of their vehicle and be familiar with the operator's manual.
  - No vehicle shall be operated in an unsafe condition.
  - Drivers and passengers are required to wear seat belts in Company vehicles.
  - All loose material such as papers, books, tools, radios, and brief cases shall be secured to avoid material falling onto the floorboard.
  - Drive defensively, observe the speed limits, and obey all traffic laws when operating vehicles.
  - Plan to minimize or eliminate the need for backing. Always check to the rear before backing.
  - Choose the safest location possible to park vehicles. Avoid parking in other vehicle's blind spots.
  - Keep windshield, windshield wipers, side windows and mirrors clean.
  - Clean headlights, taillights and emergency light covers.
  - Remove key from unattended vehicles.
  - Vehicle should not be left running when unattended. If it is necessary to leave a manual transmission vehicle running while unattended (i.e., to power warning lights, etc.), the vehicle must be properly secured with wheel chocks in front and back on the same tire.

Preventative Maintenance

The driver is ultimately responsible for making sure that the vehicle being driven is in a safe operating condition. Appropriate inspection procedures and reports assist in ensuring maintenance for repairs. Some vehicle deficiencies cannot be detected by periodic preventive maintenance and inspection procedures.

- **Driver Inspection Reports & Procedures:**
  - Employees will carefully inspect the vehicle and report on its condition prior to and following each trip (see "Vehicle Inspection Form").
  - Once completed, the Vehicle Inspection forms will be forwarded to the supervisor.
  - Ensure annual vehicle inspection report or decal is in or on the vehicle.
  - Federal and state laws require that an employee not drive a vehicle unless he/she is satisfied that it is in safe operating condition.
  - During a trip employees will monitor the condition of vehicle components that may affect the safety of the vehicle.
  - If something seems to be wrong with the vehicle, the employee will stop immediately and check out the source of the problem and report the condition immediately to his/her supervisor.
  - If something is wrong with the vehicle, the employee will not continue with the trip until the driver is satisfied it is safe to do so (i.e. repairs have been made, etc.).
- **Brake Performance:** The braking system is one of several key safety-related items. Catastrophic brake failure, such as sudden air loss, may lead to loss of control and the driver's inability to recover. Progressive brake deterioration, such as brake shoe wear without corresponding adjustment, can be even more troublesome because it may appear innocuous during normal driving, but may precipitate an accident during emergency braking applications.
  - Employees will test brakes for stopping performance before going on the highway.

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- Drivers will be sure that brakes are properly adjusted.
- Drivers will determine if the air system is operating satisfactorily.
- Check to make sure that low air warning devices are functioning.
- During a trip, before entering a severe downgrade, drivers will stop and check brake adjustment.

➢ **Tire Adjustment:** Improper tire pressure, either too little or too much, can lead to deterioration and eventual failure. To prevent loss of control accidents due to tire failure:
- During extended trips, drivers will monitor tire inflation.
- Drivers will not operate tires with inflation pressures other than those specified by the manufacturer.

➢ **Tire Wear & Deterioration:** A tire that is worn or damaged may fail as a blowout and result in loss of control of the vehicle. The principal indicators of deterioration are tread wear, tread and sidewall damage, and air leakage.
- Maintenance:
  - Check tires regularly to ensure they meet the minimum DOT tread depth requirement.
  - Do not mount mismatched sizes, or pair tires in duals with significantly different wear.
  - Do not mix bias and radial tires on the same axle.
  - Follow company standards for out-of-service conditions.
  - Replace tread only on sound casings.
- Drivers:
  - During vehicle inspections, check tires to make sure that their condition is within Company-established out-of-service criteria.
  - During a trip, monitor tires for road damage or deterioration.
- Look For:
  - Tread or sidewall separation.
  - Cuts or gouges.
  - Flat spots or uneven wear.
  - Leaks, monitor tire inflation.
  - Flat tires at duels.

➢ **Wheel Retention & Deterioration:** Incorrectly assembled or damaged wheel components can result in collapse of the wheel assembly and consequent loss of control.
- Use established company or industry guidelines to determine whether components should be returned to service.
- Attempt to determine cause of damage or deterioration. Such analysis may help identify improper use or maintenance procedures that should be corrected.
- Drivers, when inspecting wheels will look for:
  - Cracks in wheels and rim.
  - Improperly seated lock rings.
  - Rust around wheel nuts – check for tightness.
  - Check wheel nut tightness after recent tire change.
  - Missing components.

➢ **Steering System Performance:** The steering system can fail catastrophically or deteriorate progressively. Progressively increasing steering wheel play will make it harder for the driver to steer and should be viewed as an indicator of deteriorating steering system components, which may eventually lead to a catastrophic failure. Steering wheel play is a principal indicator of steering system deterioration that can be monitored at the driver inspection level.
- During pre-trip inspections, drivers will check for excessive steering wheel play and:
  - Follow established company guidelines for taking vehicle out of service.
  - Write up steering deficiencies on the vehicle inspection report.

➢ **Full Trailer Coupling:** Trailer separation can occur due to improper hitching, or inadequate or damaged equipment. Pintle hooks and ball hitches can uncouple if improperly latched. Hitch mounts could separate due to damage or lack of maintenance.
- Check to see that hitch components are in good condition on trailer and truck.
- Adjust coupler if necessary.
- Ensure that the pintle hook or ball hitch is properly locked.
- Ensure that safety chains are properly connected.
- Ensure that electric and airlines are properly connected.

➢ **5th Wheel Hitches & Adjustable Axles:** Proper coupling procedures of semi-trailers ensure that the coupling equipment remains in good order, the landing gear is not damaged, the air lines and electric lines are hooked up, the axle loads are balanced, and the coupling is secure.

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- Adjust trailer height to minimize coupling impact.
- Check conditions of kingpin and jaws.
- Check that the jaws are locked after coupling.
- Ensure that the landing gear is raised.
- Hook up air and electric lines carefully.
- If the trailer axle is adjustable, make sure it is locked properly.
- Check to see that the kingpin is not riding on top of the jaws.
- If the tractor has an adjustable fifth wheel, make sure adjustment is locked. Do not pull the trailer with the slide stops. Before driving away, apply the trailer brake; and pull gently against them to check coupling.

➢ **Vehicle Lighting & Conspicuity:** Trucks or tractor-trailer combinations, due to their length and lower maneuverability, may be struck by other vehicles because the other driver does not see the vehicle and its movement in time. Drivers can be assisted by making sure that the truck's lighting system and reflectors are adequate. The truck driver should use extra care in crossing traffic lanes and making turns during adverse visibility conditions.

- Check to make sure that all lights and reflectors are operable and clean.
- Use extra care when making turns or crossing intersections during poor visibility conditions.
- Use extra care when pulling low profile trailers such as empty flat bed tractors, and empty container chassis, construction equipment trailers, or pole trailers.

➢ **Payload Characteristics:** Many accidents are caused by inadequate loading procedures or route planning. Heavy, high, or offset loads can precipitate rollovers during emergency steering maneuvers or when driving at excessive speeds. High trailers or oversized loads can result in collisions when routes are not planned.

- Make sure your vehicle and axle weights are within legal limits.
- Make sure you know your vehicle weight rating.
- Make sure that tire ratings and inflations are compatible with the load and driving conditions.
- Make sure that suspension and coupling ratings are appropriate for the load.
- When trailer is being loaded with mixed cargo, have heavier articles loaded on the bottom.
- Check to see that heavy articles are not offset to one side of the trailer.
- When driving with heavy or high loads, use reduced speeds. Remember that you may have to make an emergency lane change.
- Curve speed advisory signs normally do not apply to heavily loaded commercial vehicles; go slower.
- Be aware that trailer wheels off-track may collide with curbs, or track onto unimproved shoulders, leading to loss of control when vehicle is heavily loaded.
- Know your vehicle height and plan your route so that you are not surprised by low bridges.
- When picking up a sealed trailer, find out payload characteristics.

➢ **Cargo Securement:** Cargo, which breaks loose on the road, can create control difficulties for the driver and present a hazard for other drivers. Shifting cargo can cause loss of control and truck rollover.

- Check to make sure that the lading has been properly secured.
- Periodically check to see that tie downs and bracing are still intact and the cargo has not shifted.
- Some cargo or lading, such as liquids in cargo tanks or portable tanks tends to shift; you must drive at reduced speeds during turns or braking to guard against loss of control.
- Pay particular attention to bracing and tie downs when picking up unusual cargoes. Satisfy yourself that the loading personnel have done their job properly.

➢ **Trailers & Towed Equipment:**

- Perform a visual and manual check of the "pintle hooks" to ensure that they are secure before the truck and attachment are used.
- Make sure cargo is properly loaded and secured using only approved chain and load binders. Safety chains are to be used on any attachment in tow. Ensure that the chains are of the proper strength for the load and are properly secured to both the vehicle and attachment to be towed.
- Be aware of height and width of load.
- Never load a trailer beyond its recommended capacity.
- Do not allow anyone between the truck and trailer when backing to hook trailer.
- Plan to minimize the need for backing. Always check to the rear before backing and use an observer when available. Make sure back-up alarms are working properly.
- Make sure trailer-bed and ramps are secure before putting trailer in use.
- Hook, unhook, load and unload on stable ground with trailer secure.

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- Be sure taillights and turn signals are in view when towing any attachment that does not have taillight hookup.
- Observe towing speed limit if applicable.
- Management shall be responsible for securing permits for all oversize loads.

Vehicle Fueling Safety Procedures

To prevent personal injuries and accidental spills of fuel at both Company Owned and Non-Owned Fueling Islands, the Fueling Safety Procedure has been established as follows:

- No smoking within 50 feet of Fueling Island.
- As you approach the Fueling Island, note overhead and side clearance. Park vehicle as close to the Fueling Island as possible; however, no closer than 3 feet. Vehicles with one fuel tank should park with the fueling side toward the Fueling Island.
- Always turn off engine and remove the keys from the ignition when fueling.
- It is suggested that employees wear gloves while fueling.
- Select the proper fuel and grade to be dispensed. Remove fuel nozzle from the cradle and visually inspect the nozzle and hose for any defects. If defects (i.e., cracks, leaks, etc.) are noted, Do Not Use and report defects to the Supervisor or Station Manager immediately.
- When fueling, you may use the "hands free catch bar" to regulate fuel flow, however, never leave the vehicle unattended while fueling and pay close attention to prevent over-filling.
- If fueling the Saddle Tank on the other side of a vehicle, place the nozzle on the back deck, walk around to the other side and pull nozzle/hose across deck. Do Not throw nozzle over or under the vehicle.
- Turn off the pump and replace the nozzle. Complete any required Fueling Ticket and note the vehicle number, vehicle mileage, number of gallons pumped and your name.
- In Case of Fuel Spills or Fires:
    - Locate Emergency Stop Panic Button and Class B or Class A-B-C Fire Extinguisher.
    - Depress Emergency Stop Panic Button and report the emergency to the Supervisor or Station Manger immediately. Do Not start or move the Vehicle.
    - If a small fire is ignited, obtain, and activate the fire extinguisher. Direct the discharge to the base of the fire in a sweeping motion. If the fire cannot be controlled within a few seconds, leave the area immediately and report to the Supervisor or Station Manager.
    - In the case of a spill, notify the Supervisor or Station Manager immediately and start Spill Containment Procedures.
    - NOTE: Federal law prohibits dispensing an improper fuel type into any Vehicle or into a non-approved fuel container.

Safe Driving Distance

If the vehicle in front stops, drivers must be far enough behind so they can stop in time to avoid collisions. But how far is that? Safe following distance varies, depending on how fast you're going and what the road conditions are. The two-second rule is a convenient way to figure out the safe following distance at various speeds without having to perform any calculations.

- ***The Two-Second Rule: According*** to the two-second rule, the following distance should be at least two seconds travel time behind the vehicle in front of you. To measure your following distance, choose a landmark (i.e., tree, telephone pole, etc.) that the vehicle in front of you has not yet passed. When the vehicle's rear bumper passes that landmark, start counting seconds ("one thousand and one, one thousand and two). Your front bumper should not reach the landmark before you count for two seconds. If it does you are driving too closely and should adjust your speed accordingly.

- ***The Two-Second Plus Rule: Two*** seconds is the minimum following distance you should maintain. It applies to daytime driving in good weather conditions and at speeds less than 40 mph. Use the two-second plus rule when traveling at higher speeds, when visibility is low or when weather or road conditions are unfavorable.

Under the two-second plus rule, you should maintain a following distance of two seconds, plus additional seconds for each additional driving condition.

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If…	*Add…*
You're traveling at more than 40 mph	Two Seconds
You're driving at night	One Second
The vehicle in front of you is a motorcycle	One Second
There's fog or poor visibility	One Second
The pavement is wet	One Second
You're being tailgated	Two Seconds
You're being tailgated by a tractor-trailer or bus	Four Seconds
You're towing a trailer	Two Seconds

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Pre-Trip Inspection Form

Tractor/Truck Number:	Trailer Number:	Odometer Reading:
Driver Name	Driver ID Number:	Date of Inspection

Description	Initials	Comments
Inside		
Apply Parking Brake		
Start Engine		
Oil Pressure (Light or Gauge)		
Air Pressure or Vacuum (Gauge)		
Low Air or Vacuum Warning Device		
Air pressure below 40 psi, check on pressure buildup.		
Air pressure above 60 psi, lower pressure until warning device works.		
Vacuum below 8 inches, check on buildup.		
Vacuum above 8 inches, lower until device actuates.		
Instrument Panel (lights or buzzers)		
Horn		
Windshield Wiper & Washer		
Heater & Defroster		
Mirrors		
Steering Wheel (excess play)		
Turn on all lights, including 4-Way Flashers		
Fire Extinguisher & Warning Devices		
Front		
Headlights		
Clearance Lights		
Identification Lights		
Turn Signals & 4 Way Flashers		
Tires & Wheels (lugs)		
Left Side		
Fuel Tank & Cap		
Side Marker Lights		
Reflectors		
Tires & Wheels (lugs)		
Cargo Tie-Downs/Doors		
Right Side		
Fuel Tank & Cap		
Side Marker Lights		
Reflectors		
Tires & Wheels (lugs)		
Cargo Tie-Downs/Doors		

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Pre-Trip Inspection Form - Side Two

Rear		
Taillights		
Stop Lights		
Turn Signals & 4-Way Flashers		
Clearance Lights		
Identification Lights		
Reflectors		
Tires & Wheels (lugs)		
Rear End Protection (bumper)		
Cargo Tie-Downs/Doors		
On Combinations		
Hoses & Couplers		
Electrical Connectors		
Couplings (5th Wheel, Chains, Lock Devices)		
Inside		
Stop Engine		
Release Trailer Emergency Brakes		
Apply Service Brake – Air loss should not exceed: 3 psi per min. on single vehicles 4 psi per min. on combinations		

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ROADS & WEATHER



Rain, snow and wind make driving extremely hazardous. In fact, the adverse weather conditions create double trouble.

Congested traffic, winding curves and steep hills make driving difficult enough during normal conditions. But, when we combine these road conditions with wind and wet weather, a whole new set of circumstances are introduced.

We must adjust our driving for these conditions. Keep your distance. Remember, you need a lot more room to stop on slippery roads. Anticipate stops and slow down gradually. Be extra cautious at intersections.

When driving on a slippery surface, never slam on your brakes. These sudden stops can throw you into a skid. If your vehicle is not equipped with anti-lock brakes keep steering control and wheels rolling by pumping the brake pedal.

Anti-lock brake systems (ABS) offer many benefits to drivers in hard braking situations. They reduce the possibility of skidding due to wheel lock-up. If your vehicle is equipped with anti-lock brakes, just hold the brake pedal down with a firm and constant pressure. The brake pedal may seem to ratchet or pulsate. You may also hear a noise. Do not pump the brake—just hold the brake pedal down with firm pressure and let the ABS work for you.

Rapid acceleration and too-hard braking cause most skids, but a sudden steering movement can also whip your vehicle into a slide. Slow down well ahead of turns and curves. Plan ahead for lane changes and move into them gradually. Be sure to signal your intentions to traffic behind.

If you do go into a skid, follow these rules:

- Don't hit your brakes or over-steer
- Take your foot off the gas and steer in the direction the rear of the car is sliding. That is, if the rear of the vehicle slides right, turn your wheels right. If your rear slides left, turn your wheels to the left.

The danger of trailer jack-knifing is also present on wet roads. The speed of the trailer surpasses the vehicle, creating a hinging effect. The trailer whips around with great force, throwing the vehicle out of control.

Routine vehicle maintenance is important throughout the year. However, during inclement weather, we rely on vehicle equipment that we sometimes take for granted.



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Each year approximately 50,000 Americans are killed in motor vehicle accidents.



SAFETY RESOURCES COMPANY OF OHIO, INC.

Is Your Vehicle Safe To Operate?

Vehicles must be in condition to operate on the highway. The responsibility lies with the driver. Speed limits must be observed at all times. And hauled materials, when hanging over the sides or extending beyond the tailgate, must be red-flagged. What other details need to be regularly observed?

- Vehicle passenger capacity
- Seat Belts
- Latched Tailgate
- Clean truck beds and cabs, and
- Immediate attention to mechanical problems.

Prior to starting your trip, make sure your vehicle is road worthy by first checking:

- Brakes
- Lights (head, read, and brake)
- Tires (wear and pressure)
- Windshield and wipers
- Horn and backup alarm
- Exhaust system
- Steering and mechanical parts
- Mirrors and
- Emergency Equipment



Check load and hitch. Is the load equally distributed and secure? Time taken at the outset may well save time over the long haul. Additional items to check are:

1. Be sure all rails and gates are set in place.
2. Do not let drivers exceed the "payload" rating of the vehicle.
3. Check the tongue weight of all trucks.
4. Do not let drivers exceed the rating of the hitch.
5. Use safety chains (be sure they are the same length).
6. Be sure hitches are properly closed after hookup.
7. Be sure all electrical connections are properly made.
8. Note that for heavy trailers, a pintle hitch should be used.

The driver is ultimately responsible for ensuring that the vehicle being driven is in a safe operating condition. Appropriate inspection procedures and reports by the driver assist in making certain scheduled maintenance and repairs are performed.

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Waste Management Policy

Introduction

Commercial construction generates enormous quantities of solid waste materials, and the majority can potentially be re-used or recycled. The primary objective of this plan is to initially limit the amount of construction waste generated on this project by requiring all employees, subcontractors, and material suppliers to limit quantities of materials and packaging to only those necessary for the project. Where construction waste is generated, the secondary objective is to divert as much waste as possible from this jobsite from area landfills. Every effort will be made to limit, separate, sort, collect and properly dispose of all construction waste materials generated on this project site.

Master Construction Solutions has established this plan to assure diversion of construction and demolition waste and land clearing (CDL) debris from landfill disposal. This Waste Management Plan will be adhered to by all Master Construction Solutions employees, its subcontractors, and other jobsite personnel during this project. Master Construction Solutions will implement, discuss goals and issues as part of coordination meetings, and document this plan through the course of construction activities.

Construction, demolition and land clearing debris (CDL) is all non-hazardous solid waste resulting from construction, demolition and landclearing (CDL) activities. CDL waste materials that can be salvaged, reused, or recycled include, but are not limited to, the following:

- Acoustical ceiling tiles
- Asphalt
- Asphalt shingles
- Bricks
- Cardboard
- Carpet and pad
- Concrete
- Dirt
- Drywall
- Fluorescent lights & ballasts
- Insulation
- Land clearing debris
- Metals
- Paint
- Porcelain
- Wood
- Plastic film from packaging
- Window glass
- Field office waste (paper, cans, glass & plastic bottles, cardboard)

Planning

Prior to starting construction decisions will be made for such items as waste generation and collection locations on the jobsite, best practice methods to sort, etc. Review methods and procedures related to waste management including, but not limited to, the following:

- Review and discuss waste management plan.
- Review requirements for documenting quantities of each type of waste and its disposal.
- Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
- Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
- Review waste management requirements for each trade.

Instruction and Training

This waste management plan will be distributed to all Master Construction Solutions employees and subcontractors working on this project. Master Construction Solutions will discuss goals and handling procedures of the waste generated with its employees during coordination meetings. The project's first coordination meeting will provide an orientation discussion of the Waste Management Plan. Items that will be discussed at this orientation will be as follows:

- Plan requirements
- A review of waste handling procedures
- Location of dumpsters/bins
- Waste segregation requirements
- Discussion regarding cross contamination of waste
- Discussion regarding responsibility of moving waste from the building to applicable bins

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- Enforcement requirements

Each construction employee on the jobsite will be trained on the Waste Management Plan for this project. This Plan will be available from a supervisor by request.

Material Handling Procedures

Waste materials should be properly stored and handled to minimize the potential for a spill or impact on the environment. During outdoor activities, receptacles will be covered as required to prevent the dispersion of waste materials and to control the potential for run-off.

Based on the construction activities, material specific waste hauling containers will be strategically located on the site and will be clearly marked. As construction activities progress and CDL materials change content, waste hauling container identification will change. Master Construction Solutions will arrange for hauling containers and scheduling delivery/removal of containers with hauling provider.

The waste material generated will be separated for disposal and/or recycling. When possible, CDL materials generated on this project will be salvaged and recycled. Master Construction Solutions will research available recycling sources specific to the job site and make all trades aware of project qualifying CDL recyclable materials. Materials will be collected and hauled to an approved disposal/recycling center. Master Construction Solutions will remove CDL waste materials from project site on a regular basis. Do not allow CDL waste to accumulate on-site. Burning of CDL waste is not permitted.

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Work Site:

Master Construction Solutions
Waste Management Plan

Name:
Date:

Waste Type	Quantity	Disposal Method	Handling Procedure

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