



# Environmental, Health and Safety Manual



## ENVIROMENTAL, HEALTH AND SAFETY COMMITMENT

At Mathers Construction, the commitment to Environmental, Safety and Health is an extension of our philosophy of constructing with integrity.

Our commitment to Safety excellence is emphasized by:

- Management's commitment and accountability to provide a safe and Healthy work environment
- Encouraging open communication between all project personnel and soliciting input, support and action to achieve an injury-free environment.
- Providing training and equipment to help ensure employee Safety and project success
- Promoting Safety as a value rather than a directive and extending that value into all areas of our lives.

At Mathers Construction, Environmental, Safety and Health is everyone's responsibility. As a condition of employment, all employees are accountable to adopt Safety as a value and comply with best practices of the highest level of E.H.S. standards and guidelines set in place by the company.

Ashley L. Gauldin  
E.H.S. Director

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## COMPANY SAFETY AND ENVIRONMENTAL POLICY

*Mathers Construction Team* is committed to the safety of all employees. Through this plan we intend to ensure:

- that all employees work under the safest conditions possible,
- potential hazards can be recognized and identified by employees,
- that we maintain employment and places of employment free from recognized hazards, and
- that we provide the information, training, and supervision necessary to enable employees to perform their jobs and work assignments safely.

This safety policy contains the basic safety rules and procedures which are to be followed by all employees. This policy will help you, our employee, recognize and avoid hazards, but no single program can cover all situations. When in doubt about how to handle a hazard, particularly if this program has not addressed the situation you are facing, consult your supervisor or the E.H.S Department for guidance and assistance.

*Mathers* will endeavor to comply with the safety and environmental regulations implemented by federal, state, and local agencies that are applicable to any work site. It is, therefore, company policy that every employee and all property and the public be protected from controllable hazards. We believe that accidents can be avoided by using good training methods, common sense, and personal initiative. Each employee is, therefore, responsible for complying with the safety and environmental regulations of *Mathers* and of any federal, state, local agency and customer policies applicable to any work site.

### EMPLOYEE RESPONSIBILITY

1. Always follow safety rules, policies and procedures.
2. Report unsafe acts and conditions to the supervisor/coordinator immediately.
3. Utilize all personal protective equipment necessary for jobs performed.

4. Inspect all tools and equipment before each use and remove any that are defective.
5. Report accidents and near misses immediately to supervision.
6. Request help when unsure about how to perform any task safely.
7. Report to work in good mental and physical condition to safely carry out assigned duties.

#### COORDINATOR/SUPERVISOR RESPONSIBILITIES

1. Enforce all safety and health rules and policies and take corrective action, including disciplinary action, as needed.
2. Conduct daily jobsite inspections for hazards and safety violations and take corrective action as necessary.
3. Maintain a safe worksite through appropriate and immediate attention to unsafe acts, unsafe working conditions, or poor housekeeping.
4. Make sure proper safety materials and personal protective equipment are available and used by employees.
5. Investigate all reported near misses, injuries and unsafe acts in a timely manner and take appropriate action.
6. Provide for the protection of the public as well as host site employees and property during company operations.

#### TRAINING AND ORIENTATION

1. New employees will be given an orientation during which the company's safety policies and procedures will be reviewed. This orientation will occur before any work is performed. All personal protective equipment will be issued at this time and instruction on the proper use and storage of the equipment will be covered.
2. All employees will be made aware of the location of emergency telephone numbers and first-aid kits, the names of employees trained to render first-aid treatment and CPR, and the Panel of Physicians.
3. All employees are trained in the risk/hazard identification process to ensure safe practices and procedures.
4. Training and orientation will be documented, and the documentation will be stored in the employee's personnel folder.

#### WORKSITE HAZARD ANALYSIS

1. A pre-construction inspection will be conducted, prior to any job, by

management to determine potential safety hazards.

2. A pre-construction safety meeting will be held, prior to beginning work on any job, to discuss any safety hazards that may be encountered and conduct a hazard risk analysis. The analysis shall contain a ranking of event severity, frequency, probability, and avoidance to determine the level of safe practices employed.  
Employees attending the meeting will be asked to provide insight on any potential hazards that may arise regarding the operations.
3. A brief safety meeting will be conducted at the beginning of each workday to review any safety hazards pertinent to the duties of the day.
4. The supervisor/coordinator will conduct jobsite walk-through inspections daily. All hazards/unsafe conditions will be corrected immediately.

## RULES OF CONDUCT

All employees must realize that rules of conduct are necessary for a safe and efficient operation. These rules are established to protect everyone at each site and will be enforced fairly and impartially.

The following actions by an employee can result in disciplinary action up to and including termination.

### CLASS A VIOLATIONS

- Disregarding safety rules and/or other acts that endanger you and/or others.
- Willfully endangering the lives of others.
- Any horseplay or fighting.
- Insubordination, refusal to follow supervisors' instruction.
- Proof of fraud (intentional act of deceit).
- Falsifying company records.
- Possession of dangerous weapons or illegal drugs on company property, vehicles or job sites.
- Willful destruction of company equipment, property or supplies.
- Consumption of alcoholic beverages on Co. property, vehicles or job site
- Intoxication or under the influence of drugs while on the job.

- Absences for three (3) consecutive workdays and failure to properly notify your immediate supervisor.
- Unauthorized removal of company, client or their employee's property from the project.

#### CLASS B VIOLATION

The following actions (not all-inclusive) call for a written reprimand and if repeated, may result in termination.

- Disregard for safety rules or practices.
- Failure to report injuries.
- Repeated absences or tardiness (repeated being defined as twice in a week, five times in a month or eight times in a year.
- Loitering or wasting time during working hours.
- Consistent poor work performance, either in quality or quantity.
- Violation of quitting time procedure or leaving work prior to designated time.

#### CLASS C VIOLATION

Expectation: Stop work immediately, remove employees from any situation that is IDLH, call site safety lead and senior site management requesting onsite meeting to discuss and resolve issues. Senior Site management will designate the party they feel is appropriate to handle the situation.

- Noncompliance Confined Space standards- not applied, not following
- Noncompliance Excavation- trench box, sloping and shoring
- Noncompliance Fall protection standard
- Rigging and Crane work noncompliance
- Working without a permit or required supporting documents
- Employee operating equipment not qualified/ trained to operate



## GENERAL SAFETY AND HEALTH REQUIREMENTS

The following general safety rules apply to all persons working on any job site. These rules must be observed at all times.

1. Report all unsafe practices, conditions, equipment, or tools to your supervisor, immediately.
2. All injuries, regardless of how minor, must be reported to your supervisor immediately.
3. Familiarize yourself with your job and its hazards prior to beginning work. In case you are unsure of the hazards or how to continue safely, request assistance from your supervisor.
4. Firearms, drugs, and alcohol are prohibited on company property, in company vehicles or on job sites.
5. All persons working at or above six feet will follow the 100% fall protection program.
6. Fighting, horseplay, scuffling, running, and other inappropriate conduct in the workplace are prohibited.
7. Roped-off barricaded areas identified as safety hazards may be entered only by authorization of supervision responsible for the work.
8. All chemical containers must be correctly labeled to identify its contents and must be properly stored.
9. All personal protective equipment will be used as required and maintained in a sanitary condition.
10. All manufacturer's machine guards, and safety devices must be in place before operating tools and machinery.
11. Tools and equipment must be kept clean and in good working condition. Tools and equipment will be maintained and used according to manufacturer's recommendations. Tools and equipment will be inspected before each use, and if defective, will be taken out of service and tagged "DO NOT USE".
12. Only persons with adequate training and/or experience are permitted to operate equipment.
13. Always use the right tool for the job.
14. Store all materials, tools, and equipment neatly and appropriately when not in use.
15. Do not enter any tank, vessel, or confined space unless properly trained and authorized to do so by your supervisor through a properly completed written Confined Space Entry Permit. Always follow local plant or jobsite specific requirements.

16. Employees are not to ride as passengers on construction equipment or in the bed of pickups.
17. Daily housekeeping is required and job sites will be maintained in a neat and orderly manner.
18. Always dress properly and wear clothing that fits properly and is in good condition. Shirts with at least short sleeves, long pants and good work shoes are the minimum requirements. (No plastic buttons are allowed at Hershey).
19. Jewelry, especially rings and dangling necklaces, can cause serious injury if it gets caught in rotating equipment, on nails or screws, ladder rungs, scaffolding or various types of building materials, therefore, rings and dangling jewelry must be removed prior to working where they can get caught. This especially applies when working at elevations. The wearing of jewelry is not allowed on Hershey sites.

#### SANITATION

1. Coolers marked “drinking water”, will be made available throughout the worksite and single service cups will be provided. A trash receptacle will be provided at each water station. Cups used for water are to be disposed of in the marked container.
2. A minimum of one toilet will be provided at each worksite. A minimum of two toilets will be provided for operations with 20 or more persons. One additional toilet will be provided per 40 persons.

#### FIRST AID

1. Unless 911 is available at the work site, emergency numbers will be located at the job site, in company vehicles, or in the first aid kits.
2. In the case of emergency, contact your supervisor immediately. Send for help.
3. All supervisors and foremen will maintain up-to-date certification in first aid and CPR. A Mathers employee trained in First Aid and CPR, will be always present at all job sites.
4. A first aid kit will be in all job site trailers, equipment storage rooms and company vehicles. Bottles of eye wash will be provided in all. First aid kits shall be appropriate for the environment that they will be used.
5. Injured employees, except in emergency situations, must see one of the company’s approved physicians (Panel of Physicians).




**CERTIFICATION OF EMPLOYEE COVERAGE**

I, \_\_\_\_\_, hereby acknowledge that I attended a Mathers employee meeting where the Mathers Corporate Safety Program was discussed in detail. I further understand that it is a condition of my employment, with Mathers, that I follow all the rules and procedures described in this program, and that my failure to follow these rules and procedures will result in disciplinary action being taken against me, up to and including termination from employment.

Employee Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Company Representative: \_\_\_\_\_ Date \_\_\_\_\_

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		Initial Issue:	
		Revision Date:	2/1/2023
<b>HANDLING AND REPORTING JOB-RELATED INJURES AND INCIDENTS: INCIDENT INVESTIGATION</b>			
Prepared By:	Ashley L. Gauldin, E.H.S Director	Page:	1

## ❖ Policy

Mathers Construction Team is committed to reducing the frequency, impact, and severity of incidents in the workplace that could affect:


- the health and safety of people;
- business continuity and reputation;
- the environment.

Mathers Construction Team will identify, and record all OHS incidents, whether or not they cause injury or damage.

All job-related injuries and incidents must be handled and reported as follows:

1. Employees injured on the job are to report the injury to supervision and the safety office as soon as possible.
2. First aid or other appropriate treatment shall be provided, or obtained, for the injured employee(s).
3. “Near miss” incidents shall be reported to supervision immediately, after the event, so that the investigation can be made before conditions change.
4. The supervisor must complete an Initial Incident Report after observing the accident site, interviewing the injured employee, any witnesses, and other relevant personnel. The report should be completed by the end of the workday, but no later than 24 hours after the accident. If circumstances, such as hospitalization of the injured employee, delays the report, a preliminary report must be submitted.
5. The supervisor must immediately notify management and safety, by telephone or radio, of serious injuries (requires more than first aid).
6. Any employee witnessing an accident/incident at a job site shall call for emergency help and provide whatever assistance appears necessary. The employee is to immediately report the accident/incident to supervision and take part in the investigation.
7. Employees who do not promptly or properly report accidents or incidents in accordance with this policy may be disciplined or terminated from employment.

In addition, visitors and any other Organizations that are involved with or impacted by an

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incident involving a Mathers employee at the workplace will be included in consultation and communication.

All employees involved in an incident, or near miss, are subject to drug and alcohol testing as outlined in our drug and alcohol policy.


### ❖ Responsibilities

Mathers Construction Team takes responsibility for ensuring that:

- there is an effective procedure in place for the immediate response to and management of incidents;
- there is an Incident Reporting Procedure in place for the notification and management of incidents;
- all workers are trained and familiar with the Incident Reporting Procedure and have easy access to the report forms and procedure;
- State Authority is notified immediately after becoming aware that a Notifiable Incident has occurred;
- so far as is reasonably practicable, that the workplace where any Notifiable Incident has occurred is not disturbed until an inspector arrives at the workplace or any earlier time that an inspector directs;
- review of the Incident Reporting procedure conducted as required.

The applicable Manager is responsible for:

- maintaining and reviewing the Incident Reporting Procedure as required;
- ensuring all workers know about the procedure and trained in the procedure;
- assisting managers, supervisors and workers in following the procedure when required;
- informing and consulting with Mathers Construction Team/ Executive Team regarding incidents, in particular, Notifiable Incidents;
- notification of Notifiable Incidents to the relevant Authority, within the prescribed timeframes;
- ensure, so far as is reasonably practicable, that the workplace where the incident occurred is not disturbed until an inspector arrives at the workplace or any earlier time that an inspector directs;
- maintaining records required by legislation relating to incidents, including the Register of Injuries.

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Supervisor(s)/Manager(s) are responsible for:

- informing workers and others (when applicable) about the requirement to report incidents promptly;
- ensuring that the Incident Report Forms are readily accessible for workers;
- complying with the Incident Reporting Procedure for incidents reported to them.

All workers are responsible for the initial reporting of incidents.


❖ **Incident Reporting Procedure:**

- follow the Incident Response Procedure to ensure that workers are cared for, and the incident area is cleared of people and secured to prevent further harm;
- report all incidents as soon as possible to supervisors;
- when a Reportable Incident has occurred, supervision and/or safety representative determines whether the workplace is preserved for investigation by the relevant Authority;
- a person involved with the incident completes an Incident Report Form;
- if the person involved with the incident is not able to complete the form, the safety representative will complete the form, in consultation with the involved person, if possible;
- a copy of the Incident Report form is provided to – the person involved and to the safety department;
- safety department records the incident on the Incident/Near Miss Register;
- a copy of the Incident Report is provided to any safety representative, as required;
- safety department reports all Notifiable Incidents to the relevant Authority, within the timeframe required by legislation;
- safety department keeps records of incidents and injuries following Statutory requirements;
- follow the Incident Investigation procedure.

❖ **Notifiable Incidents**


Notifiable incidents include the death of a person, serious injury, or a dangerous incident. The definitions of Serious Injury and Dangerous Incidents described below:

- *serious injury/illness:*
  - a person requiring immediate treatment as an in-patient in a hospital;

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- a person requiring immediate treatment for:
  - ❖ amputation of any body part;
  - ❖ serious head injury;
  - ❖ serious eye injury;
  - ❖ serious burns;
  - ❖ de-gloving or scalping (separation of skin from underlying tissues);
  - ❖ spinal injury;
  - ❖ loss of function of any body parts;
  - ❖ serious lacerations;
- a person requiring medical treatment within 48 hours of exposure to a substance, loss of consciousness;
- any other injury or illness prescribed by the Regulations;
- *dangerous incident:*
  - uncontrolled escape, spill, leak of any substance;
  - uncontrolled implosion, explosion or fire;
  - uncontrolled escape of gas or steam;
  - uncontrolled escape from pressurised substance;
  - electric shock;
  - the fall or release from a height of any plant, substance or object;
  - collapse, overturn, failure, malfunction, damage to authorised plant required for use;
  - collapse or partial collapse of a structure;
  - collapse or failure of an excavation or shoring equipment;
  - the inrush of water, mud or gas in workings in an underground excavation or tunnel;
  - interruption of the main system of ventilation for underground tunnel or excavation;
  - any other incident prescribed by the Regulations;
- the State Authority is notified immediately after becoming aware that a Notifiable Incident has occurred;
- so far as is reasonably practicable, that the site where any Notifiable Incident has occurred is not disturbed until an inspector arrives at the site or any earlier time that an inspector directs;
- conduct a review of the Incident Reporting procedure as required.

❖ **Notifiable Incident Response Procedure**

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1. Follow the Emergency Response Procedure to care for workers, and the incident area is cleared of people and secured to prevent further incident;
2. Report all incidents as soon as possible to supervision;
3. When a Reportable Incident has occurred, supervision and safety determines whether the site needs to be preserved for investigation by the relevant authority;
4. The person involved in the incident completes an *Incident Report Form*;
5. If the person involved in the incident is not able to complete the form, safety representative will complete the form, in consultation with the involved person, if possible;
6. A copy of the *Incident Report Form* is provided to – the person involved and to safety department;
7. Safety department records the incident on the *Incident/Near Miss Register*;
8. A copy of the *Incident Report Form* is provided to any Principal Contractor, as required;
9. Safety department reports all Notifiable Incidents to the relevant Authority, within the timeframe required by legislation;
10. keeps records of incidents and injuries per Statutory requirements;
11. Follow the Incident Investigation Procedure, if needed.



	<b>Mathers Construction Team E.H.S Policy</b>	Doc No.	1.1A
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<b>MODIFIED DUTY / RETURN TO WORK</b>			
Prepared By:	Ashley L. Gauldin, E.H.S Director	Page:	1

This "Modified Duty / Return-to-Work Policy" is intended to serve as a guide to management to assist employees who have sustained a work-related injury return to gainful, productive employment as soon as possible, while adhering to temporary, physician-recommended physical restrictions. As such, MCT will make reasonable efforts to provide modified duty work assignments to employees injured during employment for which professional medical treatment is sought.

In the context of this policy, a "modified duty" job assignment is a temporary job assignment that conforms to the treating physician's recommended limitations. The temporary job assignment may or may not be in the same classification or location as the employee's regular job. Additionally, the temporary job assignment may or may not be equivalent (in terms of weekly hours worked and/or monetary compensation received) to the employee's regular job.

## SCOPE


At the discretion of MCT EHS and management team, all employees are eligible to return to work on a "modified duty" status, considering that all of the following criteria exist.

- The injury sustained by the employee has been determined to be work-related and compensable under current workers' compensation legislation; and
- The physical restrictions imposed by the treating physician are specific (e.g. no lifting over 50 pounds); and
- The physical restrictions recommended by the treating physician are for a specified, temporary period (e.g. 10 days); and
- Work-related tasks which are within the physical limitations of the treating physician are available and are within the physical and skill capacities of the injured employee, with reasonable accommodations made by MCT, the employee or both.

## COMMUNICATING THE AVAILABILITY OF MODIFIED DUTY WORK ASSIGNMENTS

For every work-related injury that has the potential to involve time off work and/or physician-imposed physical restrictions, the injured employee and an employer representative (both) shall inform the treating physician of the availability of modified duty work assignments.

Similarly, an employer representative (MCT EHS and management team) shall inform the workers' compensation insurance carrier of the availability of modified duty work assignments with every reported injury that has the potential to involve time off work and/or physician-imposed physical restrictions.

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<b>MODIFIED DUTY / RETURN TO WORK</b>			
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### **LIMITED NATURE OF MODIFIED DUTY ASSIGNMENT**

Modified duty work assignments are temporary for most occupational injuries and illnesses. In no way, should a modified duty work assignment be perceived as permanent work activity. As such, any modified duty work assignment must be reviewed by the management of MCT and the company's workers' compensation carrier to determine if the modified duty work assignment is to be extended beyond the initial 90-day period. If a modified duty work assignment is permitted to extend beyond the initial 90-day period, a similar review shall be conducted every 30 days thereafter.


### **REFUSAL OF MODIFIED DUTY ASSIGNMENT**

As previously noted, MCT will make reasonable efforts to provide employees with modified duty work assignments following a work-related injury for which the treating physician imposes temporary physical restrictions. If the assigned modified duty work does not violate the treating physician's imposed physical restrictions, the employee is expected to return to work. Refusal of a modified duty work assignment may result in the termination of workers' compensation indemnity benefits and/or the termination of employment.

I \_\_\_\_\_ (employee) have been informed of Mathers Construction's modified work policy. I consent \_\_\_\_\_ do not consent \_\_\_\_\_ to follow the modified work program.

Signature \_\_\_\_\_

Date \_\_\_\_\_

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<b>SAFETY INCENTIVE PROGRAM</b>			
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**Purpose:**

This program is designed to motivate and recognize those employees who perform work with the team to work towards the overall safety goals of Mathers Construction. This program is driven by the contributions, efforts, and choices made by the team to achieve safety goals and improve the overall program.

**Incentive program**


The continuous efforts and choices of our team is a vital part of the growth of our team. We do not want the effort of one individual over another to be recognized. We are a team, the choices we make and our collective actions, together contribute to our successes and failures. For this reason our choices of recognition our based on the acts seen by management in the field. Continuously we look for personnel to:

- Actively participation in safety meetings
- Generate ideas and suggestions to improve the process, tasks, and programs
- Heighten awareness among co-workers
- Work cohesively and plan together before a task is carried out
- Go above and beyond the standard procedures
- Actively participate in the planning process of jobs, and discussion of work
- Report accidents, near misses, and unsafe conditions as well as good catches and best practices

Rewards are based on the observation witnessed by management, clients, and co-workers. Rewards are based on the situations and individuals on that team, to accurately recognize each person’s individual efforts. Example of rewards include, but are not limited to:

- Lunch or celebrations
- Additional company clothing or products
- Gift cards
- Tools or other merchandise

Individuals will not be excluded from this program due to the reporting of accidents, near misses, or unsafe conditions. The goal of this program is to not discourage reporting, but rather encourage the active participation of team members and to grow our program and safety awareness.

	<b>Mathers Construction Team E.H.S Policy</b>	Doc No.	1.1C
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<b>Heat/ Cold Stress Prevention Program</b>			
Prepared By:	Ashley L. Gauldin, E.H.S Director	Page:	1

This Heat/ Cold Stress Prevention Plan applies to employees of Mathers Construction Team who work in outdoor areas of employment or on job tasks where the environmental risk factors for heat illness are present and are at risk for developing heat illnesses if they do not protect themselves appropriately.

## 1.0 POLICY STATEMENT

It is the policy of Mathers Construction Team that any employee participating in job tasks where environmental risk factors for heat or cold illness are present will comply with the procedures in this document and in the Injury and Illness Prevention Program.

## 2.0 HEAT STRESS

These facts are provided to help our HSE Professional assess heat stress hazards and make better decisions.

### 2.1 General Information

The potential severe heat and cold stress impacts on people will always be considered when assessing the hazards of heat and cold stress on the body. Management of the requirements to protect employees from heat and cold stress will include the following:

HSE, Occupational Healthcare Provider(s) cooperation to:


- Develop plans to avoid heat and cold stress on personnel
- Develop emergency plans for heat/cold stress
- Determine contract/client controls beyond regulatory requirements
- Seek advice/guidance from Regional or Business Line HSE Lead or Mathers Corporate HSE as required
- Report to HSE Representative all cases involved or suspected of involving occupational heat/cold stress illness.

When and where there is a potential for heat/cold stress to occur, supervisors are responsible for communicating the plan/process to employees and:

- Address heat/cold stress hazards through control measures per this practice
- Comply with heat/cold stress plan elements and emergency plans
- Notify their supervisor if under doctor's care to avoid heat/cold stress situations

Implementation of the stress/cold stress management plan will include:

- Assessment of tasks
- Level of activity and environmental conditions
- Wind chill temperature/factor – not the ambient temperature – must always be used in pre-job planning to develop plans to protect employees from the effects of heat/cold stress

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- Continuous monitoring of changing weather/temperature situations

Ensuring control measures are known and action taken when necessary

- Employees will advise their supervisor if they are under a doctor's order to avoid heat/cold stress situations
- Employees will follow and respond to work instructions
- Training for supervisors and their employees who are potentially exposure to heat/cold stress inducing conditions and training must include:
  - Physiological aspects of heat/cold stress
  - Causes of heat/cold related illness
  - Symptoms of heat/cold stress
  - Influence of radiated, convection, and metabolic heat, air movement, clothing, and work rates
  - Importance and schedule of fluid (water) intake
  - Detrimental effects of alcohol
  - Work/rest regiments

Confined Space strategies:


- Confined space workers entering the space will receive specific instructions regarding the precautions necessary and the proper response to a heat related emergency.
- The heat related hazard and the emergency procedure will be recorded on the confined space entry permit.
- The standby person/attendant will be trained in the recognition of an initial first-aid treatment of heat related illness.

Heat stress refers to the effect of heat, from any source, on the organs of the body and the person as a whole. The stresses of heat on the body manifest themselves in 5 common ailments:

1. Heat exhaustion
2. Heat cramps
3. Heat stroke
4. Heat syncope (fainting)
5. Heat rash

Heat stress, obviously, can occur when working in hot conditions. But heat stress can also occur when working strenuously or when wearing less breathable or encapsulating clothing in milder conditions. Typical examples include:

- Working outside in the full sun in the summer
- Working in hot confined spaces such as process equipment
- Working near hot process equipment (boiler or furnace)

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- Working in deep excavations or underground in mines
- Working with, on or beside metal or other reflective materials in the full sun

When heat index levels become higher than 100 degrees F (37 degrees C) for whatever reason (natural weather conditions or mechanical heat sources.) Work Must Stop.

Note: Different regions have different environmental conditions that must be considered when assessing the hazards from heat stress.

## 2.2 Environmental Heat and Metabolic Heat

Workers typically are exposure to two forms of heat stress:

1. Environmental heat from the air temperature, sun exposure, hot process equipment, humid and other working conditions.
2. Internal metabolic heat from physical exertion.

When we discuss heat stress, we are really discussing a combination of contributions from both environmental and metabolic heat stresses.

## 2.3 Wind, Humidly, Sun


Measuring just air temperature provides limited usefulness. Additional information about humid, wind speed, exposure to full effects of the sun, working close to hot objects, the breathability of work clothing, and the physical exertion needed to do the task provide a much more accurate picture of the level of heat stress.

## 2.4 Cooling

Perspiration (sweating) is the body’s mechanism for cooling down. Without adequate hydration, the body will not sweat, and heat related illnesses become far more likely.

Note: Drinking water frequently is the best defenses against heat stress.

- The body will sweat out about 1 liter (1 quart) per hour
- Once consumed, it takes the body about an hour to absorb and begin using 1 liter of water. For this reason, it is better to drink small amounts of water several times an hour rather than drink larger amounts more infrequently. About one cup (250 milliliters) every 15 minutes will assure that the body always has a supply of water to use.
- If the body is not fully hydrated right at the start of the day, once work starts, the body may be constantly trying to recover but can’t fully until it has absorbed enough water. It may take hours for the proper balance between work, perspiration, and hydration to be achieved. Drinking water at the start of the shift during the STA before work begins is an effective technique to prepare your body for work on a hot day.
- You cannot rely on thirst. By the time you “feel’ thirsty, your body is likely already significantly dehydrated. You won’t feel thirsty until your body is out of water. And, since it takes an hour or more for your body to absorb enough water to get back in balance, waiting

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until you get thirsty is a very poor strategy.

### 2.5 Acclimatization


- Employees who have not previously worked in environments where the possibility that heat illness may occur will be given an opportunity for their bodies to gradually be exposed to heat. Employees will be given an opportunity to adapt to the heat by working in the heat for at least 2 hours a day, between 4 to 14 days.
- Mathers Construction Team will also monitor employees during a heat wave. “Heat wave” being defined as any day the predicted temperature is at least 80 degrees Fahrenheit and at least 10 degrees
- Fahrenheit higher than the average high daily temperature in the preceding 5 days. Monitoring can be done by either the supervisor or by use of the buddy system.
- Mathers Construction Team will stress to new employees the importance of immediately reporting to their supervisor symptoms and signs of heat stress in themselves or in co-workers.
- New employees or those employees who have been newly assigned to a high heat area will be closely observed by the supervisor or designee for the first 14 days. Physical work factors will be considered before the start of a task due to the level of physical activity duration and performance, weight, clothing color, and breathability of the employee.
- Supervisors must take personal factors into consideration before assigning a task where there is a possibility of a heat related illness occurring.
- Personal factors may contribute to heat related illnesses such as age, weight/fitness, drug/alcohol use, and any other prior heat-related illness.

### 2.6 Air Movement

Increasing air movement (using fans) is a good work control if air temperature is less than skin temperature (95F, 35C). When air temperature is higher than skin temperature, the increased air movement tends to add to heat stress. A good rule of thumb is a little air movement is almost always a good thing. But as it gets hotter, move the air more slowly; use fewer fans or less powerful fans or don’t point the fans directly at the workers.

### 2.7 Clothing

Whenever safely possible, wear work clothes made of a single layer of cotton or other highly breathable fabrics. Light colors are better than dark colors. The free movement of cool, dry air over the skin’s surface maximizes body heat removal. Evaporation of sweat from the skin is the best heat removal mechanism. Impermeable, thermally insulating as well as encapsulating clothing or PPE severely restrict heat removal and can produce excessive heat strain even when ambient conditions are considered cool.


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### 3.0 HEAT INDEX

The Heat Index is a value that combines air temperature and relative humidity. This is important because the higher the relative humidity, the less effective is a body’s sweat mechanism. Health, Safety, and Environmental.


1. The effect of humidity is also why many people can tolerate “dry” heat better than humid, swampy conditions even if the air temperature is the same. For these reasons, the Heat Index is a better tool for making decisions on the impacts of heat stress than temperature alone.
2. The Heat Index does not consider radiant heat loads such as direct sun light, hot machinery, or reflective surfaces.
3. If you do not have a WBGT, you will have to use your professional judgment to assess the level of radiant heat load and how it impacts our worker’s heat stress levels.  
For example, on a hot day it feels hotter in the direct sun than it does in an open shady area or if a cloud passes over. The air temperature is the same but in the direct sun you feel the effect of the sun’s radiant energy. Hot or shiny surfaces or infrared light sources will similarly add to a worker’s heat stress levels.
4. The Heat Index for a particular area is generally available in newspapers, online, on television or on cell phone apps. If it is not available, you can use the chart below. If you have a WBGT, but do not know how to use it, contact your Regional HSE Lead or Mathers Corporate Industrial Hygienist.



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**Table 1 – Heat Index**

HEAT INDEX °F (°C)													
Temp.	RELATIVE HUMIDITY (%)												
	40	45	50	55	60	65	70	75	80	85	90	95	100
<b>110 (47)</b>	136 (58)												
<b>108 (43)</b>	130 (54)	137 (58)											
<b>106 (41)</b>	124 (51)	130 (54)	137 (58)										
<b>104 (40)</b>	119 (48)	124 (51)	131 (55)	137 (58)									
<b>102 (39)</b>	114 (46)	119 (48)	124 (51)	130 (54)	137 (58)								
<b>100 (38)</b>	109 (43)	114 (46)	118 (48)	124 (51)	129 (54)	136 (58)							
<b>98 (37)</b>	105 (41)	109 (43)	113 (45)	117 (47)	123 (51)	128 (53)	134 (57)						
<b>96 (36)</b>	101 (38)	104 (40)	108 (42)	112 (44)	116 (47)	121 (49)	126 (52)	132 (56)					
<b>94 (34)</b>	97 (36)	100 (38)	103 (39)	106 (41)	110 (43)	114 (46)	119 (48)	124 (51)	129 (54)	135 (57)			
<b>92 (33)</b>	94 (34)	96 (36)	99 (37)	101 (38)	105 (41)	108 (42)	112 (44)	116 (47)	121 (49)	126 (52)	131 (55)		
<b>90 (32)</b>	91 (33)	93 (34)	95 (35)	97 (36)	100 (38)	103 (39)	106 (41)	109 (43)	113 (45)	117 (47)	122 (50)	127 (53)	132 (56)
<b>88 (31)</b>	88 (31)	89 (32)	91 (33)	93 (34)	95 (35)	98 (37)	100 (38)	103 (39)	106 (41)	110 (43)	113 (45)	117 (47)	121 (49)
<b>86 (30)</b>	85 (29)	87 (31)	88 (31)	89 (32)	91 (33)	93 (34)	95 (35)	97 (36)	100 (38)	102 (39)	105 (41)	108 (42)	112 (44)
<b>84 (29)</b>	83 (28)	84 (29)	85 (29)	86 (30)	88 (31)	89 (32)	90 (32)	92 (33)	94 (34)	96 (36)	98 (37)	100 (38)	103 (39)
<b>82 (28)</b>	81 (27)	82 (28)	83 (28)	84 (29)	84 (29)	85 (29)	86 (30)	88 (31)	89 (32)	90 (32)	91 (33)	93 (34)	95 (35)
<b>80 (27)</b>	80 (27)	80 (27)	81 (27)	81 (27)	82 (28)	82 (28)	83 (28)	84 (29)	84 (29)	85 (29)	86 (30)	86 (30)	87 (31)

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**Table 2 – Heat Disorders**

Category	Heat Index	Possible heat disorders for people in high risk groups
Extreme Danger	130°F or higher (54°C or higher)	Heat stroke or sunstroke likely.
Danger	105 - 129°F (41 - 54°C)	Sunstroke, muscle cramps, and/or heat exhaustion likely. Heatstroke possible with prolonged exposure and/or physical activity.
Extreme Caution	90 - 105°F (32 - 41°C)	Sunstroke, muscle cramps, and/or heat exhaustion possible with prolonged exposure and/or physical activity.
Caution	80 - 90°F (27 - 32°C)	Fatigue possible with prolonged exposure and/or physical activity.

#### **4.0 WATER AND SHADE**


Mathers Construction Team will provide fresh, pure potable water, free of charge, as close as practicable to areas where employees are located. Supervisors will visually examine the water to ensure purity and check that it is adequately cool by pouring some on their skin. When employees are working in large areas water will be placed in several locations. Mathers Construction Team will also place water in designated shade areas and near restrooms.

Mathers Construction Team will ensure that 1 quart of water per person per hour is available at the start of the shift and will have a water replenishment system (including designated responsibility) in place. Mathers Construction Team encourages employees to drink water frequently and to report low water levels, as well as warm or dirty water containers, to supervisors.

Bottled water will be utilized. Trash receptacles will be provided to maintain good housekeeping. Mathers Construction Team will provide shade when the temperature exceeds 80 degrees Fahrenheit. Shade areas will be open to the air or provided with ventilation or cooling. Enough shade will be provided to accommodate the number of employees on break or recovery period at any given time.

Mathers Construction Team will ensure that employees in shaded areas can sit in a normal posture fully in the shade without having contact with one another. The shade shall be located as close as practicable to the work area. During meal periods, the amount of shade available shall be enough to accommodate the number of employees on meal break and those seeking cool-down rest periods. Mathers Construction Team will encourage employees to take a preventive cool-down rest in the shade when they feel the need to protect themselves from overheating.

Employees taking cool-down breaks will be monitored and asked if they are experiencing

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symptoms of heat illness and will be encouraged to remain in the shade until any signs or symptoms have abated. Employees will be given no less than 5 minutes to rest in the shade, in addition to time needed to access the shade.

Mathers Construction Team policy will be that any employee who exhibits signs or reports symptoms of heat illness while taking a preventive cool-down rest shall be provided with appropriate first aid or emergency response.


### **5.0 PLAN PREPARATION**

The plan should contain the following:

- Conditions in the workplace that are based upon environmental factors including ambient temperature, relative humidity, air velocity, and thermal radiation.
- Document results of measurements on the Heat Stress/WBGT Monitoring Log or similar.
- Details of a work/rest regimen based on temperatures measured, a ratio of work time versus rest periods, with work periods decreasing while rest periods increase as temperature/humidity rises.
- A medical monitoring regimen for those employees exposed to heat stress, especially those who are likely to be susceptible to heat stress, generally in accord with doctor’s instructions. Others who may be particularly susceptible include the obese, un-acclimatized with cardio circulatory diseases, and employees who may be taking medications or using alcohol heavily.
- A procedure for handling heat related emergencies such as heat stroke and severe heat exhaustion including details of:
  - How to communicate the emergency
  - How employees will be observed for signs and symptoms of heat illness (such as implementing the buddy system)
- Specific details of how employees will be reminded to drink water throughout the shift.
- Employee training (training to include dietary needs, water consumption, and avoidance of alcohol).
- Procedure to monitor changes in the weather.

### **6.0 PROCEDURES FOR MONITORING WEATHER**

Supervisors will be trained and instructed to check in advance the extended weather forecast. Weather forecasts can be checked with the aid of the internet, by calling the National Weather Service phone, or by checking the Weather Channel TV Network. The work schedule will be planned, taking into consideration whether high temperatures or a heat wave is expected. Routine advance weather monitoring will take place between the months of May and September;

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with additional advance monitoring conducted as needed during the remainder of the year.

In addition to advance weather monitoring, supervisors shall utilize one of the aforementioned weather services to review the day’s forecasted temperature and humidity level prior to the start of work. Temperature and humidity levels will also be monitored on the work site throughout the day and compared to the National Weather Service Heat Index to evaluate the risk level for heat illness and determine when precautionary heat illness prevention measures should be taken. Temperature will be monitored by means of dry bulb thermometer in degrees Fahrenheit. Temperature measurements will be taken in work areas where shade is not present.

## **7.0 COLD STRESS**


Extreme cold weather is a dangerous situation that can bring on health emergencies in susceptible people such as those without shelter, outdoor workers, and those who work in an area that is poorly insulated or without heat. What constitutes cold stress, and its effects can vary across different areas of the world; in regions relatively unaccustomed to winter weather, near freezing temperatures are considered factors for “cold stress”. Whenever temperatures drop decidedly below normal, and as wind speed increases, heat can more rapidly leave the body. These weather-related conditions may lead to serious health problems.

Employees who are exposed to extreme cold or work in cold environments may be at risk for cold stress. When cold temperature levels become lower than 20 degrees F (6.6 degrees C) for whatever reason (natural weather conditions or mechanical heat sources.) Work Must Stop. A supervisor, or a qualified designee, shall directly observe employees, for signs and symptoms of heat illness. Each supervisor, or qualified designee, shall be responsible for observing no more than 20 employees.

### **7.1. Hypothermia**

When exposed to cold temperatures, the body begins to lose heat faster than it can be produced. Prolonged exposure to cold will eventually use up the body’s stored energy. The results are hypothermia, or abnormally low body temperature. A body temperature that is too low affects the brain, making the employee unable to think clearly or move well. This makes hypothermia particularly dangerous because an employee may not know if is happening and will not be able to do anything about it.

Symptoms of hypothermia can vary depending on how long the employee has been exposed to the cold temperatures – as well as his/her general health status and unique physical responses to cold – refer to Table 3 below.

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**Table 3**

<b>Stage</b>	<b>Body Core Temperature</b>	<b>Signs and Symptoms</b>
<b>Mild Hypothermia</b>	99 – 97 F 37.2 – 36.1 C	Normal, shivering may begin.
	97 – 95 F 36.1 – 35 C	Cold sensation, goose bumps, unable to perform complex tasks with hands, shivering can be mild to severe, hands numb.
<b>Moderate Hypothermia</b>	95 – 93 F 35 – 33.9 C	Shivering, intense, muscles lack of coordination becomes apparent, movements slow and labored, stumbling pace, mild confusion, may appear alert. Use sobriety test; if unable to walk a 30 foot (9 meter) straight line, the employee is hypothermic.
	93 – 90 F 33.9 – 32.2 C	Violent shivering persists, difficulty speaking, sluggish thinking, amnesia starts to appear, gross muscle movements sluggish, unable to use hands, stumbles frequently, difficulty speaking, signs of depression, withdrawn.
<b>Severe Hypothermia</b>	90 – 86 F 32.2 – 30 C	Shivering stops, exposed skin is blue or purple, muscle coordination very poor, inability to walk, confusion, incoherent/irrational behavior, but may be able to maintain posture and appearance of awareness.
	86 – 82 F 30 – 27.8 C	Muscle rigidity, semiconscious, stupor, loss of awareness of others, pulse and respiration rate decrease, possible heart fibrillation.
	82 – 78 F 27.8 – 25.6 C	Unconscious, heartbeat and respiration erratic, a pulse may not be obvious.
	78 – 75 F 25.6 – 23.9 C	Pulmonary edema, cardiac and respiratory failure, death. Death may occur before this temperature is reached.

## 7.2. Wind Chill

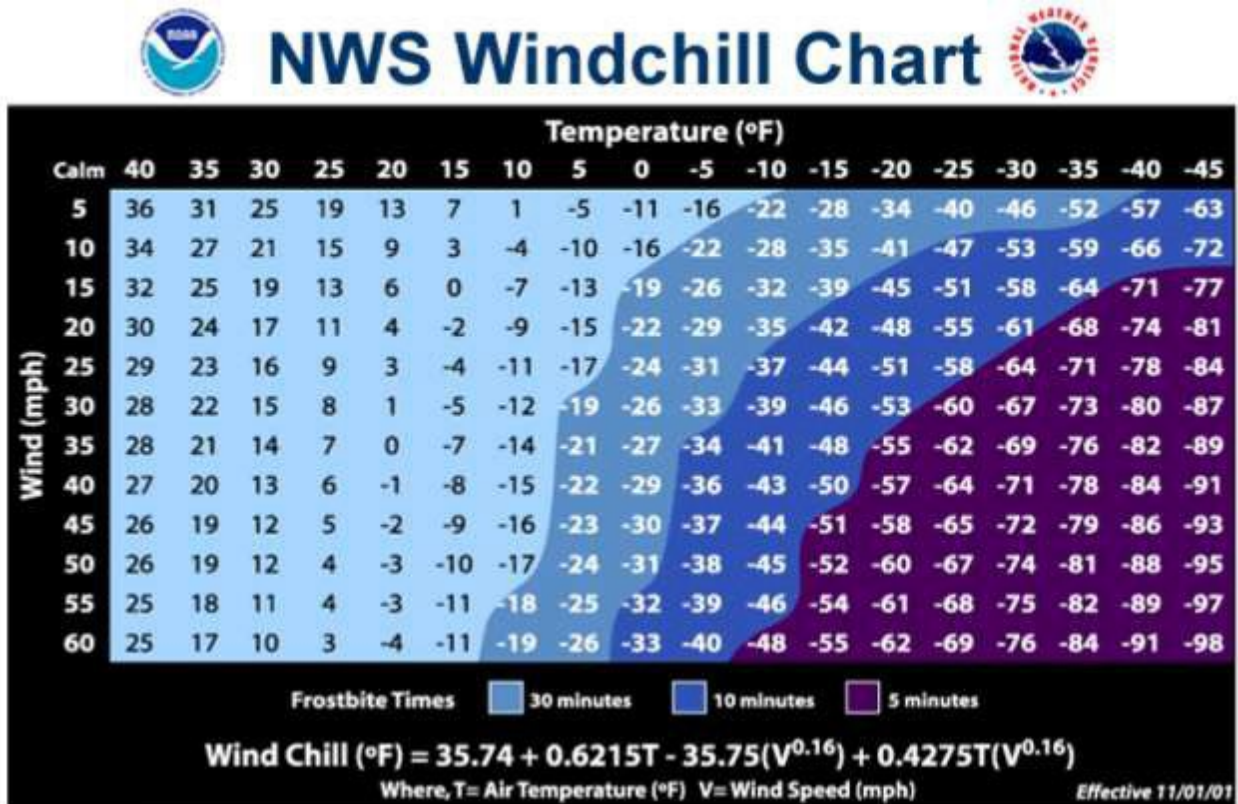
At or below 50 degrees F (10 degrees C), the wind begins to have a lower “feels-like” temperature effect on the body – the lower the temperature and the higher the wind speed, the greater the wind effect on the “feels-like” temperature – refer to table below. The feels-like temperature is commonly called the “windchill temperature” or windchill factor” (they aren’t really the same, but close enough for our purposes).

While windchill does not have an effect on inanimate objects, it does have a potential impact on human flesh – and that is, human flesh will begin to freeze much more quickly as the windchill

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gets lower (whether by temperature primarily, or by wind primarily {[up to about 40 miles per hour/64.4 kilometers per hour], or both equally).


**Table 4 Wind Chill Chart**



## 8.0 TRAINING

Company will provide training to all supervisors, and affected employees, prior to their engaging in work that could result in exposure to risk factors for heat illness. Training will include:

- ▶ An explanation of the employer’s responsibility to provide shade, water, cool-down rest periods, and access to first aid, as well as the employee’s right to exercise their rights without fear of retaliation.
- ▶ Environmental and personal risk factors for heat illness.
- ▶ The signs and symptoms of heat illness.
  
- ▶ The importance of immediately reporting signs and symptoms of heat illness – and appropriate first aid to be taken.
- ▶ Importance of frequent consumption of water.


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- ▶ Importance of acclimatization.
- ▶ Company heat illness emergency response plan to a case of possible heat illness.
- ▶ Supervisor and employee responsibilities.
- ▶ Supervisors will be taught procedures to follow in case of an employee reporting or displaying symptoms of heat illness.
- ▶ Supervisors will be trained how to monitor weather reports and how to respond to hot weather advisories.

## 9.0 EMERGENCY RESPONSE PROCEDURES

All supervisors and management personnel of Mathers Construction Team required to take immediate action if an employee exhibits signs or symptoms off heat illness. Emergency response procedures will include but not be limited to the following actions:

- ▶ Ensuring that effective communication by voice, observation, or electronic means are maintained so that employees at the high temperature work site can contact a supervisor or emergency medical site service when necessary.
- ▶ Cellphones, company radio, email and other electronic devices will be used for communication. If electronic devices are not reliable forms of communication, Mathers Construction Team will develop alternative means of summoning emergency medical services.
- ▶ Employers and supervisors will be trained to recognize symptoms of heat stress, such as decreased level of consciousness, disorientation, irrational behavior, staggering, vomiting and convulsions; and are required to take immediate action if any employee exhibits signs of the mentioned symptoms of heat illness.
- ▶ Supervisors and employees will be taught first aid measures and how emergency services are to be provided to affected employees.
- ▶ Employees exhibiting signs or symptoms will be monitored and shall not be left alone or sent home without being first offered onsite first aide and /or being provided with emergency medical service.
- ▶ If deemed necessary, emergency medical services will be contacted, and employees will be transported to a place where they can be reached by emergency medical providers.
- ▶ In emergency events – clear and precise directions to work site will be provided to emergency responders.

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- ▶ In the event that a work site is in a difficult to find location, an employee will be sent to meet emergency medical services at the nearest landmark; and lead them to the work site.


## **10.0 HEAT ILLNESS PREVENT PLAN AUDIT**

Mathers Construction Team as part of the implementation of our Heat/ Cold Stress Prevention Program, will conduct an audit of our written plan and documentation by Supervisors and Managers. Audits of the program will be conducted annually. The audit shall review the plan to ensure that the heat/cold stress prevention procedures continue to be effectively implemented. This will include, but is not limited to:

- ▶ Ensuring that suitably fresh and cool water is routinely provided in the required amounts.
- ▶ Ensuring sufficient shade is routinely made available.
- ▶ Verifying that the required supervisor and employee training have been completed.
- ▶ A review of the effectiveness of emergency response procedures.
- ▶ Ensuring that employees are acclimatized as required.



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<b>LONE WORKER SAFETY</b>			
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**Purpose:**

The notion of employees working alone is not a new concept and is common within the construction industry. While there may be risk, working alone can be a safe and acceptable situation if an established procedure is followed. If there is no procedure, or if employees do not follow the appropriate steps, a working-alone situation may become unsafe.


It is a Mathers Construction safe work practice that no employee works alone, however, after further inspection, there are times when an employee is indeed working alone. It may be as simple as an employee completing a task in a basement or isolated area alone or driving a truck without another employee present. If there is no procedure to check on these employees, these examples might qualify as working-alone situations.

Working alone on task that are determined to be hazardous is prohibited. This working-alone procedure, along with conducting a risk/hazard assessment for any task that requires a lone worker, will aid in ensuring worker safety.

**Working Alone**

A risk/ hazard assessment will be performed for each task to determine if the task is appropriate for a single employee. The risk/ hazard assessment should consider the following:

- Is it reasonable for the person to be alone?
- Is the work in a remote or isolated location?
- Is the job after hours? (Could it be done during normal hours?)
- Are there extreme temperatures?
- Is the job in the warehouse when other workers are gone?
- Is the job in a basement, away from other workers?
- Is the employee driving a vehicle alone for an extended period?

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- What consequences could result from a worst-case scenario? (Consider all possible “what if” factors.)
- What is the likelihood for other persons to be in the area?
- Is there a possibility that a critical injury or incident could prevent the employee from calling for help or leaving the workplace?
- What is the expected emergency response time?
- What if a worker has physical handicaps or preexisting medical conditions?

The preceding list, while not all-inclusive, gives a few examples of what should be considered in a risk/hazard assessment. The assessment should be repeated on a regular basis to account for the possibility of hazards changing over time. Once the assessment is completed, it should be communicated to both management and employees.

No employee will work alone on task that are considered high risk or require a high-risk work permit. These tasks may include factors such as but not limited to:


- Extreme heights
- Use of fall protection
- Use of respiratory equipment
- Confined space entry
- Hazardous materials or substances
- High-voltage electricity
- Hot work conditions

A work alone safety checklist must be completed before any employee is permitted to work alone. The employee checklist should be distributed to the employee assigned to check on the individual working alone as well as the solo employee. The following factors should be included on the working-alone checklist:

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- Identification of the risks or hazards associated with the work to be performed or the environment where the work is to be done,
- Emergency contact number for the employee,
- Name of employee that will be working alone,
- Job tasks that will be accomplished,
- Methods of communication by which the worker can secure emergency assistance and how emergency assistance will be provided in the event of incidents or accidents,
- Time intervals in which the employee will be contacted (10 minutes, 20 minutes, etc.),
- If the employee was involved in the development of the checklist, and
- Whether a risk/hazard assessment was completed for the task.

All employees should be trained on lone worker safety. Management must ensure that this policy is communicated to the employees and strictly followed.

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<b>FIT FOR DUTY</b>			
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**Purpose:**

The purpose of this policy is to define the process for providing a safe, healthy, and productive workplace for workers and others through effective risk management of worker fitness for work. A primary objective is to significantly reduce the potential for incidents due to a worker or workers being unfit for work.

**Policy**

Mathers Construction recognises many factors may affect a person’s fitness for work. Factors can often interact with each other to increase the risk of harm. A worker who is unfit for work is not only risking their health and safety but potentially the health and safety of others at the workplace.

Risk factors that may affect fitness for work can include (but are not limited to):

- general health and fitness;
- injury or illness;
- medications;
- insufficient sleep, resulting in fatigue;
- excessive work hours/demands;
- consumption of alcohol;
- illicit use of illegal drugs;
- personal factors, such as psychological, family issues or illness, working away from home etc.;
- secondary employment; and
- volunteer activities.

A worker who comes to work in an unfit state will be in breach of policy and may be subject to counselling and disciplinary action. Appropriate actions on the day may include:


- the worker directed to take a short break;
- sending the worker home - driving, or providing transport if required to ensure the worker gets home safely;
- taking the worker to a doctor or the hospital if they are not able to drive themselves;
- calling an ambulance if the severity of their condition warrants; and
- calling the police if a worker’s behaviour becomes agitated, threatening or potentially violent or self-harming due to the suspected influence of drugs or alcohol.

When responding and to action issues related to fitness for work, all persons must be sensitive to an individual’s right to confidentiality, privacy and dignity.

Supervisors/Managers are responsible for the initial identification and assessment of a worker’s fitness for work, and for responding to notifications from other concerned workers. If a Supervisor/Manager suspects a worker may not be able to perform their duties safely, they will take immediate action. The matter will be dealt with sensitively on a case-by-case basis with the primary consideration of safety and welfare.

**A. Incident Response**

The investigation of incidents at Mathers Construction will take into consideration fitness for work matters, identified hazards and associated risk factors.

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## **B. Prescription Drugs and Non-prescribed Drugs**

Workers using prescription drugs and over the counter non-prescribed drugs should:

- advise their doctor or pharmacist of the type of work they do and obtain information regarding possible side effects;
- advise their Supervisor/Manager that they are taking medications and discuss if there may be side effects that could affect their fitness for work;
- follow the instructions for taking the medications as prescribed;
- be aware of any warnings or instruction on medication packaging; and
- stop work if they suspect they are negatively affected by medications while working, especially if using plant, machinery or driving vehicles. Seek advice and or medical attention before going back to work.

### **❖ Drugs and Alcohol**

Refer to the Drug and Alcohol policy, procedure and supporting mechanisms for work matters involving or suspected to involve the influence or use of alcohol or the illicit use of illegal drugs.

## **C. Fatigue Management**

Mathers Construction's Fatigue Management Program should be referred to for any identified or suspected fatigue-related fitness for work matters.

## **D. Work-related Injury or Illness**


Work-related injury or illness will be covered by Mathers Construction's Return to Work Plan as required.

## **E. Non-work-related Injury or Illness:**

- If a worker suffers a non-work-related injury or illness which may affect their ability to undertake their normal duties, a medical clearance is required before returning to work.
- If a worker appears unable to carry out their normal duties, and in the opinion of the Supervisor/Manager present a risk to themselves or any other person at the workplace, the worker will be sent home until a medical clearance to work is obtained.
- Costs incurred for medical assessments or certificates will be the responsibility of the worker.
- Mathers Construction is under no obligation to provide suitable alternative duties for a worker returning to work after a non-work-related injury. Workers should only return to work once medically cleared to return to normal duties.

## **F. Education and Awareness**

Worker induction and training sessions will include awareness and training regarding fitness for work requirements. All workers will participate in training to recognise common behaviour and symptoms associated with the effects of drugs and alcohol.

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**Purpose:**

The purpose of this policy is to identify and reduce risks concerning fatigue and to provide adequate resourcing to prevent fatalities, injury or illness caused by fatigue.

**Policy**


Fatigue has a negative effect on work/life and can lead to loss of health, serious harm and fatalities.

Mathers Construction is committed to protecting the health, safety and welfare of our workers. We believe that fatigue can lead to fatalities or serious injuries to workers (including contractors and workers of contractors), visitors or members of the public and as such, are committed to the effective management of fatigue risks.

Fatigue can be defined as feeling tired, drained or exhausted. Fatigue influences an individual’s physical and mental and emotional state. When feeling fatigued, alertness is reduced, which can lead to poor judgments, slower reactions to events and decreased motor skills. Fatigue can also lead to long term health problems in some individuals.

Mathers Construction will:

- Develop and implement a documented Fatigue Management Plan (FMP) in the following situations:
  - overnight work;
  - potential for extended shift work;
  - drive-in – Drive out work;
  - on-call workers;
  - worker shifts that could exceed 48 hours in a consecutive 5-day period (including unplanned, on-call or emergency work);
  - workers do not have a minimum of 2 days in a row without working in any 7 days;
  - where fatigue is identified as a potential health and safety risk;
- FMP will be developed in consultation with relevant persons and include the following;
  - allocation of responsible persons;
  - allocation of resources (including financial and personnel) to implement FMP;
  - identification of risk factors for fatigue. Including;
- mental/physical demands of work;
- work schedules and planning;
- environmental factors;
- commute times;
- work/home life balance/constraints;
- existing health conditions that may contribute to fatigue;
  - Assessment of risk;
  - Development and implementation of suitable controls;
  - Training for all relevant persons with importance in the use of controls;
  - Review of exposure standards and PPE requirements for extended work times;
  - Review and audit of controls;
- Adequacy of the FMP will be reviewed every six months, or if an incident or near miss occurs concerning fatigue. The FMP will then be monitored and reviewed accordingly.

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## A. Risk Assessment

Managers/supervisors must conduct a risk assessment to identify and manage the risks associated with fatigue.

**STEP 1 – Hazard identification** - Identify the factors which may cause fatigue in the workplace.

**STEP 2 – Risk assessment** - Assess the risks of harm.

**STEP 3 – Control risks** - Control the risks by implementing effective risk control measures.

**STEP 5 – Monitor and review control measures** - Review risk control measures to ensure they are working as planned.

When undertaking the risk assessment, ensure workers consulted at each step of the process. A risk assessment involves:

- input from workers via consultation;
- review of incidents to determine if fatigue has been a contributing risk factor;
- use of relevant resources and information (e.g. industry guides, Codes of Practice, guides produced by regulatory bodies); and
- documenting the risk assessment.

The following table provides a summary of the common causes of fatigue in the workplace:

General concerns	Possible work-related causes	Possible non-work-related causes
Inadequate amounts of sleep (less than 8 hours)	<ul style="list-style-type: none"> <li>• Poor roster design</li> <li>• Excess shifts</li> </ul>	<ul style="list-style-type: none"> <li>• Family responsibilities or living arrangements</li> <li>• Social obligations</li> <li>• Commute times</li> </ul>
Sustained mental or physical effort	<ul style="list-style-type: none"> <li>• Not enough rest breaks</li> <li>• Work scheduling</li> <li>• Staffing issues</li> </ul>	<ul style="list-style-type: none"> <li>• Afterwork activities, e.g. studying</li> <li>• Second job</li> </ul>
Disruption to the internal biological clock	<ul style="list-style-type: none"> <li>• Extended hours of work</li> <li>• Call-out requirements.</li> </ul>	<ul style="list-style-type: none"> <li>• Inappropriate use of alcohol/drugs</li> <li>• Family responsibilities, e.g. new baby</li> </ul>
Mental and physical health issues	<ul style="list-style-type: none"> <li>• Work environment, e.g. noise, vibration, heat</li> <li>• Stress from conflict or work pressures</li> </ul>	<ul style="list-style-type: none"> <li>• Physiological, e.g. age,</li> <li>• Non-work-related stress, e.g. depression or anxiety</li> </ul>

Work practice indications of fatigue include:


- increased errors and loss of concentration at work;
- inconsistent work efficiency or method;
- increased incident rates;
- increased injury rates; and
- increased absence rates.

## B. Fatigue Management

Work schedules will be prepared regarding the following:

- hazards, risks and controls, as determined by a risk assessment;
- previous work hours/required break-away times;
- times required to perform tasks safely;



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- Legislative requirements for maximum work hours;
- sufficient rest breaks, including personal activities such as washing, eating meals and travelling to/from work;
- shift work (especially rotating shifts);
- reduce night shift work where possible; and
- limiting the amount of allowable over-time, shift swap and on-call duties as required to reduce fatigue.

Mathers Construction implements control measures as required to reduce risks of fatigue in the workplace:

- provide training to allow multi-skilling and opportunities for job rotation;
- use alarms, buddy system or monitoring for isolated/remote workers;
- eliminating or reducing and controlling identified fatigue risk factors whenever possible;
- rotating workers or limiting the amount of time per shift the individual workers spend on physically and mentally sustained and demanding jobs;
- monitoring the work environment and designing adequate controls for environmental and workplace conditions, (E.g. not working in extreme weather conditions, or starting/finishing early during hot weather);
- allow an adequate amount of time, number of workers and resources allocated to jobs;
- ensuring there is a system available for supervisors to re-schedule jobs/tasks if fatigue becomes a problem;
- maintaining adequate consultation and communication with workers regarding fatigue;
- allowing for essential family commitments and unexpected additional carer duties for workers;
- providing information and education to workers regarding non-work-related fatigue risk factors; and
- encouraging workers to report non-work-related fatigue risk factors to their supervisor/Organisation.


### C. Shift Scheduling Design

Shift work is generally required when work requires extended operating hours or work over a 24-hr period  
Higher risk work shifts are identified as the following:

- night shifts;
- shifts that start/finish very early or very late;
- unpredictable shifts (i.e. Short notice);
- long shifts;
- broken shifts;
- consecutive shifts without days' off;
- shift design will take into account individual differences and preferences as far as possible and utilise forward rotation (morning/afternoon/night).

Control measures for fatigue risks we will consider:

- designing work shifts and rosters to allow enough recovery time between shifts. (*Consider travelling to and from work and sleeping*);
- shift roster set ahead of time to allow workers to plan activities away from work, i.e. unpredictable shifts (*we will avoid unpredictable shifts with start or end times that vary at short notice*);
- where possible, a minimum of a 10-hour break will be provided between shifts;
- where practicable high-risk work will not be conducted between 2 am, and 6 am;
- structuring shifts so that work demands are highest towards the middle of the shift and decrease towards the end;
- ensuring shift incorporates sufficient breaks to rest, eat and drink;

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- split shifts are only to be used if no alternative is available;
- keeping sequential night shifts to a minimum;
- restrict the number of successive night shifts (no more than three to four if possible);
- avoidance of long working hours (more than 50 hours per week).
- 

#### **D. Facility/Environmental Conditions**

Control measures to minimise the risk of fatigue associated with environmental conditions will include:

- provision of cool areas where workers can rest and rehydrate in hot work environments;
- provision of warm areas where workers can rest and stay warm in cold work environments;
- ensuring closed in areas are well ventilated;
- provision of adequate facilities for rest and meal breaks;
- consideration of exposure times to extremes of temperature (both hot and cold) when developing work rosters;
- Personal Protective Equipment (PPE) for hot and cold conditions, e.g. cool vests, hats, warm clothing;
- facilities well lit, safe and secure.

#### **E. Driving and Travel**


Workers driving vehicles should:

- avoid driving when tired;
- where travel distance will exceed 300 miles or 4 hours of continuous driving in any one shift, a driving plan must be in place;
- plan any driving or travel well in advance;
- avoid driving after being awake for a continuous period of 17 hours;
- avoid driving if they have not had more than five hours sleep in the previous 24 hours or 12 hours sleep in the last 48 hours;
- avoid driving for more than 8 hours in any one day (where this may occur approval must be sought from management
- share driving where possible;
- take a 10-minute rest break every two hours or more frequently if feeling tired.

#### **❖ Fatigue Training**

Training and education of staff will include issues such as:

- an explanation of what fatigue is and how it affects us;
- the physical, psychological and practical signs of fatigue;
- possible causes and effects of fatigue;
- risks involved with working while fatigued; and
- Fatigue Management Plan and risk assessments.

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**I. Purpose**

To ensure employee safety from fire explosion, severe winds, and medical emergencies, as required under 19 CFR 1926.35 (Employee Emergency Action Plan)

**II. Fires and Explosions**

If working inside a structure or space and a fire develops, attempt to extinguish the fire if it is small and not growing rapidly. Use a portable fire extinguisher.

If the fire cannot be safely extinguished, exit the building via the closest and safest exit.

In the event of an explosion, exit the building or space immediately.

**III. Employee Accounting Following An Evacuation**


Employees, after evacuating a structure or space, shall assemble in the lot at least 100 feet from the structure or space. Do not re-enter the structure.

The superintendent or foreman will do a head count to determine if all personnel are out of the structure or space.

**IV. Rescue, Medical Duties, and Means of Reporting Emergencies**

Designated first aid renderers shall perform first aid on injured personnel.

Rescue efforts, if necessary, shall be conducted by the fire department. The superintendent/foreman or his/her designee will be responsible for calling 911 and requesting the fire and/or rescue squad.

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Sites have 10 or fewer employees on-site can use direct voice communication as the employee alarm to notify employees on-site of the emergency.

**V. Medical Emergency Evacuation**

Employees injured on the site shall be moved if no aggravation of the medical condition will occur. In the event of imminent danger such as fire or explosion, the injured employee(s) can be moved using at least two (2) employees, if possible, to carry the injured employee out. Designated first aid renderers shall administer first aid until the arrival of emergency medical services. Employees injured, but not critical, can be transported to the closest hospital or medical care facility.

The superintendent/foreman or his/her designee shall call 911 to request the rescue squad.

**VI. Severe Winds**


No employee shall work on any scaffold nor any roof or elevated workstation during severe winds. Severe winds are defined as sustained 25MPH winds and above. The superintendant/foreman shall enforce this rule.

Any injuries occurring from severe winds shall follow procedures set forth in items III through VI of this plan.

**VII. Training**


Employees shall be trained in the use of portable fire extinguishers upon hire and at least annually thereafter.

Portable fire extinguishers shall be properly located, and in good operating condition. They must be visually inspected to verify that they are charged, of proper type and adequate size.

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The superintendent/foreman shall designate certain employees such as lead workers to assist in the safe and orderly emergency evacuation of employees.

Employees will be trained in the requirements of this emergency action plan upon initial hire. A copy of this plan will be kept on the site for employee review.

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MCT is firmly committed to the health and safety of our employees, the quality of our products and services, the efficient operation of our company and the health and safety of our customers and the public. MCT considers the influence of drugs and alcohol to be detrimental to our continued growth and future success. This policy applies to all MCT employees.

Any involvement with illegal or unauthorized drugs on company time, on company property, at any time or place during the workday (including breaks and meal periods), when reporting or returning to work under the influence of drugs or alcohol, or in a company vehicle is strictly prohibited. Employees who violate this policy will be subject to disciplinary action up to and including discharge.

An “illegal drug” is any drug that is not legally obtainable. An “unauthorized drug” is any drug other than alcohol which may be legally obtainable, but for which the employee has no legal prescription for, is using in a manner other than prescribed by the employee’s physician, or (in the case of other medications or substances) is using other than in accordance with applicable directions. The term “involvement” means any possession, use, manufacture, dispensing, distribution, purchase, sale, or being under the influence of any illegal or unauthorized drug.

Employees shall not use alcoholic beverages at any time or place during the workday (including breaks and meal periods), or report or return to work under the influence of alcohol. Employees who violate this rule will be subject to disciplinary action up to and including discharge.

Employee offices, desks, lockers, personal property of employees (such as toolboxes), company vehicles, and privately owned vehicles on company or work site property are subject to searches for drugs and other evidence of violations of company policy. Any employee who refuses to consent to a search of their person or property will be subject to disciplinary action up to and including discharge.

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		Revision Date:	2/13/17
<b>DRUG AND ALCOHOL POLICY</b>			
Prepared By:	Ashley L. Gauldin, E.H.S Director	Page:	2

## SUBSTANCE ABUSE SCREENING

Screening will be required by the following situations:


- Pre-employment: all applicants will be required to pass a drug/alcohol screen as a condition of employment. Testing must be done within three (3) days of hire date.
- Reasonable Cause, as determined by a competent person: an employee whose actions or behavior lends themselves to suspicion of abuse will be screened (including incidents of fighting and insubordination).
- Post-Accident: all employees involved in an accident that results in medical treatment beyond first aid will be screened.
- Any employee involved in a near miss accident.
- Any employee involved in a serious citation issued by VOSH or another regulatory authority having jurisdiction.
- Any employee involved in an accident that results in damage or destruction of MCT owned/rented/leased property or customer's property may be screened.
- Random testing monthly. A minimum of 10% of all employees will be tested annually.

## WORKERS COMPENSATION

Employees cannot draw worker's compensation when they are found to be in violation of the Virginia Workers Compensation Code Section 65.1-38.

Compensation will not be allowed for the following reasons:

- Due to the employee's willful misconduct, including intentional self-inflicted injury.
- Growing out of an attempt to intentionally injure another person.
- Due to intoxication or other substance abuse.
- Due to the willful failure or refusal to use a safety appliance or perform a duty required by statute, or the willful breach of rules or regulations adopted by the employer and approved by the Industrial Commission and brought, prior to the accident, to the knowledge of the employee.

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## POSITIVE SUBSTANCE SCREENS

If an applicant tests positive for any screened substance, the applicant will not be hired. Active employees who test positive for any screened substance (except alcohol-see below) will be immediately removed from and not allowed to work on Client/Host sites or facilities and will be suspended without pay for thirty (30) calendar days. An employee may be eligible to return to work, at MCT discretion, only after he/she has generated a negative drug/alcohol result. A subsequent positive test will result in immediate termination of employment.

Any employee testing positive for alcohol will be suspended per the following levels:

Less than or equal to .02 – 3 days suspension

Greater than .02 – 30 days suspension

## COUNSELING AND REHABILITATION

Employees are encouraged to voluntarily request counseling or rehabilitation before their substance abuse leads to disciplinary action or other work-related problems. No employee will have their job security jeopardized by such a good faith request.


## PROVISIONS

MCT reserves the right to alter the provisions of this policy at MCT discretion. MCT is not and will not be responsible for the selection of a professional treatment facility or the costs associated with treatment (other than is already provided under the current medical insurance coverage).

## CONDITION OF EMPLOYMENT AND CONSENT

**COMPLIANCE WITH MCT DRUG POLICY IS A CONDITION OF EMPLOYMENT. FAILURE OR REFUSAL OF ANY EMPLOYEE TO COOPERATE FULLY, SIGN ANY REQUIRED DOCUMENTATION, OR SUBMIT TO ANY INSPECTION, WILL BE GROUNDS FOR IMMEDIATE TERMINATION.**



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<b>VEHICLE SAFETY AND MAINTENANCE</b>			
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Only authorized, trained and licensed personnel are to operate over-the-highway and industrial motor vehicles. Industrial motor vehicles include equipment such as forklifts, man-lifts of various types, bull dozers, tractors, backhoes, etc.


## VEHICLE OPERATION

1. It is the responsibility of all vehicle operators to wear their seat belt and obey all laws.
2. Always check the load for stability and security.
3. All equipment and supplies shall be stored properly.
4. When view is blocked during backing up of an over-the-highway vehicle, honk horn two times and utilize assistance when available.
5. Industrialized motor vehicles must be equipped with a backup alarm.
6. No industrialized motor vehicle should operate within 10 feet of overhead lines.
7. No industrialized motor vehicle will be used to dig or disturb the ground unless mis-utility has been called and all underground utilities have been identified.
8. Barricade all industrialized motor vehicles that are left unattended. The equipment barricade must have barricade lights/ reflectors whenever they may be adjacent to roadways during the night.
9. If you are involved in an accident, contact the office immediately.
10. If stopped by an official, report to the office immediately.
11. A seat belt must be available for every person riding in a vehicle.
12. Please respect all people in the vehicle when using tobacco products. Treat all company vehicles as if they are non-smoking vehicles.
13. All employees who drive company vehicles must read and sign our “Employee Use of Company Vehicle Policy”.

## VEHICLE MAINTENANCE

An overall vehicle inspection shall be done daily. Check the following:

1. All fluids: oil, transmission fluid, washer fluid, fuel.
2. Tires, wipers, windshield, lights.
3. Horns and back up alarms.
4. Brakes and steering.
5. Windows and rear view mirrors.

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Report any defective or missing equipment to your supervisor. **DO NOT OPERATE A VEHICLE, UNTIL REPAIRS ARE MADE, IF IT IS CONSIDERED UNSAFE.** All vehicle maintenance and repair will be performed by a competent equipment maintenance technician.


## FORKLIFTS

### Training

1. Only trained and authorized persons are permitted to operate a forklift or other Power Industrial Truck. The Mathers Safety Department will administer the forklift operator certification program and maintain training records.
2. Training shall occur prior to employee operation of any forklift, and at least every three years thereafter unless observed performance by the operator dictates the need for more frequent retraining. Classroom and Practical Training in addition to Operator Evaluation are required. Each trainee, who satisfactorily completes the qualifications as outlined above, shall be issued a written document as evidence of being a Qualified Forklift Operator.
3. Each manufacturer or un-similar model of Power Industrial Truck shall require individual Practical Training and Operator Evaluation prior to receiving authorization to operate.

### Inspection and Maintenance

1. Prior to placing a forklift truck into service, the truck operator shall inspect their vehicle and document this inspection.
2. It is the responsibility of the forklift operator to submit the inspection checklists to the Safety Officer on a weekly basis.
3. Any noted condition that affects the safe operation of the lift truck shall be reported to the operator's supervisor for corrective action and shall keep the lift truck from being operated until the unsafe condition is corrected.
4. Forklifts that are defective, in need of repair or are unsafe shall be tagged "Danger - Do Not Operate" and taken out of service until restored to safe operating condition.


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5. A maintenance log shall be maintained for each forklift to determine when required maintenance is due. Only qualified personnel shall perform maintenance and repair. Maintenance records for each forklift shall be kept on file by the assigned department manager.


### General Safe Operating Rules

The following safe operating rules apply to Associates employees who operate a forklift. Violations of safe operating rules can and will result in retraining and/or disciplinary action.


- 1) Only employees trained as per the requirements of this manual section and authorized by the department manager shall be allowed to operate forklifts
- 2) Forklifts shall be equipped with seat belts and utilized by the operator when in use.
- 3) Personnel are not permitted to ride on forklifts except in designated seats that are part of the equipment design.
- 4) Forklifts shall be equipped with a portable fire extinguisher.
- 5) Under travel conditions, the forklift shall be operated at a speed that will permit it to be brought to a stop in a safe manner.
- 6) Traffic regulations shall be observed, including authorized work site speed limits. A safe distance shall be maintained approximately three forklift lengths from the forklift truck ahead.
- 7) The driver shall be required to slow down and sound the horn at cross aisles and other areas where vision is obstructed. If the load being carried obstructs forward view, the driver shall be required to travel with the load trailing.
- 8) The driver shall be required to look in the direction of and keep a clear view of the path of travel.
- 9) Forklifts shall have a functional horn and back-up alarm with a distinctive sound, loud enough to be heard clearly above background noises. There are other scenarios where a flashing yellow/amber light would be installed. An Addendum referencing any requirements of such lights shall be added to this manual section.
- 10) Copies of the manufacturer's operating instructions for each type of forklift shall be readily available for review by operators and supervisory personnel.

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- 11) Lift trucks, stackers, etc., shall have the rated capacity clearly posted on the vehicle to be clearly visible to the operator. When the manufacturer provides auxiliary removable counterweights, corresponding alternate rated capacities also shall be clearly shown on the vehicle. These ratings shall not be exceeded.
- 12) No modifications or additions, which affect the capacity or safe operation of the equipment, shall be made without the manufacturer's written approval. If such modifications or changes are made, the capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly. In no case shall the original safety factor of the equipment be reduced.
- 13) Steering or spinner knobs shall not be attached to the steering wheel unless the steering mechanism is of a type that prevents road reactions from causing the steering hand wheel to spin. The steering knob shall be mounted within the periphery of the wheel.
- 14) Forklifts shall have the manufacturer's nameplate showing its weight with attachments, lifting capacity, lift height maximum and other pertinent data. Nameplates or markings shall be maintained in a legible condition and remain in place.
- 15) Railroad tracks shall be crossed diagonally wherever possible. Parking closer than 8 feet from the center of railroad tracks is prohibited.
- 16) Grades shall be ascended or descended slowly.
- 17) When ascending or descending grades more than 10 percent, loaded forklifts shall be driven with the load upgrade.
- 18) Unloaded forklifts should be operated on all grades with the load engaging means downgrade.
- 19) On grades, the load and load engaging means shall be tilted back if applicable and raised only as far as necessary to clear the road surface.
- 20) No person shall be allowed to stand or pass under the elevated portion of any forklift, whether loaded or empty.
- 21) There shall be sufficient headroom under overhead installations, lights, pipes, sprinkler system, etc.
- 22) Arms or legs are prohibited from being placed between the uprights of the mast or outside the running lines of the forklift.
- 23) When a forklift is left unattended, load engaging means shall be fully lowered, controls shall be neutralized, power shall be shut off, and brakes set.
- 24) Wheels shall be blocked if parked on an incline.

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- 25) A safe distance shall be maintained from the edge of ramps or platforms while on any elevated dock, or platform, or freight car. Forklifts shall not be used for opening or closing freight doors.
- 26) Brakes shall be set and wheel blocks shall be in place to prevent movement of trucks, trailers, or railroad cars while loading or unloading. Fixed jacks may be necessary to support a semi-trailer during loading or unloading when the trailer is not coupled to a tractor. Prior to forklift entry, the flooring and frames of trucks, trailers and railroad cars shall be checked for breaks and weakness before they are driven into and to determine if it will bare the intended weight of the forklift and intended load.
- 27) Dock board or bridge plates shall be properly secured before they are driven over. Dock board or bridge plates shall be driven over carefully and slowly and their rated capacity never exceeded. Portable dock boards shall be secured in position, by being anchored or equipped with devices that will prevent their slipping.
- 28) An overhead guard shall be used as protection against falling objects. It should be noted that an overhead guard is intended to offer protection from the impact of small packages, boxes, bagged material. etc. representative of the job application, but not to withstand the impact of a falling capacity load.
- 29) Additional counter weighting of forklifts shall not be allowed unless approved by the manufacturer.
- 30) Employees shall not jump off a forklift.
- 31) Forklift operators shall yield to pedestrians.
- 32) Loads carried shall be secured on the forks to prevent upset / overturn.

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## Purpose

This written Motor Vehicle Safety Program establishes guidelines to ensure that we hire capable operators, only allow eligible operators to drive a "covered motor vehicle," train and supervise operators, and maintain vehicles properly. A "covered motor vehicle" is a motor vehicle that is owned, leased, or rented by the company or is a driver-owned vehicle operated during work time. A Mathers employee may be assigned to use a company vehicle to visit clients, make deliveries, attend meetings, pick up supplies, or to do a variety of other tasks. When driving is part of the job, like every other task, it must be done safely. Adherence to this written program can improve traffic safety performance, minimize the risk of motor vehicle incidents, and help to keep our employees safe and our costs as low as possible. Management leads, supports, and enforces this program; but employee input is essential for its success. Mathers will comply with all Federal and State agency requirements.

## Administration

The Motor Vehicle Safety Program Administrator coordinates the Motor Vehicle Operation Program elements for our company. This person is responsible for setting up and managing the program so that managers, supervisors, and employees know what our company expects. The administrator will examine our existing policies and practices to ensure that they encourage and do not discourage reporting and participation in our program. In this way, early reporting of motor vehicle incidents and hazards and meaningful employee participation in the program are more likely to occur. All company incentive programs are designed to reward safe motor vehicle operation (such as active participation in the program, the identification of motor vehicle hazards in the workplace, and the reporting of motor vehicle incidents early), rather than to reward employees for having fewer or lower rates of motor vehicle incidents. The responsibility and authority to allow an employee to operate a Mathers vehicle lies squarely on the shoulders of the Mathers Management Representative in charge of the keys to the vehicle that will be driven. For this program to be administratively effective, good judgment and correct choices must be made by the person in charge of their section or group of employees and vehicles. Prior to the assignment of any vehicle to any employee or prior to allowing an employee to drive their own vehicle on Company business or the continuation of driving any vehicle, Mathers or driver owned vehicle, the following will be reviewed for the criteria below.

A current valid state driver's license with no "Status Actions"; he/she must be at least 21 years of age to drive a CMV or 18 years of age or older to drive a Fleet Vehicle. A review of the driving record (3 years back initially, then annual thereafter) will be done. If the MVR indicates no violations, or the following minor violations, the employee may be considered for qualification by Mathers management. They are:

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- conviction of one or more minor moving violations, if no more than 6 points have been assessed
- minor accident (no injuries) Note: If the driver/operator can remove the citation by going to traffic school, Mathers will take this action into consideration for final qualification of the driver.
- If the employee's MVR indicates the following major violations, then the employee is NOT qualified to drive for Mathers
  - Operating a vehicle under the influence of a drug or alcohol
  - Implied Consent Refusal (refusal to take blood alcohol test and or urine analysis)
  - Committing homicide, manslaughter, or aggravated assault with a vehicle
  - Failing to stop if you are involved in a traffic accident
  - Reckless driving
  - Felony speeding
  - License Suspension or Revocation

Notification by Mathers insurance carrier that the employee is ineligible for auto insurance coverage will cause the driver to be ineligible to drive. The above listed violations should not be considered all inclusive, and these are not the only major violations that would disqualify the employee as a Mathers driver. Management reserves the right to make the final decision as to whether the employee will be qualified to drive for Mathers.


### **Code of conduct**

The code of conduct for Mathers Construction Team states: "While driving company or own vehicles for work purposes, employees must comply with traffic legislation, be conscious of road safety and demonstrate safe driving and other good road safety habits."

The following actions in company vehicles will be viewed as serious breaches of conduct and dismissal may be a consequence:

- drinking or being under the influence of drugs while driving
- driving while disqualified or not correctly licensed
- reckless or dangerous driving causing death or injury
- failing to stop after a collision
- acquiring penalty points leading to suspension of license
- any actions that warrant the suspension of a license

### **Employee Responsibilities**

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### Drivers of company vehicles


Every driver of a company vehicle must:

- make sure they hold a current driver license for the category of vehicle they are driving, and this license is carried when driving a company vehicle
- immediately notify their supervisor or manager if their driver license has been suspended or cancelled, or has had limitations placed upon it
- take time to familiarize themselves with the vehicle's handbook
- be responsible and accountable for their actions when operating a company vehicle or driving for the purposes of work
- carry out a full daily walk around check prior to using the vehicle
- display the highest level of professional conduct when driving a company vehicle
- regularly check the oil, tire pressures, radiator, and battery levels of company vehicles they regularly use
- Always comply with the Rules of The Road
- assess hazards while driving and anticipate 'what if' scenarios
- drive within the legal speed limits, including driving to the conditions
- wear a seat belt and make sure all occupants always wear their seat belt
- only drive when fit to do so – never drive under the influence of alcohol or drugs, including prescription and over the counter medication if they cause drowsiness
- avoid distraction when driving – if you need to, adjust, or set sat-navs / car stereos / mirrors before setting off. If you need to re-adjust whilst driving pull over safely to do so
- report any near-misses, crashes, and scrapes, including those that do not result in injury, and follow the collision procedures outlined in this policy
- report vehicle defects before the next vehicle use
- never carry any hazardous substances without the prior approval. Hazardous goods may only be carried in full compliance with relevant legislation

In addition, it is required that all drivers:

- take regular and adequate rest breaks, at least every two hours
- stop when tired
- plan their journeys, considering pre-journey work duties, the length of the trip and post-journey commitments
- stay overnight if driving time and non-driving duties exceed 10 hours in one day



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### Drivers using their own car for work

If an employee is driving their own vehicle for work, the same policies apply.

In addition:

- the employee must seek the employer’s agreement before using their vehicle for work
- the car must be legally registered, authorized and insured for the purposes of work – the employee must show evidence of this on request
- the employee must not carry loads for which the vehicle is unsuited, nor may they carry more passengers than there are seat belts
- the vehicle must not be used in conditions for which it was not designed (such as off-road)

### **Employer Responsibilities**

The employer will ensure that Mathers fleet vehicles meet all jurisdictional requirements (i.e., DOT number will be displayed on all commercial vehicles). The employer will take all steps to ensure company vehicles are as safe as possible and will not require employees to drive under conditions that are unsafe or likely to create an unsafe environment, physical distress, or fatigue.

The employer will do this by:


#### Vehicle maintenance

Ensuring all vehicles are well maintained and that the equipment promotes driver, operator, and passenger safety by:

- servicing the vehicles according to manufacturers’ recommendations
- employees check their vehicle’s oil, water, tire pressures and general cleanliness monthly, then record the inspections on a pre-use check sheet
- keeping maintenance schedules in the glove boxes of all vehicles, which are completed each time the vehicles are serviced in any way
- following the maintenance schedules in the vehicles’ manuals
- identifying and rectifying all defects no matter how small, as soon as practicable
- 

#### Data on collisions and incidents

Collecting and collating statistics on incidents, collisions, and their causes, including:

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- the number of collisions
- who was thought to be at fault
- the probable causes of the collisions and other contributors, such as unrealistic work schedules
- the financial cost of all collisions
- the number of prosecutions
- the number of near-miss events
- other costs, such as downtime, compensation claims, temporary workers, and lost productivity

#### Driving time and driver hours

Monitoring and managing work schedules to ensure they do not encourage unsafe driving practices by requiring non-commercial drivers to take 15-minute breaks every two hours of driving

#### **Driver Training**

The Mathers supervisor of that individual is responsible for conducting training, if he/she assigns that person to driving duties. Identifying driver training needs and arranging appropriate training or refresher training, including providing:


- a thorough induction to the company's road safety policies and procedures
- driver training opportunities to all employees
- driver assessment and required training as part of all employees' inductions
- training aimed at managing the driving risk or specific practical training as required and identified
- driver training log updates on personnel files

#### **Safe driver behavior**

Encouraging safe driving behavior by:

- not paying employees' speeding or other infringement fines
- forbidding the use of mobile phones in vehicles while driving (including hands-free)
- encouraging regular breaks while driving
- making sure the employer is informed if existing employees become unlicensed

#### **What to do in the event of an incident in a company vehicle**

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Immediately stop your vehicle at the scene or as close to it as possible, making sure you are not obstructing traffic.

1. Apply the handbrake and switch off the engine.
2. Switch on the vehicle's hazard warning lights.
3. If the vehicle is on fire – get out immediately if it is safe to do so.
4. Help any injured people and call for assistance if needed.
5. Try to get the following information:
  - details of the other vehicle(s) and registration number(s)
  - name(s) and address(es) of the other vehicle owner(s) and driver(s)
  - name(s) and address(es) of any witness(es)
  - name(s) of insurer(s)
6. Give your name and address and company details.
7. Call a Mathers Manager (Project Manager or Safety Manager)


If you damage another vehicle that is unattended, leave a note on the vehicle with your contact details.

Call 911:

- if there are injuries
- if there is a disagreement over the cause of the crash
- if you damage property other than your own
- if damage to the vehicle looks to be substantial.

Only move the vehicle if:

- Instructed to do so by a member of the emergency services
- It would be more dangerous to others keep it at its current location
- You know that 911 has not been called
- Any damage is only slight and leaving the vehicle where it was would cause serious inconvenience to other road users

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- It is safe to do so, and you have already provided your name and address as well as the name and address of the vehicle’s owner, registration, and insurance details.


**IMPORTANT**

If the vehicle cannot be driven arrangements must be made for its removal. All valuables should be secured.

**Breakdowns**

In the event of a breakdown do not try to repair the vehicle. Call a Mathers Manager (Project Manager or Safety Manager). Make sure to give accurate location details. Management will contact all the necessary people as well as the breakdown assistance provider.

1. Ensure nothing is done to endanger yourself or others
2. Move passengers to the safest location – on motorways or other busy roads passengers should be taken onto the embankment as far away from the traffic as possible
3. Move the vehicle off the carriageway (onto the hard shoulder on a motorway) and switch off the engine
4. Switch on the vehicle’s hazard warning lights

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All employees of Mathers construction teams will be trained on the use of a fire extinguisher. Training for firewatchers will include both classroom and hands on training. All additional trades will receive hand on training. Hands on training will occur annually.

### FIRE EXTINGUISHERS


1. Tampering with or unauthorized use of fire extinguishers is strictly prohibited.
2. Portable fire extinguishers, of proper size and rating, will be located in each job site trailer, equipment storage room, company vehicle and operational equipment.
3. Fire extinguishers will be inspected monthly and maintained in accordance with NFPA standards. All extinguishers will have an annual maintenance check performed by a qualified vendor.
4. Fire extinguishers will be obtained prior to starting welding or open flame operations and will be kept in the area of such operations.
5. A 20 lb. B-C rated fire extinguisher will be located within 75 feet, but no closer than 25 feet, of each fuel tank or flammable liquid storage area.

### FLAMMABLE AND COMBUSTIBLE LIQUID STORAGE AND HANDLING

1. Flammable or combustible liquids must not be stored in areas used for exits, in stairways, or areas used for the safe passage of people.
2. Containers of flammable or combustible liquids must be properly labeled to show both the names of the liquid and the hazards (in accordance with the Hazard Communication Program).
3. Indoor storage requires that no more than 25 gallons of flammable or combustible liquids may be stored in a work or construction area outside of a flammable storage cabinet
4. Flammable liquids must be kept in an approved container when not in actual use.
5. Only approved metal containers can be used for the storage of flammable liquids. (Plastic containers are not allowed.)
6. Materials resulting from the leakage or spillage of flammable or combustible liquids must be disposed of promptly and safely in accordance with all applicable laws and regulations.
7. Flammable liquids may be used only where there are no open flames or other


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sources of ignition within 50 feet of the operation, unless conditions warrant greater clearance.

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## COMPRESSED GAS CYLINDERS

1. Cylinders are to be stored and transported in an upright position.
2. Slings, chokers or ropes shall not be used to raise or lower cylinders. A special cradle or bottle rack shall be used.
3. Valves on cylinders must be closed, and valve protection caps (if so equipped) in place, before cylinders are moved.
4. Inspect all hoses for leaks and/or loose connections daily, or before each use if not used daily.
5. Close the valve and mark the cylinder “empty” when empty.
6. Cylinders must be secured to prevent being accidentally knocked over.
7. Oxygen and fuel gas cylinders, when in storage, must be separated by at least 20 feet.

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## HOUSEKEEPING

1. The work area shall be kept clean and orderly. All debris, including scrap lumber with protruding nails, must be cleared from work areas, passageways, and in stairs in and around the construction site at all times.
2. Combustible scrap and debris must be removed at regular intervals and disposed of properly.
3. All work areas are to be cleared at the end of each workday.
4. Oily, flammable or hazardous waste or debris such as paints, thinners, oily rags, etc., will be disposed of in clearly marked containers and disposed of daily.

## STAIRWAYS


1. On all structures, two or more floors (20 feet or over) in height, stairways, ladders or ramps, must be provided for employees during the construction period.
2. All parts of stairways must be free of hazardous projections, such as nails.
3. Debris and other loose materials must not be allowed on or under stairways.
4. Slippery conditions on stairs must be eliminated as soon as possible after they occur.
5. Permanent steel or other metal stairways and landings with hollow pan-type treads, that are to be filled with concrete or other materials, must be filled to the nosing with solid material until the actual construction takes place.
6. Metal landings must be secure in place before filling.
7. Temporary stairs must have a landing, not less than 30 inches, in the direction of travel, at every 12 feet of vertical rise.
8. Rise height and tread width must be uniform throughout any flight of stairs.
9. Every flight of stairs having four or more risers must be equipped with standard stair railings or standard handrails. A standard stair railing consists of a top rail, an intermediate rail, posts, and has vertical height of 30-34 inches. A standard handrail is similar, but is mounted on a wall or partition and does not include an intermediate rail and has a height of 30-34 inches.



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## FLOOR AND WALL OPENINGS

1. A floor opening is defined as an opening measuring 2 inches or more in its least diameter in any floor, roof, or platform through which a person may fall.
2. Floor openings must be guarded on all exposed sides by a standard top rail, mid-rail and 4-inch toe board or must be closed over with a cover.
3. Hatchways and chute floor openings must be guarded by hinged covers or by removable standard railings.
4. Whenever there is danger of falling through a skylight opening, it must be guarded by a standard railing on all exposed sides or a cover capable of supporting a load of at least 200 pounds applied perpendicularly at any one area on the cover.
5. All covers in walking/working surfaces must be secured and must be marked with the words “hole” or “cover” to provide warning of the hazard.
6. A wall opening is an opening at least 30-inches high and 18-inches wide through which persons may fall. Wall openings, from which there is a drop of 6-feet or more, must be guarded.
7. Every open sided floor or platform, 6-feet or more above an adjacent surface, must be guarded by a standard top rail and mid-rail or the equivalent except where there is an entrance to a ramp, stairway or fixed ladder. The railing must have a 4-inch toe board whenever persons can pass beneath the open sides, or there is moving machinery with which falling material could create a hazard.
8. Runways must be guarded by a standard top rail and mid-rail on all open sides’ 6-feet or more above the floor or ground. Whenever tools, machine parts or materials are likely to be used on the runway, a 4-inch toe board must be provided.


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<b>HAND AND POWER TOOLS/ MACHINERY GUARDING</b>			
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## PURPOSE

Mathers Construction Team has established the Tool Safety policy to reduce the hazards associated with the use of hand and power tools and exposure at the point of operation. This policy details the requirements for using hand and power tools including, but not limited to, special types of power tools (abrasive wheel machinery, pneumatic and liquid-fuel tools, and powder-actuated tools). This policy also covers the guarding requirements for machinery.

## GENERAL REQUIREMENTS

1. Employees who use hand and power tools in the workplace are responsible for:
  - Understanding the potential hazards associated with each type of tool; and
  - Following safety precautions to minimize those hazards.
2. Personal Protective Equipment (PPE) appropriate to the specific tool and the work task shall be worn. \*Note: Loose clothing, jewelry, and long hair are dangerous near moving parts. The user shall adhere to the manufacturer's guidelines for the specific tool.
3. Tools and accessories shall be visually inspected for defects or damage before use.
4. Any defective or damaged tool shall be removed from service and either designated with a Do Not Use tag or disposed of immediately. Use of unsafe tools and equipment is strictly prohibited.
5. Each tool shall be used solely for its intended application and within its capabilities.
6. Tools and accessories shall be used, maintained, and stored in accordance with manufacturers' instructions.
7. All the manufacturer's safety guards and safety devices shall be in place and operational. Using a tool with these safety devices disabled is strictly prohibited.
8. Individuals who may be affected by the operation of power tools shall remain at a safe distance.
9. To reduce the possibility of being injured by a tool, work areas shall be kept clean and free of debris that could cause an employee to slip, trip or fall.
10. To reduce the possibility of being injured by poor body positioning and repetitive motion, employees must do the following:
  - maintaining good posture at work.
  - taking regular breaks from long or repetitive tasks – it's better to take smaller,

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- more frequent breaks than one long lunch break.
- trying breathing exercises if you're stressed.
- take a stretch break multiple times throughout the day.

## HAND TOOLS


1. Wrenches (including adjustable, pipe-end and socket) must not be used when jaws are sprung to the point that slippage occurs.
2. Impact tools, such as hammers, wedges, and chisels, must be kept free of mushroomed heads.
3. All tools, company issued and personal, must be inspected daily for defects. All defective tools must be removed and tagged “DO NOT USE”.
4. ALWAYS use the proper tool for the job.
5. Proper PPE should be used when hand and/or power tools are in use

## POWERED TOOLS

1. Power tools must always be equipped with manufacturer guarding or equivalent.
2. All manufacturer’s warnings and safe operating procedures for tools will be followed.
3. Never use electrical cords for hoisting or lowering tools.
4. Electric power tools must be industrial or heavy-duty grade, with approved double insulation wiring or be grounded. If the grounding pin is missing, tag the tool “DO NOT USE” and take it out of service until properly repaired.
5. All portable, power-driven circular saws must be equipped with guards above and below the base plate or shoe.
6. All pneumatically driven nailers, staplers and other similar equipment provided with automatic fastener feed, which operate at more than 100 psi, must have a safety device on the muzzle to prevent the tool from ejecting fasteners unless the muzzle is in contact with the work surface.
7. Compressed air must never be used for cleaning purposes.

\*All compressed air hoses exceeding ½ inch diameter must have a safety device at the source of supply to reduce pressure in case of hose failure

## ABRASIVE WHEEL MACHINERY


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1. Abrasive wheels shall be used only on machines equipped with safety guards.  
\*Exceptions: Safety guards are not required for wheels used for internal work; mounted wheels used in portable work (2 inches or less in diameter); wheels of the cone, plug, and threaded hole type where the work offers protection.
2. Pneumatic abrasive wheel machines shall be operated within the specified air pressure range.
3. Abrasive wheel machines shall be operated with the size of wheel shown on the tool.
4. Any new grinding wheel shall be run at least one minute before use, during which time no one shall stand in front of or in line with the wheel.
5. Work rests shall be kept adjusted closely to the wheel with a maximum opening of 1/8 inch to prevent work from being caught between the wheel and the rest. *The adjustment shall not be made while the wheel is in motion.*
6. All abrasive wheels shall be closely inspected and ring-tested before mounting to ensure that they are free from cracks and other defects.

## POWDER-ACTUATED TOOLS

The use of powder-actuated tools comes with several hazards. The explosion exposure would be a fire and explosion hazard in a flammable atmosphere. The fastener travels at a velocity high enough to cause serious injury.

1. Only employees who have been trained in the operation of the tool in use shall be allowed to operate a powder-actuated tool.
2. The tool shall be tested each day before loading to see that safety devices are in proper working condition. The method of testing shall be in accordance with the manufacturer's recommended procedure.
3. Any tool found not in proper working order, or that develops a defect during use, shall be immediately removed from service, tagged "out of service" and not used until properly repaired.
4. The employee shall wear the appropriate PPE including a face shield.
5. Powder actuated tools shall not be loaded until just prior to the intended firing time.
6. Neither loaded nor empty tools are to be pointed at any person. Body parts shall be kept clear of the open barrel end.
7. Loaded tools shall not be left unattended.


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8. Fasteners shall not be driven into very hard or brittle materials including, but not limited to, cast iron, glazed tile, surface-hardened steel, glass block, live rock, face brick or hollow tile.
9. Driving into materials easily penetrated shall be avoided unless such materials are backed by a substance that will prevent the pin or fastener from passing completely through and creating a flying hazard on the other side.
10. No fastener shall be driven into an area of the material that is loose or separated from the original material. This would cause an unsatisfactory fastening.
11. Powder actuated tools shall not be used in an explosive or flammable atmosphere.
12. All tools shall be used with the correct shield, guard or attachment recommended by the manufacturer.
13. Powder-actuated tools used by employees shall meet all other applicable requirements of ANSI, A10.3-1970, Safety Requirements for Explosive-Actuated Fastening Tools.

## MACHINERY GUARDING

Requirements for machine guards vary with the type of tool or machine. Consult the Safety Coordinator for specific requirements.

1. Manufacturer machine guards shall be maintained to protect the operator and other employees in the area from hazards such as those created by point of operation, ingoing nip points, rotating parts, and flying chips and sparks.
  - \*Note: Examples of guarding methods include barrier guards, two-hand tripping devices, electronic safety devices, etc. Barrier guards may be used in lieu of point-specific guards where appropriate.


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## STORAGE

1. Storage areas must be kept free from accumulation of materials that constitute hazards from tripping, fire, explosions or pest harborage. Vegetation will be removed when necessary.
2. Aisles and passageways must be kept clear to provide for the free and safe movement of material handling equipment or employees. Such areas must be kept in good repair.
3. Materials must not be stored on scaffolds or runways in excess of supplies needed for immediate operations.
4. Used lumber must have all nails bent down or removed before stacking. Lumber must be stacked so that it is stable and self-supporting.
5. Structural steel, poles, pipe, bar stock, and other cylindrical materials, unless racked, must be stacked or blocked to prevent spreading or tipping.
6. Materials 10 feet or more in length, being manually transported, require an employee on each end of the material.


## FORKLIFT SAFETY RULES

1. Only authorized and certified personnel may operate forklift equipment.
2. The manufacturer's instructions for operating a forklift are to be followed.
3. Never exceed a forklift's rated capacity.
4. While operating a forklift, watch for pedestrians at crosswalks, doors, at aisle or roadway intersections, at all corners and in all working areas.
5. Blow the horn at blind intersections and corners.
6. The maximum speed limit for any forklift is 5 miles per hour at any time. No exceptions.
7. Never park a forklift with the forks in the "up" position.
8. Always center the forks under the load.
9. Always keep the load against the backrest.
10. Never allow riders on any forklift.
11. Do not stick or place arms or legs out of the forklift at any time while driving.
12. Never reach through the mast to adjust a load.
13. Always sound the horn and look carefully before backing up.
14. Wear seat belts if provided in the forklift.
15. Never turn sideways on a ramp or on a sloped surface.

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### Rigging/ Hoist/ Other Devices

1. All rigging equipment must be inspected before use
2. Rated load capacities, recommend operating speeds, and special hazard warnings or instructions must be posted on cars and platforms.
3. Wire ropes must be removed from service when they show signs of damage or serious wear.
4. Hoisting ropes must be installed in accordance with the wire rope manufacturer's recommendations. Do not exceed the rated capacity of rigging equipment.
5. Rigging equipment must be removed from the work area with not in use.
6. Use tag line to control the load
7. Hooks have safety latches. Hooks on overhaul ball assemblies, lower load block or other attachment assemblies shall be of a type that can be closed and locked, eliminating the hook throat opening.
8. Never get under overhead loads.
9. "Mousing" devices must be in place on all hoisting hooks.
10. All crane activities will be done by subcontractors. Supervisors must be aware of subcontractor's safety program, as well as and potential hazards in the surrounding environment including but not limited to weather, power lines, and ground conditions.

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## INTRODUCTION

The OSHA Hazard Communication Standard was promulgated to ensure that all chemicals are evaluated and that the information regarding the hazards would be communicated to employers and employees. The goal of the standard is to reduce the number of chemically related occupational illnesses and injuries.

In order to comply with the Hazard Communication Standard, this written program has been established by Mathers Construction Team. All divisions and sections of the company are included within this program. Copies of this written program will be available, for review by any employee or OSHA official, in our corporate office, shop and at each job site.

## HAZARD DETERMINATION

All hazardous chemicals used by Mathers are purchased materials. Therefore, Mathers shall rely on the hazard determination made by the chemical manufacturer as indicated on the Safety Data Sheet (SDS).

## BASIC COMPONENTS OF PROGRAM


- A. Hazardous Chemical Inventory List
- B. Material Safety Data Sheets
- C. Chemical Labeling
- D. Employee information and training
- E. Non-routine tasks
- F. Unlabeled pipes
- G. Multi-employee workplaces
- H. Program review

### A. HAZARDOUS CHEMICAL INVENTORY LIST

A list of all known hazardous chemicals used at Mathers worksites will be compiled for each job.

### B. MATERIAL SAFETY DATA SHEETS



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When chemicals are purchased, the owner shall specify on the purchase order that an SDS must be sent with the order.

When SDSs arrive they should be given to the safety coordinator for inclusion into our HAZCOM manual.

A complete file of SDSs, for all hazardous chemicals to, which employees may be exposed to, will be kept in labeled binders at each job site.

SDSs will be reviewed periodically by the safety coordinator.

#### C. CHEMICAL LABELING

The HAZCOM standard requires that manufacturers label hazardous chemicals. The labels must contain the chemical identity, appropriate hazard warnings and the name and address of the chemical manufacturer, importer or other responsible party.

When chemicals are transferred from the original container to a secondary container, the person doing the transferring must ensure that the secondary container is labeled with the identity of the chemical and the appropriate hazard warnings.

#### D. EMPLOYEE INFORMATION AND TRAINING

Prior to starting work, new employees of Mathers will attend a safety and health orientation program conducted by the Safety Coordinator.

The following HAZCOM topics will be covered:

1. An overview of the HAZCOM standard.
2. The labeling system and how to use it.
3. How to review an SDS and where they are kept.
4. Chemicals present in the work operations.
5. Physical and health effects of hazardous chemicals.
6. Personal protective equipment and work practices to lessen or prevent

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exposure to chemicals.

7. Safety/emergency procedures to follow if exposure occurs.
8. Location and availability of the written program.


#### E. NON-ROUTINE TASKS

The responsible supervisor will identify hazardous non-routine tasks at specific job sites.

Prior to any employee beginning a hazardous non-routine task, he/she must report to their supervisor to determine the hazards involved and the protective measures required.

#### F. UNLABELED PIPES

Work activities are often performed in areas where chemical piping is not labeled. Prior to starting work in areas having unlabeled piping, the employee shall contact the supervisor to determine the identity of the chemical in the piping, the potential hazards, and the safety precautions to use.

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## PURPOSE

The purpose of this program is to define work practices, administrative procedures and engineering controls to protect employees with the potential to be exposed to benzene concentrations at or above the OSHA action level. This shall be implemented and kept current by the EHS department as required to reflect regulatory changes and exposure monitoring date.


## SCOPE

This program covers all employees who may be exposed to benzene in the course of completing job duties. This written plan shall be made available to all employees. When work is performed on a non-owned or operated site, the operators program shall take precedence, however this document covers Mathers Constructions Team employees and contractors and shall be used on owned premises, or when an operators program doesn't exist or is less stringent. Employees will be aware of provisions of site specific contingency/ emergency plans by either Mathers Construction Team or a facility owner.

The Mathers Construction Team EHS Manager, will develop and implement project, task specific benzene control procedures prior to the start of activities that may include exposure to benzene. Mathers Construction Team will be aware of an owner's contingency plan provision and all employees must be informed where benzene may be present on the facility footprint, and aware of additional safety rules.

## DEFINITIONS

- Action Level- means an airborne concentration of benzene of 0.5 ppm calculated as an 8- hour time-weighted average
- Benzene- a clear, colorless liquid with a distinctive sweet odor. It is not soluble in water and is flammable. Its boiling point is 176 degrees F and its flash point is 12 degrees F. The flammable limits in air are 1.3% for the low end and 7.5% for the high end. Benzene is a flammable liquid. Its vapors can form explosive mixtures. All ignition sources must be controlled when Benzene is used, handled, or stored. Smoking is strictly prohibited. Where liquid or vapor may be released, such areas shall be considered as hazardous locations. Benzene vapors are heavier than air; thus the vapors may travel along the ground and be ignited by open flames or

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sparks at locations remote from the site at which Benzene is handled. No smoking designated areas and fire extinguishers must be readily available.

- Employee exposure – exposure to airborne benzene that would occur if the employee were not using respiratory protective equipment
- Health Effects- Short term overexposure may cause irritation to eyes, nose and skin, breathlessness, irritability, euphoria, headaches, dizziness or nausea. Long term effects may result in blood disorders such as leukemia and anemia.

## PROCEDURE

### Permissible Exposure Limits

The time-weighted average limit (TWA) for benzene is:

- 8-hours TWA 1 ppm
- 12- hour TWA 0.67 ppm

The short-term exposure limit (STEL) for benzene is 5 ppm.


### Regulated Area

- Mathers Construction Team shall established regulated areas wherever airborne concentrations of benzene exceed or can reasonably be expected to exceed the PEL or STEL
- Mathers Construction Team will control access to regulated area and limit access to authorized personnel
- The following signage shall be posted in all regulated areas when the potential exists for benzene vapors to be in excess of the PEL

**DANGERS-BEZENE REGUALTED AREA CANCER CASUING AGENET  
FLAMMABLE-AUTHORIZED PERSONNEL ONLY RESPRIATOR REQUIRED**

### Methods of Compliance

- The benzene control program shall be written and implemented to comply with OSHA regulation 29 CFR 1910.1028 (Benzene0.
- Mathers Construction Team shall establish and implement a written program to reduce employee exposure to or below the PEL primarily by means of engineering

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and work practice controls to ensure compliance with the benzene control program and federal and state program


### Exposure Monitoring

Exposure monitoring shall be performed for the 8-hour and 12-hour TWAs or for the 15 min STEL exposure when:

- Regulated areas are established
- An emergency occurs that could require a regulated area
- A change in the production, process, control equipment, personnel or work practice may result in new or additional exposure to benzene
- If the monitoring required reveals employee exposure at or above the action level but at or below the TWA, Mathers Construction Team, shall repeat the monitoring for each employee at least once every year.
- If the initial monitoring reveals employee exposure to be below the action level Mathers Construction Team may discontinue the monitoring
- If the monitoring reveals that employee exposures, as indicated by at least two consecutive measurements taken at least 7 days apart, are below the action level Mathers Construction Team may discontinue to monitor.
- Direct reading detection instruments will be used where benzene vapors may be present in work area not previously monitored
- Personal monitoring will be performed by use of vapor monitoring badges following manufacturer requirements.

### Medical Surveillance

- Baseline and annual medical exams shall be provided to employees that may work or are anticipated to wo participate in operation more than 10 times per year or may work in areas where benzene exposures may exceed the PEL over 30 days per year.
- Mathers Construction Team shall make available a medical surveillance program for employees who are or may be exposed to benzene at or above the action level 30 or more days per year; for employees who are or may be exposed to benzene at or above the PELs 10 or more days per year; for employees who have been exposed to more than 10 ppm of benzene for 30 or more days in a year prior to the effective date of the standard when employed by their current employer.
- Notification of monitoring results shall be provided to employees in writing within

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15 working days of receipt of results.

#### Personal Protective Equipment

- PPE will be selected on the basis of its ability to prevent absorption, inhalation, and ingestion.
- PPE will reflect the needs of the employees based on work conditions, amount and duration of exposure and other known environmental factors but shall contain as a minimum; boots, proper eye protection, gloves, sleeves, Tyvek suits and others as determined.
- PPE shall be provided and worn when appropriate to prevent eye contact and limit dermal exposure to liquid benzene. PPE must meet the requirements of 29 CFR 1910.133 and provided at no cost to employees

#### Respiratory Protection


- A respiratory program shall be established in accordance with 29 CFR 1910.134. Respiratory protection is required:
  - During the time period necessary to implement engineering controls or work practices
  - When engineering and work practice controls are not feasible
  - In emergencies

Approved respirators shall be selected according to airborne concentrations of benzene or condition of use.

- 0 to 0.67 ppm – no respirator required
- 0.67 to 6.7 ppm- half mask respirator with OV cartridges
- 6.7-33 ppm – full face respirator with OV cartridges
- Greater than 33ppm – full SCBA

#### Recordkeeping

- Medical surveillance records shall be maintained for 30 years after termination of employment
- Exposure monitoring records shall be maintained for 30 years after the completion of the project
- Exposure and medical monitoring records shall be made available to affected employees or their representatives and to OSHA upon request

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### Communication of Benzene Hazards

- Signs and labels shall be posted at entrances of regulated areas
- Project site specific contingency and emergency procedures shall be updated by the EHS department and made available to project staff prior to the beginning work at the specific site.

### Emergency Procedures

- a. In a medical emergency call 911 or on site responders if available. All employees working in areas of possible Benzene exposure will be aware of the site specific emergency plan. They must be informed where benzene is used in the host facility and aware of additional plant safety rules.
- b. Inhalation: If Benzene is released in to the air, get fresh air by either moving away from the exposed area if you are already outside, or getting out of the building if benzene is released indoors. If not breathing give artificial respirations. If breathing with difficulty, give oxygen.
- c. Skin Contact: In case of skin contact, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating eyelids with fingers. Remove any clothing that has been contaminated. Do not pull contaminated clothing over your head, but cut off clothing instead.
- d. Ingestion: If swallowed, wash out mouth with water. Do not induce vomiting.
- e. Fire extinguishers must be readily available in areas where benzene is used or stored.

**SYNONYMS:** Benzol, benzole, coal naphtha, cyclohexatriene, phene, phenyl hydride, pyrobenzol. (Benzin, petroleum benzin and benzine do not contain Benzene).

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## Respirable Crystalline Silica Program

### PURPOSE

This Respirable Crystalline Silica Program was developed to prevent employee exposure to hazardous levels of Respirable Crystalline Silica that could result through construction activities or nearby construction activities occurring on worksites. Respirable Crystalline Silica exposure at hazardous levels can lead to lung cancer, silicosis, chronic obstructive pulmonary disease, and kidney disease. It is intended to meet the requirements of the Respirable Crystalline Silica Construction Standard (29 CFR 1926.1153) established by the Occupational Safety and Health Administration (OSHA).

All work involving chipping, cutting, drilling, grinding, or similar activities on materials containing Crystalline Silica can lead to the release of respirable-sized particles of Crystalline Silica (i.e. Respirable Crystalline Silica). Crystalline Silica is a basic component of soil, sand, granite and many other minerals. Quartz is the most common form of Crystalline Silica. Many materials found on construction sites include Crystalline Silica; including but not limited to – cement, concrete, asphalt, pre-formed structures (inlets, pipe, etc.) and others. Consequently, this program has been developed to address and control these potential exposures to prevent our employees from experiencing the effects of occupational illnesses related to Respirable Crystalline Silica exposure.


### SCOPE

This Respirable Crystalline Silica Program applies to all employees who have the potential to be exposed to Respirable Crystalline Silica when covered by the OSHA Standard. The OSHA Respirable Crystalline Silica Construction Standard applies to all occupational exposures to Respirable Crystalline Silica in construction work, except where employee exposure will remain below 25 micrograms of Respirable Crystalline Silica per cubic meter of air (25  $\mu\text{g}/\text{m}^3$ ) as an 8-hour time-weighted average (TWA) under any foreseeable conditions.

### RESPONSIBILITIES

Mathers Construction firmly believes protecting the health and safety of our employees is everyone's responsibility. This responsibility begins with upper management providing the necessary support to properly implement this program. However, all levels of the organization assume some level of responsibility for this program including the following positions.




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### E.H.S Department:

- Conduct job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments in order to determine if an employee's exposure will be above 25 µg/m<sup>3</sup> as an 8-hour TWA under any foreseeable conditions
- Select and implement into the project's ECP the appropriate control measures in accordance with the Construction Tasks identified in OSHA's Construction Standard Table 1; and potentially including (but not limited to) - a written Exposure Control Plan (ECP), exposure monitoring, Hazard Communication training, medical surveillance, housekeeping and others.

NOTE: OSHA's Construction Standard Table 1 is a list of 18 common construction tasks along with acceptable exposure control methods and work practices that limit exposure for those tasks.

- Ensure that the materials, tools, equipment, personal protective equipment (PPE), and other resources (such as worker training) required to fully implement and maintain this Respirable Crystalline Silica Program are in place and readily available if needed.
- Ensure that Project Managers, Site Managers, Competent Persons, and employees are educated in the hazards of Silica exposure and trained to work safely with Silica in accordance with OSHA's Respirable Crystalline Silica Construction Standard and OSHA's Hazard Communication Standard. Managers and Competent Persons may receive more advanced training than other employees.
- Maintain written records of training (for example, proper use of respirators), ECPs, inspections (for equipment, PPE, and work methods/practices), medical surveillance (under lock and key), respirator medical clearances (under lock and key) and fit-test results.
- Conduct an annual review (or more often if conditions change) of the effectiveness of this program and any active project ECP's that extend beyond a year. This includes a review of available dust control technologies to ensure these are selected and used when practical.

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- Coordinate work with other employers and contractors to ensure a safe work environment relative to Silica exposure.

**Project Manager (Merge with Site Manager for Smaller Contractors):**

- Ensure all applicable elements of this Respirable Crystalline Silica Program are implemented on the project including the selection of a Competent Person.
- Assist the EHS Department in conduct job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments in order to determine if an ECP, exposure monitoring, and medical surveillance is necessary.
- Assist in the selection and implementation of the appropriate control measures in accordance with the Construction Tasks identified in OSHA’s Construction Standard Table 1; and potentially including (but not limited to) - a written Exposure Control Plan (ECP), exposure monitoring, Hazard Communication training, medical surveillance, housekeeping and others.
- Ensure that employees using respirators have been properly trained, medically cleared, and fit-tested in accordance with the company’s Respiratory Protection Program. This process will be documented.
- Ensure that work is conducted in a manner that minimizes and adequately controls the risk to workers and others. This includes ensuring that workers use appropriate engineering controls, work practices, and wear the necessary PPE.
- Where there is risk of exposure to Silica dust, verify employees are properly trained on the applicable contents of this program, the project-specific ECP, and the applicable OSHA Standards (such as Hazard Communication). Ensure employees are provided appropriate PPE when conducting such work.

**Competent Person and/or Site Manager (Superintendent, Foreman, etc.)**

- Make frequent and regular inspections of job sites, materials, and equipment to implement the written ECP.

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- Identify existing and foreseeable Respirable Crystalline Silica hazards in the workplace and take prompt corrective measures to eliminate or minimize them.
- Notify the Project Manager and/or Safety Department of any deficiencies identified during inspections in order to coordinate and facilitate prompt corrective action.
- Assist the Project Manager and Safety Department in conducting job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments in order to determine if an ECP, exposure monitoring, and medical surveillance is necessary.

#### **Employees:**


- Follow recognized work procedures (such as the Construction Tasks identified in OSHA's Construction Standard Table 1) as established in the project's ECP and this program.
- Use the assigned PPE in an effective and safe manner.
- Participate in Respirable Crystalline Silica exposure monitoring and the medical surveillance program.
- Report any unsafe conditions or acts to the Site Manager and/or Competent Person.
- Report any exposure incidents or any signs or symptoms of Silica illness.

#### **DEFINITIONS**

If a definition is not listed in this section, please contact your supervisor. If your supervisor is unaware of what the term means, please contact the Competent Person or your Safety Department.

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- Action Level means a concentration of airborne Respirable Crystalline Silica of 25 µg/m<sup>3</sup>, calculated as an 8-hour TWA.
- Competent Person means an individual who is capable of identifying existing and foreseeable Respirable Crystalline Silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them.
- Employee Exposure means the exposure to airborne Respirable Crystalline Silica that would occur if the employee were not using a respirator.
- High-Efficiency Particulate Air (HEPA) Filter means a filter that is at least 99.97 percent efficient in removing monodispersed particles of 0.3 micrometers in diameter.
- Objective Data means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to Respirable Crystalline Silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.
- Permissible Exposure Limit (PEL) means the employer shall ensure that no employee is exposed to an airborne concentration of Respirable Crystalline Silica in excess of 50 µg/m<sup>3</sup>, calculated as an 8-hour TWA.
- Physician or Other Licensed Health Care Professional (PLHCP) means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by the Medical Surveillance Section of the OSHA Respirable Crystalline Silica Standard.
- Respirable Crystalline Silica means Quartz, Cristobalite, and/or Tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle size- selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality-Particle Size Fraction Definitions for Health-Related Sampling.

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- Specialist means an American Board Certified Specialist in Pulmonary Disease or an American Board Certified Specialist in Occupational Medicine.

## REQUIREMENTS

### Specified Exposure Control Methods

When possible and applicable, Mathers Construction will conduct activities with potential Silica exposure to be consistent with OSHA’s Construction Standard Table 1. Supervisors will ensure each employee under their supervision and engaged in a task identified on OSHA’s Construction Standard Table 1 have fully and properly implemented the engineering controls, work practices, and respiratory protection specified for the task on Table 1 (unless Mathers Construction has assessed and limited the exposure of the employee to Respirable Crystalline Silica in accordance with the Alternative Exposure Control Methods Section of this program).

The task(s) being performed by Mathers Construction identified on OSHA’s Construction Standard Table 1 is/are:

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

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
1	Stationary masonry saws	<ul style="list-style-type: none"> <li>• Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</li> <li>• Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> </ul>	None	None




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Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
<b>2a</b>	Handheld power saws (any blade diameter) when used outdoors	<ul style="list-style-type: none"> <li>Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> </ul>	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
<b>2b</b>	Handheld power saws (any blade diameter) when used indoors or in an enclosed area	<ul style="list-style-type: none"> <li>Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> </ul>	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
<b>3</b>	Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less) for tasks performed outdoors only	<ul style="list-style-type: none"> <li>Use saw equipped with commercially available dust collection system.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.</li> </ul>	None	None
<b>4a</b>	Walk-behind saws when used outdoors	<ul style="list-style-type: none"> <li>Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> </ul>	None	None
<b>4b</b>	Walk-behind saws when used indoors or in an enclosed area	<ul style="list-style-type: none"> <li>Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> </ul>	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask

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Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
5	Drivable saws for tasks performed outdoors only	<ul style="list-style-type: none"> <li>Use saw equipped with integrated water delivery system that continuously feeds water to the blade.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> </ul>	None	None
6	Rig-mounted core saws or drills	<ul style="list-style-type: none"> <li>Use tool equipped with integrated water delivery system that supplies water to cutting surface.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> </ul>	None	None
7	Handheld and stand-mounted drills (including impact and rotary hammer drills)	<ul style="list-style-type: none"> <li>Use drill equipped with commercially available shroud or cowl with dust collection system.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>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.</li> <li>Use a HEPA-filtered vacuum when cleaning holes.</li> </ul>	None	None
8	Dowel drilling rigs for concrete for tasks performed outdoors only	<ul style="list-style-type: none"> <li>Use shroud around drill bit with a dust collection system.</li> <li>Dust collector must have a filter with 99% or greater efficiency and a filter cleaning mechanism.</li> <li>Use a HEPA-filtered vacuum when cleaning holes.</li> </ul>	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
9a	Vehicle-mounted drilling rigs for rock and concrete	<ul style="list-style-type: none"> <li>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.</li> </ul>	None	None
9b	Vehicle-mounted drilling rigs for rock and concrete	<ul style="list-style-type: none"> <li>Operate from within an enclosed cab and use water for dust suppression on drill bit.</li> </ul>	None	None



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Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
10a	Jackhammers and handheld powered chipping tools when used outdoors	<ul style="list-style-type: none"> <li>Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.</li> </ul>	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10b	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	<ul style="list-style-type: none"> <li>Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.</li> </ul>	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10c	Jackhammers and handheld powered chipping tools when used outdoors	<ul style="list-style-type: none"> <li>Use tool equipped with commercially available shroud and dust collection system.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>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.</li> </ul>	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10d	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	<ul style="list-style-type: none"> <li>Use tool equipped with commercially available shroud and dust collection system.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>Dust collector must provide the air flow recommended by the tool manufacturer, or</li> </ul>	N95 (or Greater Efficiency) Filtering	N95 (or Greater Efficiency) Filtering




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Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
		greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.	Facepiece or Half Mask	Facepiece or Half Mask
11	Handheld grinders for mortar removal (i.e., tuckpointing)	<ul style="list-style-type: none"> <li>Use grinder equipped with commercially available shroud and dust collection system.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>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.</li> </ul>	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	Powered Air-Purifying Respirator (PAPR) with P100 Filters
12a	Handheld grinders for uses other than mortar removal for tasks performed outdoors only	<ul style="list-style-type: none"> <li>Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> </ul>	None	None
12b	Handheld grinders for uses other than mortar removal when used outdoors	<ul style="list-style-type: none"> <li>Use grinder equipped with commercially available shroud and dust collection system.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>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.</li> </ul>	None	None

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Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
<b>12c</b>	Handheld grinders for uses other than mortar removal when used indoors or in an enclosed area	<ul style="list-style-type: none"> <li>Use grinder equipped with commercially available shroud and dust collection system.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>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.</li> </ul>	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
<b>13a</b>	Walk-behind milling machines and floor grinders	<ul style="list-style-type: none"> <li>Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> </ul>	None	None
<b>13b</b>	Walk-behind milling machines and floor grinders	<ul style="list-style-type: none"> <li>Use machine equipped with dust collection system recommended by the manufacturer.</li> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>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.</li> <li>When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.</li> </ul>	None	None
<b>14</b>	Small drivable milling machines (less than half-lane)	<ul style="list-style-type: none"> <li>Use a machine equipped with supplemental water sprays designed to suppress dust.</li> <li>Water must be combined with a surfactant.</li> <li>Operate and maintain machine to minimize dust emissions.</li> </ul>	None	None
<b>15a</b>	Large drivable milling machines (half-lane and larger) for cuts of any depth on asphalt only	<ul style="list-style-type: none"> <li>Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust.</li> <li>Operate and maintain machine to minimize dust emissions.</li> </ul>	None	None

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Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
15b	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	<ul style="list-style-type: none"> <li>Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust.</li> <li>Operate and maintain machine to minimize dust emissions.</li> </ul>	None	None
15c	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	<ul style="list-style-type: none"> <li>Use a machine equipped with supplemental water spray designed to suppress dust.</li> <li>Water must be combined with a surfactant.</li> <li>Operate and maintain machine to minimize dust emissions.</li> </ul>	None	None
16	Crushing machines	<ul style="list-style-type: none"> <li>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).</li> <li>Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.</li> </ul>	None	None
17a	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	<ul style="list-style-type: none"> <li>Operate equipment from within an enclosed cab.</li> </ul>	None	None
17b	Heavy equipment and utility vehicles used to abrade or fracture	<ul style="list-style-type: none"> <li>When employees outside of the cab are engaged in the task, apply water and/or dust</li> </ul>	None	None


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Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
	silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	suppressants as necessary to minimize dust emissions.		
<b>18a</b>	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	<ul style="list-style-type: none"> <li>Apply water and/or dust suppressants as necessary to minimize dust emissions.</li> </ul>	None	None
<b>18b</b>	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	<ul style="list-style-type: none"> <li>When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.</li> </ul>	None	None

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When implementing the control measures specified in Table 1, Mathers Construction shall:

- For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust;
- For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;
- For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:
  - Is maintained as free as practicable from settled dust;
  - Has door seals and closing mechanisms that work properly;
  - Has gaskets and seals that are in good condition and working properly;
  - Is under positive pressure maintained through continuous delivery of fresh air;
  - Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0  $\mu\text{m}$  range (e.g., MERV-16 or better); and
  - Has heating and cooling capabilities.
- Where an employee performs more than one task included on OSHA's Construction Standard 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.


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## Alternative Exposure Control Methods

Alternative Exposure Control Methods apply for tasks not listed in OSHA’s Construction Standard Table 1, or where Mathers Construction cannot not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1.

First, Mathers Construction will assess the exposure of each employee who is or may reasonably be expected to be exposed to Respirable Crystalline Silica at or above the Action Level in accordance with either the Performance Option or the Scheduled Monitoring Option.


- **Performance Option** – Mathers Construction will assess the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to Respirable Crystalline Silica.
  
- **Scheduled Monitoring Option:**
  - Mathers Construction will perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the exposures of employees on each shift, for each job classification, and in each work area. Where several employees perform the same tasks on the same shift and in the same work area, Mathers Construction will plan to monitor a representative fraction of these employees. When using representative monitoring, Mathers Construction will sample the employee(s) who are expected to have the highest exposure to Respirable Crystalline Silica.
  
  - If initial monitoring indicates that employee exposures are below the Action Level, Mathers Construction will probably discontinue monitoring for those employees whose exposures are represented by such monitoring.

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- Where the most recent exposure monitoring indicates that employee exposures are at or above the Action Level but at or below the PEL, Mathers Construction will repeat such monitoring within six months of the most recent monitoring.
  
- Where the most recent exposure monitoring indicates that employee exposures are above the PEL, Mathers Construction will repeat such monitoring within three months of the most recent monitoring.
  
- Where the most recent (non-initial) exposure monitoring indicates that employee exposures are below the Action Level, Mathers Construction will repeat such monitoring within six months of the most recent monitoring until two consecutive measurements, taken seven or more days apart, are below the Action Level, at which time Mathers Construction will probably discontinue monitoring for those employees whose exposures are represented by such monitoring, except when a reassessment is required. Mathers Construction will reassess exposures whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the Action Level, or when Mathers Construction has any reason to believe that new or additional exposures at or above the Action Level have occurred.

Mathers Construction will ensure that all Respirable Crystalline Silica samples taken to satisfy the monitoring requirements of this program and OSHA are collected by a qualified individual (i.e. a Certified Industrial Hygienist) and the samples are evaluated by a qualified laboratory (i.e. accredited to ANS/ISO/IEC Standard 17025:2005 with respect to Crystalline Silica analyses by a body that is compliant with ISO/IEC Standard 17011:2004 for implementation of quality assessment programs).

Within five working days after completing an exposure assessment, Mathers Construction will individually notify each affected employee in writing of the results of that assessment or post the results in an appropriate location accessible to all affected employees.

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Whenever an exposure assessment indicates that employee exposure is above the PEL, Mathers Construction will describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

Where air monitoring is performed, Mathers Construction will provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to Respirable Crystalline Silica. When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required for any workplace hazard, Mathers Construction will provide the observer with protective clothing and equipment at no cost and shall ensure that the observer uses such clothing and equipment.


Once air monitoring has been performed, Mathers Construction will determine its method of compliance based on the monitoring data and the hierarchy of controls. Mathers Construction will use engineering and work practice controls to reduce and maintain employee exposure to Respirable Crystalline Silica to or below the PEL, unless Mathers Construction can demonstrate that such controls are not feasible. Wherever such feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, Mathers Construction will nonetheless use them to reduce employee exposure to the lowest feasible level and shall supplement them with the use of respiratory protection.

In addition to the requirements of this program, Mathers Construction will comply with other programs and OSHA standards (such as 29 CFR 1926.57 [Ventilation]), when applicable where abrasive blasting is conducted using Crystalline Silica-containing blasting agents, or where abrasive blasting is conducted on substrates that contain Crystalline Silica.

## **Control Methods**

Mathers Construction will provide control methods that are either consistent with Table 1 or otherwise minimize worker exposures to Silica. These exposure control methods can include engineering controls, work practices, and respiratory protection. Listed below are control methods to be used when Table 1 is not followed:



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List and discuss control methods


### **Respiratory Protection**

Where respiratory protection is required by this program, Mathers Construction will provide each employee an appropriate respirator that complies with the requirements of the company's Respiratory Protection Program and the OSHA Respiratory Protection Standard (29 CFR 1910.134).

Respiratory protection is required where specified by the OSHA Construction Standard Table 1, for tasks not listed in Table 1, or where the company has not fully and properly implemented the engineering controls, work practices, and respiratory protection described in Table 1. Situations requiring respiratory protection include:

- Where exposures exceed the PEL during periods necessary to install or implement feasible engineering and work practice controls;
- Where exposures exceed the PEL during tasks, such as certain maintenance and repair tasks, for which engineering and work practice controls are not feasible; and
- During tasks for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL.

### **Housekeeping**

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Mathers Construction does not allow dry sweeping or dry brushing where such activity could contribute to employee exposure to Respirable Crystalline Silica unless wet sweeping, HEPA-filtered vacuuming, or other methods that minimize the likelihood of exposure are not feasible.


Mathers Construction does not allow compressed air to be used to clean clothing or surfaces where such activity could contribute to employee exposure to Respirable Crystalline Silica unless:

- The compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air; or
- No alternative method is feasible.

### **Written Exposure Control Plan**

When employee exposure on a construction project is expected to be at or above the Action Level, a Written Exposure Control Plan (ECP) will be established and implemented. This ECP will contain at least the following elements:

- A description of the tasks in the workplace that involve exposure to Respirable Crystalline Silica;
- A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to Respirable Crystalline Silica for each task;
- A description of the housekeeping measures used to limit employee exposure to Respirable Crystalline Silica; and

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- A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to Respirable Crystalline Silica and their level of exposure, including exposures generated by other employers or sole proprietors.

The written ECP will designate a Competent Person to make frequent and regular inspections of job sites, materials, and equipment to ensure the ECP is implemented.


The written ECP will be reviewed at least annually to evaluate the effectiveness of it and update it as necessary. Having said this, ECP's are project specific and most project durations do not exceed a year. The written ECP will be readily available for examination and copying, upon request, to each employee covered by this program and/or ECP, their designated representatives, and OSHA.

### **Medical Surveillance**

Medical surveillance will be made available for each employee who will be required to use a respirator for 30 or more days per year due to their Respirable Crystalline Silica exposure. Medical surveillance (i.e. medical examinations and procedures) will be performed by a PLHCP and provided at no cost to the employee at a reasonable time and place.

Mathers Construction will 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 the OSHA Respirable Crystalline Silica Construction Standard within the last three years. The examination shall consist of:

- A medical and work history, with emphasis on past, present, and anticipated exposure to Respirable Crystalline Silica, dust, and other agents affecting the respiratory system in addition to any history of respiratory system dysfunction, including signs and symptoms

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of respiratory disease (e.g., shortness of breath, cough, wheezing), history of tuberculosis, and smoking status and history;

- A physical examination with special emphasis on the respiratory system;
- A chest X-ray (a single postero-anterior radiographic projection or radiograph of the chest at full inspiration recorded on either film [no less than 14 x 17 inches and no more than 16 x 17 inches] or digital radiography systems) interpreted and classified according to the International Labour Office (ILO) International Classification of Radiographs of Pneumoconiosis by a NIOSH-certified B Reader;
- A pulmonary function test to include forced vital capacity (FVC) and forced expiratory volume in one second (FEV1) and FEV1/FVC ratio, administered by a spirometry technician with a current certificate from a NIOSH-approved spirometry course;
- Testing for latent tuberculosis infection; and
- Any other tests deemed appropriate by the PLHCP.

Mathers Construction will make available medical examinations that include the aforementioned procedures (except testing for latent tuberculosis infection) at least every three years. If recommended by the PLHCP, periodic examinations can be more frequently than every three years.

Mathers Construction will ensure that the examining PLHCP has a copy of the OSHA Respirable Crystalline Silica Construction Standard, this program, and the following information:


- A description of the employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to Respirable Crystalline Silica;

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- The employee's former, current, and anticipated levels of occupational exposure to Respirable Crystalline Silica;
- A description of any personal protective equipment (PPE) used or to be used by the employee, including when and for how long the employee has used or will use that equipment; and
- Information from records of employment-related medical examinations previously provided to the employee and currently within the control of Mathers Construction.

Mathers Construction will ensure that the PLHCP explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of each medical examination performed. The written report shall contain:

- A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to Respirable Crystalline Silica and any medical conditions that require further evaluation or treatment;
- Any recommended limitations on the employee's use of respirators;
- Any recommended limitations on the employee's exposure to Respirable Crystalline Silica; and;
- A statement that the employee should be examined by a Specialist if the chest X-ray is classified as 1/0 or higher by the B Reader, or if referral to a Specialist is otherwise deemed appropriate by the PLHCP.

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Mathers Construction will also obtain a written medical opinion from the PLHCP within 30 days of the medical examination. The written opinion shall contain only the following in order to protect the employee's privacy:

- The date of the examination;
- A statement that the examination has met the requirements of the OSHA Respirable Crystalline Silica Construction Standard; and
- Any recommended limitations on the employee's use of respirators.

If the employee provides written authorization, the written opinion shall also contain either or both of the following:

- Any recommended limitations on the employee's exposure to Respirable Crystalline Silica; and/or
- A statement that the employee should be examined by a Specialist if the chest X-ray is classified as 1/0 or higher by the B Reader, or if referral to a Specialist is otherwise deemed appropriate by the PLHCP.

If the PLHCP's written medical opinion indicates that an employee should be examined by a Specialist, Mathers Construction will make available a medical examination by a Specialist within 30 days after receiving the PLHCP's written opinion. Mathers Construction will ensure that the examining Specialist is provided with all of the information that the employer is obligated to provide to the PLHCP.

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Mathers Construction will ensure that the Specialist explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of the examination. The written report will contain:


- A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to Respirable Crystalline Silica and any medical conditions that require further evaluation or treatment;
- Any recommended limitations on the employee's use of respirators; and
- Any recommended limitations on the employee's exposure to respirable crystalline Silica.

In addition, Mathers Construction will obtain a written opinion from the Specialist within 30 days of the medical examination. The written opinion shall contain the following:

- The date of the examination;
- Any recommended limitations on the employee's use of respirators; and
- If the employee provides written authorization, the written opinion shall also contain any recommended limitations on the employee's exposure to Respirable Crystalline Silica.

### **Hazard Communication**

Mathers Construction will include Respirable Crystalline Silica in the company's Hazard Communication Program established to comply with the OSHA Hazard Communication Standard (29 CFR 1910.1200).

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Mathers Construction will ensure that each employee has access to labels on containers of Crystalline Silica and those containers respective Safety Data Sheets (SDS's).

All employees will be trained in accordance with the provisions of the OSHA Hazard Communication Standard and the Training Section of this program. This training will cover concerns relating to cancer, lung effects, immune system effects, and kidney effects.

Mathers Construction will ensure that each employee with the potential to be exposed at or above the Action Level for Respirable Crystalline Silica can demonstrate knowledge and understanding of at least the following:

- The health hazards associated with exposure to Respirable Crystalline Silica;
- Specific tasks in the workplace that could result in exposure to Respirable Crystalline Silica;
- Specific measures Mathers Construction has implemented to protect employees from exposure to Respirable Crystalline Silica, including engineering controls, work practices, and respirators to be used;
- The contents of the OSHA Respirable Crystalline Silica Construction Standard;
- The identity of the Competent Person designated by Mathers Construction; and
- The purpose and a description of the company's Medical Surveillance Program.



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Mathers Construction will make a copy of the OSHA Respirable Crystalline Silica Construction Standard readily available without cost to any employee who requests it.

### **Recordkeeping**

Mathers Construction will make and maintain an accurate record of all exposure measurements taken to assess employee exposure to Respirable Crystalline Silica. This record will include at least the following information:

- The date of measurement for each sample taken;
- The task monitored;
- Sampling and analytical methods used;
- Number, duration, and results of samples taken;
- Identity of the laboratory that performed the analysis;
- Type of personal protective equipment (PPE), such as respirators, worn by the employees monitored; and
- Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

Mathers Construction will ensure that exposure records are maintained and made available in accordance with 29 CFR 1910.1020. Exposure records will be kept for at least 30 years.

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The employer shall make and maintain an accurate record of all objective data relied upon to comply with the requirements of the OSHA Respirable Crystalline Silica Construction Standard. This record shall include at least the following information:

- The Crystalline Silica-containing material in question;
- The source of the objective data;
- The testing protocol and results of testing;
- A description of the process, task, or activity on which the objective data were based; and
- Other data relevant to the process, task, activity, material, or exposures on which the objective data were based.

Mathers Construction will ensure that objective data are maintained and made available in accordance with 29 CFR 1910.1020. Objective data records will be kept for at least 30 years.

Mathers Construction will make and maintain an accurate record for each employee enrolled in the Medical Surveillance portion of this program. The record shall include the following information about the employee:

- Name and social security number;
- A copy of the PLHCPs' and/or Specialists' written medical opinions; and

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- A copy of the information provided to the PLHCPs and Specialists.

Mathers Construction will ensure that medical records are maintained and made available in accordance with 29 CFR 1910.1020. Medical records will be kept under lock and key for at least the duration of employment plus 30 years. It is necessary to keep these records for extended periods because Silica-related diseases such as cancer often cannot be detected until several decades after exposure. However, if an employee works for an employer for less than one year, the employer does not have to keep the medical records after employment ends, as long as the employer gives those records to the employee.

## PROGRAM EVALUATION

This program will be reviewed and evaluated on an annual basis by the EHS Department unless changes to operations, the OSHA Respirable Crystalline Silica Construction Standard (29 CFR 1926.1153), or another applicable OSHA Standard require an immediate re-validation of this program.

## APPLICABLE FORMS

The following lists applicable forms relating to this program.


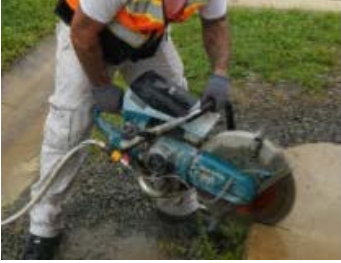
## APPENDICES



APPENDIX A - Silica Control Measures (Recalculated Table 1)\_ Field Handout



# APPENDIX A


## Silica Control Measures (Recalculated Table 1) Required Engineering Controls and Respiratory Protection for Silica



The engineering controls and respiratory protection identified below must be used as the selection basis for work practices, controls, and personal protective equipment (PPE). However, if controls and PPE other than these are used, then exposure assessments must be conducted to demonstrate compliance with American Conference of Government Industrial Hygienists (ACGIH) threshold limit values (TLVs) per OPP 650-11 [Silica Exposure Prevention and Control](#). The industrial hygiene (IH) program lead must use good IH judgment to determine when to periodically conduct confirmatory sampling of tasks conducted under this table. Use the highlighted links to Occupational Safety and Health Administration (OSHA) fact sheets for equipment listed in this table.  
Key: APF = assigned protection factor.

Equipment/Use	Photo of representative equipment	Engineering and work practice control methods <ul style="list-style-type: none"> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>Operate and maintain machine to minimize dust emissions</li> </ul>	NREL Respiratory Protection for compliance with ACGIH TLV of 25 µg/m <sup>3</sup>		
			<2hr./shift	2-4 hr./shift	>4 hr./shift
<p><b>1</b> <b>Handheld and Stand-Mounted Drills</b> (including impact and rotary hammer drills) [Per 29 CFR 1926.1153 c.1. vii]</p>		<p><a href="https://www.osha.gov/Publications/silica/OSHA_FS-3630.pdf">https://www.osha.gov/Publications/silica/OSHA_FS-3630.pdf</a></p> <p>Use drill equipped with commercially available shroud or cowling with dust collection system. 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. 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 high-efficiency particulate air (HEPA)-filtered vacuum when cleaning holes. Verify that:</p> <ul style="list-style-type: none"> <li>The shroud or cowling is intact and installed in accordance with the manufacturer's instructions;</li> <li>The hose connecting the tool to the vacuum is intact and without kinks or tight bends;</li> <li>The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions; and</li> <li>The dust collection bags are emptied to avoid overfilling.</li> </ul>	None	None	APF 10
<p><b>2</b> <b>Handheld Power Saws</b> (any blade diameter) [Per 29 CFR 1926.1153 c.1. ii]</p>		<p><a href="https://www.osha.gov/Publications/silica/OSHA_FS-3627.pdf">https://www.osha.gov/Publications/silica/OSHA_FS-3627.pdf</a></p> <p>Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Verify that:</p> <ul style="list-style-type: none"> <li>An adequate supply of water for dust suppression is used;</li> <li>The spray nozzle is working properly to apply water at the point of dust generation;</li> <li>The spray nozzle is not clogged or damaged;</li> <li>Hoses and connections are intact.</li> </ul> <p>When used outdoors:</p>	None	APF 10	APF 25
		<p>When used indoors or in an enclosed area (outdoor requirements above apply as well).</p>	APF 10	APF 25	APF 25




Equipment/Use	Photo of representative equipment	<b>Engineering and work practice control methods</b> <ul style="list-style-type: none"> <li>• Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>• Operate and maintain machine to minimize dust emissions</li> </ul>	<b>NREL Respiratory Protection</b> for compliance with ACGIH TLV of 25 µg/m <sup>3</sup>		
			<2hr./shift	2-4 hr./shift	>4 hr./shift
<b>3</b> <b>Handheld Power Saws</b> for cutting fiber cement board (with blade diameter of 8 inches or less) [Per 29 CFR 1926.1153 c.1. iii]		<a href="https://www.osha.gov/Publications/OSHA3927.pdf">https://www.osha.gov/Publications/OSHA3927.pdf</a> For tasks performed outdoors only: Use saw equipped with commercially available dust collection system. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency. Verify that: <ul style="list-style-type: none"> <li>• The shroud or cowl is intact and installed in accordance with the manufacturer's instructions;</li> <li>• The hose connecting the tool to the vacuum is intact and without kinks or tight bends;</li> <li>• The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions to prevent clogging; and</li> <li>• The dust collection bags are emptied to avoid overfilling.</li> </ul>	None	None	APF 10
<b>4</b> <b>Handheld Grinders</b> for mortar removal ( <i>i.e.</i> , tuckpointing) [Per 29 CFR 1926.1153 c.1.xi]		<a href="https://www.osha.gov/Publications/silica/OSHA_FS-3632.pdf">https://www.osha.gov/Publications/silica/OSHA_FS-3632.pdf</a> Use grinder equipped with commercially available shroud and dust collection system. 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. Verify that: <ul style="list-style-type: none"> <li>• The shroud is intact, encloses most of the grinding blade, and is installed in accordance with the manufacturer's instructions;</li> <li>• The hose connecting the tool to the vacuum is intact and without kinks or tight bends;</li> <li>• The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions;</li> <li>• The dust collection bags are emptied to avoid overfilling;</li> <li>• The blade is kept flush against the surface when possible; and</li> <li>• The tool is operated against the direction of blade rotation, when practical.</li> </ul>	APF 10	APF 25	APF 50



Equipment/Use	Photo of representative equipment	Engineering and work practice control methods	NREL Respiratory Protection for compliance with ACGIH TLV of 25 µg/m <sup>3</sup>		
			<2hr./shift	2-4 hr./shift	>4 hr./shift
<p><b>5</b> <b>Handheld Grinders</b> for uses other than mortar removal [Per 29 CFR 1926.1153 c.1.xii]</p>		<p><a href="https://www.osha.gov/Publications/silica/OSHA_FS-3628.pdf">https://www.osha.gov/Publications/silica/OSHA_FS-3628.pdf</a> Use a grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. Verify that:</p> <ul style="list-style-type: none"> <li>• An adequate supply of water for dust suppression is used;</li> <li>• The spray nozzles are working properly and produce a pattern that applies water at the point of dust generation;</li> <li>• The spray nozzles are not clogged or damaged; and</li> <li>• Hoses and connections are intact.</li> </ul> <p>Or use a grinder equipped with commercially available shroud and dust collection system. Dust collector must provide 25 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. Verify that:</p> <ul style="list-style-type: none"> <li>• The shroud is intact and installed in accordance with the manufacturer's instructions;</li> <li>• The hose connecting the tool to the vacuum is intact and without kinks or tight bends;</li> <li>• The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions; and</li> <li>• The dust collection bags are emptied to avoid overfilling.</li> </ul> <p>For tasks performed outdoors only:</p>	None	None	APF 10
		<p>When used indoors or in an enclosed area (above conditions for outdoor tasks apply as well).</p>	None	APF 10	APF 25
<p><b>6</b> <b>Stationary Masonry Saws</b> [Per 29 CFR 1926.1153 c.1. i]</p>		<p><a href="https://www.osha.gov/Publications/silica/OSHA_FS-3631.pdf">https://www.osha.gov/Publications/silica/OSHA_FS-3631.pdf</a> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Verify that:</p> <ul style="list-style-type: none"> <li>• An adequate supply of water for dust suppression is used;</li> <li>• The spray nozzle is working properly to apply water at the point of dust generation;</li> <li>• The spray nozzle is not clogged or damaged;</li> <li>• Hoses and connections are intact.</li> </ul>	None	None	APF 10



Equipment/Use	Photo of representative equipment	Engineering and work practice control methods <ul style="list-style-type: none"> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>Operate and maintain machine to minimize dust emissions</li> </ul>	NREL Respiratory Protection for compliance with ACGIH TLV of 25 µg/m <sup>3</sup>		
			<2hr./shift	2-4 hr./shift	>4 hr./shift
<p>7  <b>Jackhammers and Handheld Powered Chipping Tools</b>  [Per 29 CFR 1926.1153 c.1.x]</p>		<a href="https://www.osha.gov/Publications/silica/OSHA_FS-3629.pdf">https://www.osha.gov/Publications/silica/OSHA_FS-3629.pdf</a> Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact. Verify that: <ul style="list-style-type: none"> <li>An adequate supply of water for dust suppression is used;</li> <li>The water sprays are working properly and produce a pattern that applies water at the point of dust generation;</li> <li>The spray nozzles are not clogged or damaged; and</li> <li>Hoses and connections are intact.</li> </ul> When used outdoors:	None	APF 10	APF 25
		-When used indoors or in an enclosed area (conditions above for outdoor tasks apply).	APF 10	APF 25	APF 25
		Use tool equipped with commercially available shroud and dust collection system. 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. Verify that: <ul style="list-style-type: none"> <li>The shroud is intact and installed in accordance with the manufacturer's instructions;</li> <li>The hose connecting the tool to the vacuum is intact and without kinks or tight bends;</li> <li>The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions; and</li> <li>The dust collection bags are emptied to avoid overfilling.</li> </ul> -When used outdoors.	None	APF 10	APF 25
		-When used indoors or in an enclosed area (conditions above for outdoor tasks apply).	APF 10	APF 25	APF 25



Equipment/Use	Photo of representative equipment	<b>Engineering and work practice control methods</b> <ul style="list-style-type: none"> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>Operate and maintain machine to minimize dust emissions</li> </ul>	<b>NREL Respiratory Protection</b> for compliance with ACGIH TLV of 25 µg/m <sup>3</sup>		
			<2hr./shift	2-4 hr./shift	>4 hr./shift
<b>8</b> <b>Walk-behind Saws</b> [Per 29 CFR 1926.1153 c.1. iv]		<a href="https://www.osha.gov/Publications/silica/OSHA_FS-3633.pdf">https://www.osha.gov/Publications/silica/OSHA_FS-3633.pdf</a> Use saw equipped with integrated water delivery system that continuously feeds water to the blade. (OSHA: <4hr- none; >4hr- none) Verify that: <ul style="list-style-type: none"> <li>An adequate supply of water for dust suppression is used;</li> <li>The spray nozzles are working properly to apply water at the point of dust generation;</li> <li>The spray nozzles are not clogged or damaged; and</li> <li>Hoses and connections are intact.</li> </ul> When used outdoors:	None	None	APF 10
		When used indoors or in an enclosed area (conditions above for outdoor tasks apply).	APF 10	APF 25	APF 25
<b>9</b> <b>Walk-behind milling machines and floor grinders</b> [Per 29 CFR 1926.1153 c.1.xiii]		<a href="https://www.osha.gov/Publications/OSHA3932.pdf">https://www.osha.gov/Publications/OSHA3932.pdf</a> Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. Verify that: <ul style="list-style-type: none"> <li>An adequate supply of water for dust suppression is used;</li> <li>The spray nozzles are working properly and produce a pattern that applies water at the point of dust generation;</li> <li>The spray nozzles are not clogged or damaged; and</li> <li>Hoses and connections are intact.</li> </ul>	None	None	APF 10
		Use machine equipped with dust collection system recommended by the manufacturer. 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. Verify that: <ul style="list-style-type: none"> <li>The hose connecting the tool to the vacuum is intact and without kinks or tight bends;</li> <li>The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions to prevent clogging; and</li> <li>The dust collection bags are emptied to avoid overfilling.</li> </ul> When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.	None	None	APF 10



Equipment/Use	Photo of representative equipment	<b>Engineering and work practice control methods</b> <ul style="list-style-type: none"> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>Operate and maintain machine to minimize dust emissions</li> </ul>	<b>NREL Respiratory Protection</b> for compliance with ACGIH TLV of 25 µg/m <sup>3</sup>		
			<2hr./shift	2-4 hr./shift	>4 hr./shift
<b>10</b> <b>Drivable Saws</b>  [Per 29 CFR 1926.1153 c.1. v]		<a href="https://www.osha.gov/Publications/OSHA3928.pdf">https://www.osha.gov/Publications/OSHA3928.pdf</a> For tasks performed outdoors only: Use saw equipped with integrated water delivery system that continuously feeds water to the blade. Verify that: <ul style="list-style-type: none"> <li>An adequate supply of water for dust suppression is used;</li> <li>The spray nozzles produce a pattern that applies the water at the point of dust generation;</li> <li>The spray nozzles are not clogged or damaged; and</li> <li>Hoses and connections are intact.</li> </ul>	None	None	APF 10
<b>11</b> <b>Rig-mounted Core Saws or Drills</b> [Per 29 CFR 1926.1153 c.1. vi]		<a href="https://www.osha.gov/Publications/OSHA3929.pdf">https://www.osha.gov/Publications/OSHA3929.pdf</a> Use tool equipped with integrated water delivery system that supplies water to cutting surface. Verify that: <ul style="list-style-type: none"> <li>An adequate supply of water for dust suppression is used;</li> <li>The spray nozzles produce a pattern that applies water at the point of dust generation;</li> <li>The spray nozzles are not clogged or damaged; and</li> <li>Hoses and connections are intact.</li> </ul>	None	None	APF 10
<b>12</b> <b>Dowel Drilling Rigs for Concrete</b> [Per 29 CFR 1926.1153 c.1. viii]		<a href="https://www.osha.gov/Publications/OSHA3930.pdf">https://www.osha.gov/Publications/OSHA3930.pdf</a> 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. Verify that: <ul style="list-style-type: none"> <li>The shroud is intact and installed in accordance with the manufacturer's instructions;</li> <li>The hose connecting the tool to the vacuum is intact and without kinks or tight bends;</li> <li>The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions; and</li> <li>The dust collection bags are emptied to avoid overfilling.</li> </ul>	APF 10	APF 25	APF 25

Equipment/Use	Photo of representative equipment	<b>Engineering and work practice control methods</b> <ul style="list-style-type: none"> <li>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>Operate and maintain machine to minimize dust emissions</li> </ul>	<b>NREL Respiratory Protection</b> for compliance with ACGIH TLV of 25 µg/m <sup>3</sup>		
			<2hr./shift	2-4 hr./shift	>4 hr./shift
<b>13</b> <b>Vehicle-mounted Drilling Rigs for Rock and Concrete</b> [Per 29 CFR 1926.1153 c.1.ix]		<a href="https://www.osha.gov/Publications/OSHA3931.pdf">https://www.osha.gov/Publications/OSHA3931.pdf</a> 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. Verify that: <ul style="list-style-type: none"> <li>The shroud or hood is intact and installed in accordance with the manufacturer's instructions;</li> <li>The hose connecting the tool to the vacuum is intact and without kinks or tight bends;</li> <li>The filter(s) on the vacuum are cleaned or changed in accordance with the manufacturer's instructions; and</li> <li>The dust collection bags are emptied to avoid overfilling.</li> </ul>	None	None	APF 10
		Operate from within an enclosed cab and use water for dust suppression on drill bit. Verify that: <ul style="list-style-type: none"> <li>An adequate supply of water for dust suppression is used;</li> <li>The spray nozzles are working properly and produce a pattern that applies water on the discharge point from the dust collector;</li> <li>The spray nozzles are not clogged or damaged; and</li> <li>Hoses and connections are intact.</li> </ul>	None	None	APF 10
<b>14</b> <b>Small Drivable Milling Machines (less than half-lane)</b> [Per 29 CFR 1926.1153 c.1.xiv]		<a href="https://www.osha.gov/Publications/OSHA3933.pdf">https://www.osha.gov/Publications/OSHA3933.pdf</a> Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant. Verify that: <ul style="list-style-type: none"> <li>An adequate supply of water for dust suppression is used;</li> <li>The spray nozzles are working properly and produce a pattern that applies water at the point of dust generation;</li> <li>The spray nozzles are not clogged or damaged; and</li> <li>Hoses and connections are intact.</li> </ul>	None	None	APF 10

Equipment/Use	Photo of representative equipment	Engineering and work practice control methods <ul style="list-style-type: none"> <li>• Operate and maintain tool in accordance with manufacturer’s instructions to minimize dust emissions.</li> <li>• Operate and maintain machine to minimize dust emissions</li> </ul>	NREL Respiratory Protection for compliance with ACGIH TLV of 25 µg/m <sup>3</sup>		
			<2hr./shift	2-4 hr./shift	>4 hr./shift
<b>15</b> <b>Large Drivable Milling Machines (half-lane and larger)</b> [Per 29 CFR 1926.1153 c.1.xv]		<a href="https://www.osha.gov/Publications/OSHA3934.pdf">https://www.osha.gov/Publications/OSHA3934.pdf</a> 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.	None	None	APF 10
		For cuts of four inches in depth or less on a substrate: Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust.	None	None	APF 10
		For cuts of four inches in depth or less on a substrate: Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant. 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	APF 10
<b>16</b> <b>Crushing machines</b> [Per 29 CFR 1926.1153 c.1. xvi]		<a href="https://www.osha.gov/Publications/OSHA3935.pdf">https://www.osha.gov/Publications/OSHA3935.pdf</a> 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). OSHA: <4hr- none; >4hr- none Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote-control station. Verify that: <ul style="list-style-type: none"> <li>• Nozzles are located upstream of dust generation points and positioned to thoroughly wet the material;</li> <li>• The volume and size of droplets is adequate to sufficiently wet the material (optimal droplet size is between 10 and 150 µm); and</li> <li>• 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.</li> </ul>	None	None	APF 10

Equipment/Use	Photo of representative equipment	Engineering and work practice control methods <ul style="list-style-type: none"> <li>• Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.</li> <li>• Operate and maintain machine to minimize dust emissions</li> </ul>	NREL Respiratory Protection for compliance with ACGIH TLV of 25 µg/m <sup>3</sup>		
			<2hr./shift	2-4 hr./shift	>4 hr./shift
<b>17</b> <b>Heavy Equipment and Utility Vehicles</b> used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials [Per 29 CFR 1926.1153 c.1.xvii]		<a href="https://www.osha.gov/Publications/OSHA3936.pdf">https://www.osha.gov/Publications/OSHA3936.pdf</a> Operate equipment from within an enclosed cab. When workers outside the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None	APF 10
<b>18</b> <b>Heavy Equipment and Utility Vehicles</b> for tasks such as grading and excavating but not including: Demolishing, abrading, or fracturing silica-containing materials [Per 29 CFR 1926.1153 c.1. xviii]		<a href="https://www.osha.gov/Publications/OSHA3937.pdf">https://www.osha.gov/Publications/OSHA3937.pdf</a> Apply water and/or dust suppressants as necessary to minimize dust emissions or	None	None	APF 10
		When the equipment operator is the only worker engaged in the task, operate equipment from within an enclosed cab.	None	None	APF 10

When implementing the control measures specified in the table, each worker must:

- For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust.
- For tasks performed using wet methods, apply water at flow rates adequate to minimize the release of visible dust.
- For measures implemented that include an enclosed cab or booth, verify that the enclosed cab or booth:
  - Is maintained as free as practicable from settled dust
  - Has door seals and closing mechanisms that work properly
  - Has gaskets and seals that are in good condition and working properly
  - Is under positive pressure maintained through continuous delivery of fresh air
  - Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 µm range (e.g., minimum efficiency reporting value of 16 or better); and
  - Has heating and cooling capabilities.
- Where a worker performs more than one task on the table during a shift, and the total duration of 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 tasks in the table 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.

## Basis for NREL Adopted Respiratory Protection APF

The NREL adopted APF modifies the OSHA APF for compliance with the ACGIH TLV of 25 µg/m<sup>3</sup>. OSHA permissible exposure limit (PEL) is used to back calculate the maximum concentration associated with the controls listed—time, respirator, or time and respirator. Choose the concentration associated with the same controls when performing the calculation to achieve 25 µg/m<sup>3</sup>.

For tasks where OSHA did not restrict exposure duration (time) or require respirators, assumed maximum concentration is 50 µg/m<sup>3</sup>. This applies to row one (green row) tasks. Equations reflect control fir time first (divide by 4 or 2), then a second division for respirator.

Note:


Division by 2 accounts for four-hour exposure duration versus the PEL-based eight-hour exposure.

Division by 4 accounts for two-hour exposure duration.

Division by 10, 25, or 50 accounts for the respirator APF reduction.

OSHA PEL = 50 µg/m <sup>3</sup>		ACGIH TLV = 25 µg/m <sup>3</sup>			OSHA Table 1 Tasks
≤ 4 hours/shift	> 4 hours/shift	≤ 2 hours/shift	≤ 4 hours/shift	> 4 hours/shift	
None*	None*	None	None	APF 10	3,4,5, 12 outdoors,
<b>50 µg/m<sup>3</sup></b>	<b>50 µg/m<sup>3</sup></b>	50/4 = 12.5	50/2 = 25	50/10 = 5	1, 6, 7, 9 13, 14, 15, 16, 17, 18
None (time only)	APF 10 (respirator only)	None	APF 10	APF 25	2 outdoors,
100-2 = 50 <b>100 µg/m<sup>3</sup></b>	500/10 = 50 <b>500 µg/m<sup>3</sup></b>	100/4 = 25	100/2 – 50 500/2/10 = 25	500/10 = 50 500/25 = 20	10 outdoors, 12 indoors/enclosed
APF 10 (time and respirator)	APF 10 (respirator only)	APF 10	APF 25	APF 25	2 indoors/enclosed 4 indoors/enclosed
1000/2/10 = 50 <b>1000 µg/m<sup>3</sup></b>	500/10 = 50 <b>500 µg/m<sup>3</sup></b>	1000/4/10 = 25	1000/2/10 = 50 APF 10 not protective enough 1000/2/25 = 20	500/10 = 50 500/25 = 20	8 outdoors 10 indoors/enclosed
APF 10 (time and respirator)	APF 25 (respirator only)	APF 10	APF 25	APF 50	11
1000/2/10 = 50 <b>1000 µg/m<sup>3</sup></b>	1250/25 = 50 <b>1250 µg/m<sup>3</sup></b>	1000/4/10 = 25	1000/2/10 = 50 1000/2/25 = 20	1250/25 = 50 1250/50 = 25	

In the Preamble to 29 CFR 1925.1153 in the Federal Register Vol. 81, No. 58 (pages 16461-16463), OSHA discussed the adequacy of use of 29 CFR 1925.1153c.1 Table 1 for compliance with the OSHA action level of 25 µg/m<sup>3</sup>. The OSHA table does not ensure compliance with 25 µg/m<sup>3</sup>. The OSHA action level and the ACGIH TLV are both 25 µg/m<sup>3</sup>, thus this comparison is appropriate to be used for U.S. Department of Energy-mandated ACGIH TLV. To address the lower TLV value, when OSHA's Table 1 provided an APF, NREL has reduced the exposure time or increased the APF value as necessary to stay within the 25 µg/m<sup>3</sup> TLV. For instance, if the OSHA Table 1 listed APF = 10, NREL set the APF = 25-50 to stay within the TLV. When OSHA listed "None" for eight hours, NREL may have adopted APF = 10 as needed. NREL added the <2 hour/shift column to allow safe exposure without respiratory protection when possible.

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		Revision Date:	9/1/2020
<b>HEXAVALENT CHROMIUM STANDARD</b>			
Prepared By:	Ashley L. Gauldin, E.H.S Director	Page:	1

Pursuant to OSHA Standard, Mathers shall ensure that no employee is exposed to an airborne concentration of Chromium (VI) in excess of 5 micrograms per cubic meter of air ( $5 \mu\text{g}/\text{m}^3$ ), calculated as an 8-hour time-weighted average (TWA).

Mathers will perform initial monitoring to determine the 8-hour TWA for each employee with potential exposure to Chromium (VI). Representative sampling may also be performed in specific work areas, where the employee(s) expected to have the highest exposure levels will be sampled.

If initial monitoring indicates that employee exposure levels are below the action level ( $2.5 \mu\text{g}/\text{m}^3$ ), Mathers will discontinue monitoring on those employees. Monitoring will resume if conditions change.


If initial monitoring indicates that employee exposure levels are at or above the action level, Mathers will perform periodic monitoring at least every six months.

If initial monitoring indicates that employee exposure levels are at or above the PEL, Mathers will perform periodic monitoring at least every three months.

Employees will be notified in writing within 15 work days after an exposure determination is made.

Whenever the exposure is determined to be above the PEL, Mathers will institute engineering and work practice controls to reduce and maintain employee exposure below that level. These controls include prevention of Chromium (VI) release, improved ventilation, and stopping of the Chromium (VI) generating activity to reduce exposure.

Whenever engineering and work practice controls are ineffective at reducing exposure below PEL, Mathers will reduce employee exposure to lowest levels possible and supplement with respiratory protection.


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		Initial Issue:	
		Revision Date:	9/1/2020
<b>LEAD AND ASBESTOS PROCEDURE</b>			
Prepared By:	Ashley L. Gauldin, E.H.S Director	Page:	1

The following three statements are included in all Mathers Construction Team contracts to do work:

1. A Hazardous Material is any substance or material identified now or in the future as Hazardous under any Laws or any other substance or material which may be considered Hazardous or otherwise subject to statutory or regulatory requirements governing handling, disposal or clean-up. Mathers Construction Team shall not be obligated to commence or continue work until any Hazardous Material, including Lead and Asbestos, discovered at the worksite has been removed, rendered or determined to be harmless as certified by an independent testing laboratory
2. After commencing the work, if Hazard Material is discovered at the Project, Mathers Construction Team shall be entitled to immediately stop work in the affected area. Mathers Construction team shall promptly report the condition to the Owner or his/her representative.
3. The Owner shall be responsible for retaining an independent testing laboratory to determine the nature of the material encountered and whether it is Hazardous Material requiring corrective measures or remedial action. Such measures shall be the sole responsibility of the Owner and shall be performed in a manner minimizing any adverse effect upon the work of Mathers Construction Team.
4. On multi contractor worksites employees will follow same procedure. Pre work discussion with other contractor and owners will identify possible hazards. Exposure will result in immediate stop work until remediation.

All Mathers employees shall receive at hire training and annual training for Lead and Asbestos that includes the following:

1. Adverse hazards of Lead and Asbestos.
  - a. Lead: nausea, fatigue, anemia, reproductive system issues, etc.
  - b. Asbestos: known carcinogen
2. Description of Lead and Asbestos and areas or equipment where they may be found.
  - a. Lead: leaded paints, leaded solders, pipes, batteries, circuit boards, cathode ray tubes, leaded glass, and demolition/salvage materials.


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- b. Asbestos: ceiling tile, floor tiles, insulation, roofing, drywall, etc
3. What to do if asbestos or lead is suspected to be in the work area.

Employee Protection Measures:

1. No employee shall be exposed to a PEL of lead of fifty micrograms per cubic meter of air.
2. If lead is suspected in work area, air monitoring shall be performed to determine concentrations and remediated accordingly.
  - a. Should initial air monitoring be above the action level, monitoring shall be conducted every six months until two consecutive results are below the action level.
  - b. Employees shall be notified in writing of the air monitoring results and corrective actions taken.
  - c. A site specific compliance program shall be developed and implemented to reduce exposures to or below permissible limits.
  - d. Employees shall be trained and fit tested for respirator use during the time period necessary to install or implement engineering or work practice controls, where engineering and work practice controls are insufficient, and in emergencies.
  - e. PPE necessary to work in such conditions shall be provided to employees at no cost to them.
  - f. A medical surveillance program will be implemented for all employees who are or may be exposed above the action level for more than 30 days.
    - i. Blood sampling & monitoring shall be conducted every 6 months until two consecutive blood samples & analysis are acceptable. The sampling & monitoring should be performed at least monthly during the removal period. Any employee with elevated blood levels should be temporarily removed. Employees should be notified in writing within five days when lead levels are not acceptable. The standard requires temporary medical removal with Medical Removal Protection benefits
    - ii. Lunch rooms, changing, shower, and hygiene facilities will be proved when employee exposure to lead is above the PEL.
    - iii. Signs will be posted in and around the regulated work area.




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**\*EMERGENCY\*** If exposure occurs:

- 1: Wash hands, face, and other contact areas immediately
2. Contact supervisor and safety personnel.
3. Supervisor will STOP work IMMEDIATELY

Training documents will be kept according the OSHA, VOSH, and Mathers policy.

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		Initial Issue:	
		Revision Date:	9/1/2020
<b>BLOOD-BORNE PATHOGENS PROCEDURE</b>			
Prepared By:	Ashley L. Gauldin, E.H.S Director	Page:	1

### I. Introduction

The Occupational Safety and Health Act (OSHA) 1910.1030, requires that an employee exposed to blood and other infectious materials be advised of the hazards associated with potential blood-borne pathogens and be trained in how to guard against these hazards. There is not a specific OSHA Standard in the 1926 Construction Safety Standards to cover Blood-borne Pathogens exposure. Some examples of where training may be needed include, work in laboratories where infectious materials are utilized, hospitals and for those responsible for administering on-site first aid. 1910.1030 further requires an exposure control plan, training program and a labeling system be developed for all infectious materials in such instances. The following information describes the specifics of the Blood-borne Pathogens Program in greater detail. Mathers recognizes that employees assigned to provide First Aid could have an exposure to Blood-borne Pathogens. Training relative to this exposure will be provided as part of and included in the First Aid Training course.


### II. Exposure Control Plan, when applicable to expected exposures

When there is a potential exposure identified other than assigned First Aid responders, Mathers will be responsible for developing and maintaining the Exposure Control Plan to include a list of tasks that could reasonably be anticipated to involve occupational Exposure to blood or other infectious materials. Methods to control exposure and means to train applicable employees, medically evaluate those employees and maintain medical records will be implemented.

The Blood-borne Pathogen Exposure Control Plan should be periodically reviewed for compliance and updated as necessary. This is to occur annually and/or when conditions, tasks, employees involved or procedures change.

### III. Employee Training Program

All affected employees shall have access to a copy of the Blood-borne Pathogen Exposure Control Plan. Orientation sessions will take place prior to work assignment that discuss the hazardous tasks present in their work place, potential health risks of

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these tasks, how to identify hazardous condition, methods to reduce risk and appropriate control procedures and what to do if an exposure occurs. Employees will be trained on how to interpret the task list and Exposure Control Plan, as well as how to review tasks to minimize the potential hazards of infection. If a task involves the handling of blood and other infectious materials, employees must know how those materials are to be contained, labeled and properly disposed. The necessity for proper housekeeping and personal hygiene techniques, including hand washing, will be emphasized. Such training shall be conducted prior to the employees initial assignment and within one year of previous training.


#### IV. Hazardous Non-Routine Tasks and Nearby Work

In the event an employee is assigned to perform a non-routine task, a specialized task or is assigned to work in an area where special hazards exist, they should be given additional training on the hazards associated with these tasks/areas. Examples of specialized training include work in HIV or HBV research labs and production facilities. The information will include the specific hazards of the task, the controls and protective measures required, the types of personal protective equipment required.

Additional information should include the use of equipment, the nature of other work being performed in or near the non-routine task, and any emergency procedures required for the task. Contact the Safety Director to coordinate the required training.

#### V. Universal Precautions

Universal precautions will be followed on all tasks involving blood or other infectious material. This means that all blood and potentially infectious material are treated as if they contain HIV, HBV and other blood-borne pathogens. Particular attention should be given to contaminated sharp objects that may penetrate the skin including, but not limited

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to, needles, broken glass, and exposed ends of wires. Work practices and engineering controls should be followed diligently, including:

- The provision and use of latex gloves
- Masks and eye protection
- Resuscitation bags and mouthpieces

Universal Precautions (cont'd)

- Gowns, aprons or specialized clothing where required by established engineering practices


When the possibility of occupational exposure is present, the above mentioned PPE shall be provided at no cost to the employee. Such PPE shall be repaired and replaced as needed to maintain its effectiveness.

- Hand-washing facilities are provided at all jobsites per OSHA requirements (washing hands is recommended for a minimum of 30 seconds)
- Other decontamination where required by established engineering practices
- Use and provision of sharps containers
- Good hygiene practices – no smoking, eating, drinking or handling contact lenses in these areas

Decontamination of the above personal protective items should be conducted by trained personnel following approved procedures. Disposable items should be discarded into red bags or properly labeled containers and delivered for disposal as required elsewhere in this program. Reusable items and any work areas contaminated by blood and other infectious materials should be cleaned and disinfected with an appropriate solution consisting of a strong concentration of chlorine bleach or suitable alternative.

If cleaning blood:

- Put on latex or other protective surgical type glove and other PPE as required
- Carefully cover the spill with paper towels or rags

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- Gently pour the decontamination solution over the rags or towels until Saturated; the decontamination solution should be a solution of 5.25% sodium hypochlorite mixed at a 1:10 – 1:100 ratio with water (standard practice is ¼ cup of bleach per gallon of water)
- Lysol or other EPA registered tuberculoidal disinfectant; check the label to ensure it meets this standard
- Leave for at least 10 minutes to ensure that all blood-borne pathogens are killed
- Wipe up and dispose of properly

#### VI. Hepatitis B Vaccination

Hepatitis B vaccinations should be made available to all affected employees within 10 working days of assignment to the applicable task. These vaccinations will be at no cost to the employee, at a reasonable time and place, under the supervision of a licensed physician or health care professional and according to the latest recommendations of the U.S. Public Health Service (USPHS). Prescreening may not be required as a condition of receiving the vaccine. Should booster doses later be recommended by the USPHS, they must be offered to employees.

#### VII. Post-Exposure Evaluation and Follow-Up


In the event an employee is exposed or potentially exposed to blood or infectious material, an exposure report should be completed and immediate notification given to the Safety Director. Additionally, a confidential medical evaluation and follow-up should be made immediately available to the exposed employee by the employer. These medical evaluations must be conducted by an accredited laboratory and offered at no cost to the employee. Follow-up procedures must include: a confidential medical evaluation documenting the circumstances of exposure; identifying and testing the source individual, if feasible; testing the exposed employee's blood (if consented by the employee); post-exposure prophylaxis counseling; and evaluation of reported illnesses. All diagnoses must remain confidential.

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#### VIII. Record Keeping

Mathers will establish and maintain an accurate medical record of each employee with an occupational exposure to blood and other infectious materials for the duration of employment plus 30 years. These records must remain confidential and may only be disclosed or reported to any party with the expressed consent of the employee. Medical records must be made available to the employee at their request.

Training records should include the date, agenda, instructor's name and attendance list. These records are to be maintained for 3 years.

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<b>INFECTIOUS DISCEASE (COVID-19) PREPAREDNESS AND RESPONSE PLAN TEMPLATE</b>			
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## I. Purpose

This plan describes the implementation of mandatory health and safety requirements established by the Virginia Department of Labor and Industry, Governor Northam’s COVID-19 Executive Order and subsequent Addendum as well as guidelines from the Centers for Disease Control.

## II. Responsibilities

**Mathers Construction Team** has assigned the following individual(s) to serve in the role of health officer. The health officer has the authority to stop or alter activities to ensure that all work practices conform to the mandatory safety and health requirements applicable to COVID-19 as well as any other infectious disease hazards.

Health Officer(s)			
Name	Title	Department	Phone Number
Ashley Gauldin	EHS Director	EHS	5406495237
Maurice Donikins El	EHS Superintendent	EHS	
Kenny Stevens	EHS Superintendent	EHS	
Jonathan Favia	EHS Coordinator	EHS	
Jerome Cockran	EHS Coordinator	EHS	
Linda Kirby	EHS Coordinator	EHS	
Jack Kyle	EHS Superintendent	EHS	
Kirsten Carr	EHS Superintendent	EHS	
Evan Olivier	EHS Superintendent	EHS	

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For the purpose of ensuring compliance with the most recent safety and health requirements, **Ashley L Gauldin, EHS Director** is responsible for administering this plan, monitoring agencies for new requirements, updating this plan, communicating any changes to employees, and monitoring the overall effectiveness of the plan. This person is also responsible for providing employees with a copy of this plan upon request.

### III. Determination of Exposure Risk by Job Duty

We have determined the COVID-19 exposure risk level of all worksite functions to ensure that we apply appropriate hazard controls – including training, equipment, and personal protective equipment (PPE) – to protect employees’ safety and health. This assessment is based on OSHA Publication 3990. Classes of employees have been assigned to risk categories as follows:

*Exposure Risk Level means an assessment of the possibility that an employee could be exposed to the hazards associated with SARS-CoV-2 virus and the COVID-19 disease. Hazards and job tasks have been divided into four risk exposure levels: “Very High”, “High”, “Medium”, and “Lower”.*


**“Very High”** exposure risk hazards or job tasks are those in places of employment with high potential for employee exposure to known or suspected sources of the SARSCoV-2 virus and the COVID-19 disease including, but not limited to, during specific medical, postmortem, or laboratory procedures (refer to page 8 of the 16 VAC 25-220, Emergency Temporary Standard/Emergency Regulation for a more detailed description).

**“High”** exposure risk hazards or job tasks are those in places of employment with high potential for employee exposure within six feet with known or suspected sources of SARS-CoV-2 that are not otherwise classified as “very high” exposure risk (refer to page 8 of the 16 VAC 25-220, Emergency Temporary Standard/Emergency Regulation for a more detailed description).

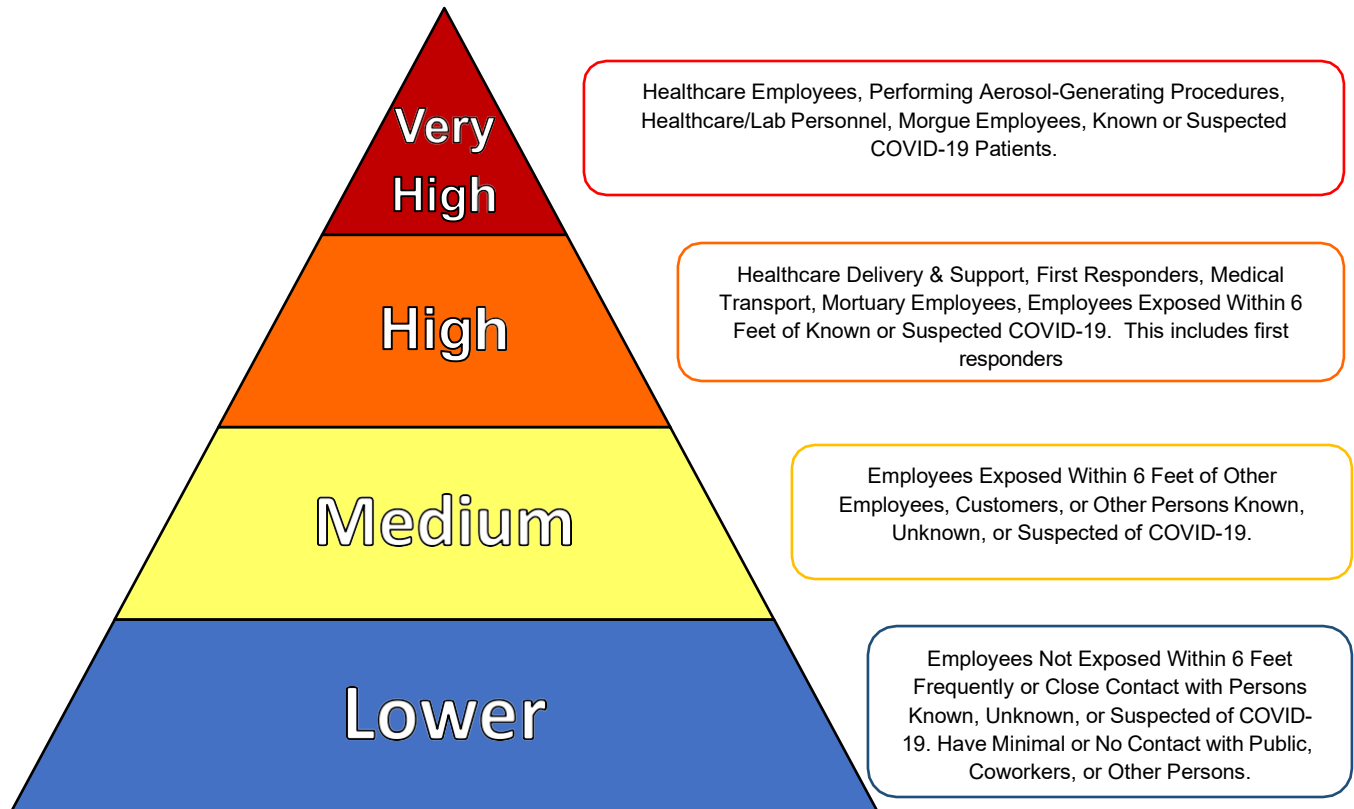
**“Medium”** exposure risk hazards or job tasks that are not labeled as “very high” or “high” (refer to pages 9-10 of the 16 VAC 25-220, Emergency Temporary Standard/Emergency Regulation for a more detailed description).

**“Lower”** exposure risk hazards or job tasks are those not otherwise classified as “very high”, “high”, or “medium” exposure risk that do not require contact within six feet of persons known to be, or suspected of being, or who may be infected with SARS-CoV-2; nor contact within six feet with other employees, other persons, or the general public except as otherwise provided in this definition (refer to page 10 of the 16 VAC 25-220, Emergency Temporary Standard/Emergency Regulation for a more detailed description).



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The following graph relates to job tasks that pose a risk level to employees. The job tasks that are listed are not an all-inclusive list.



Consult the definition of “Exposure risk level” of the Emergency Temporary Standard for COVID-19 by the Virginia Department of Labor and Industry. Also, consult pages 18 - 21 of the OSHA document “Guidance on Preparing Workplaces for COVID-19” which is available at <http://www.osha.gov/Publications/OSHA3990.pdf> and determine the risk level of each employee or class of employee based on their type of work and duties. Some jobs may have more than one type of exposure risk depending on the task or qualifying factors.

When you have determined the risk level of all your employees and officials, list the work area, job/job tasks, employee exposure risk, and qualifying factors in the table.

The following table is an example.



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<b>Work Area</b>	<b>Job Tasks</b>	<b>Exposure Risk Determination</b>	<b>Qualifying Factors (Example: No Public Contact, Public Contact)</b>
<i>Elkton Field</i>	<i>All</i>	<i>Medium</i>	<i>Contact with Co-Workers within 6 feet, contact with other persons</i>
<i>Elkton Office</i>	<i>All</i>	<i>Medium</i>	<i>Contact with Co-Workers within 6 feet, contact with other persons</i>
<i>Corporate Office</i>	<i>All</i>	<i>Lower</i>	<i>Separated offices, restricted access</i>
<i>Hershey-SD</i>	<i>All</i>	<i>Medium</i>	<i>Contact with Co-Workers within 6 feet, contact with other persons</i>
<i>Hub</i>	<i>All</i>	<i>Medium</i>	<i>Contact with Co-Workers within 6 feet, contact with other persons</i>
<i>Roxboro Warehouse</i>	<i>Material skidding, inventory management, unloading trucks/ receiving (with no contact), loading trucks (with no contact with driver), forklift drivers</i>	<i>Lower</i>	<i>No exposure within 6 feet. Minimal or no contact with public/ co-workers</i>




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<i>Roxboro Warehouse</i>	<i>All above except in situation distancing of 6 feet cannot be maintained, Site visit required by client,</i>	<i>Medium</i>	<i>Contact within 6 feet of co-workers or general public</i>
<i>Durham- Field</i>	<i>All</i>	<i>Medium</i>	<i>Contact with Co-Workers within 6 feet, contact with other persons</i>
<i>Warehouse-</i>	<i>Material skidding, inventory management, unloading trucks/ receiving (with no contact), loading trucks (with no contact with driver), forklift drivers</i>	<i>Lower</i>	<i>No exposure within 6 feet. Minimal or no contact with public/ co-workers</i>
<i>Warehouse</i>	<i>All above except in situation distancing of 6 feet cannot be maintained, Site visit required by client,</i>	<i>Medium</i>	<i>Contact within 6 feet of co-workers or general public</i>
<i>Shop facilities</i>	<i>Fabrication, Welding, pipefitting, equipment maintenance- Limited to task where contact with co-workers maintains socials distancing of 6 feet</i>	<i>Lower</i>	<i>No exposure within 6 feet. Minimal or no contact with public/ co-workers</i>
<i>Shop facilities</i>	<i>Fabrication, Welding, pipefitting, equipment maintenance- Limited to task where contact with co-workers cannot maintain social distancing of 6 feet</i>	<i>Medium</i>	<i>Contact with Co-Workers within 6 feet, contact with other persons</i>

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#### IV. Contingency Plan in the Event of an Infectious Disease Outbreak

In the event that an outbreak or pandemic due to an infectious disease, **Mathers Construction Team** has set up contingency plans for addressing the workplace needs as well as employee safety and health during the outbreak.

These plans are as follows:

##### Identification and isolation

**Mathers Construction Team** has implemented leave policies that promote workers staying at home when they are sick, when household member are sick, or when required by a health care provider to isolate or quarantine themselves or a member of the household. **Insert sick leave policy, FMLA, etc.** Accommodation for workers with underlying medical conditions or who have household members with underlying conditions have been implemented. **The policy is as follows**


**Mathers Construction Team** has implemented a procedure for informing workers if they have been exposed to a person with COVID-19 at their workplace and requiring them to quarantine for the required amount of time. **The policy of notification is as follows**

In addition, a policy has been implemented to protect the privacy of workers health status and health information. **All feasible steps will be taken to ensure the privacy of the health information of an employee. Employee identification and health records will be kept private, and only be used by team members who are vital to the record keeping and identification and exposure notification procedures. All records will be kept as required by law in a locked cabinet, or secured electronic file, which may be viewed by the individual upon request.**

##### Social Distancing

Social distancing of a least six feet will be implemented and maintained between workers, customers, clients, guest, and visitors, whenever feasible, through the implementation of the following engineering and administrative controls:

- Staggered shifts when possible
- Staggered use of common areas to reduce occupancy of concentrated areas
- Posted occupancy requirements and traffic flow for each location.
- Posted signage reminding all to use social distance practices.

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- Wherever feasible the limitation of shared PPE, phones, pens, computer equipment, desks, offices, tools, and equipment will.
  - For tools that this is unfeasible all shared equipment must be whipped down using disinfectant wipes before transfer.
- Reduction of ride sharing, or use of vehicles by multiple parties
  - If a vehicle is transferred from one party to another than all contact surfaces must be disinfected before transfer.
  - If ride sharing is required all parties must wear masks.
- Where social distance is not feasible the following will apply:
  - Small group work assignments, whenever possible.
  - Groups should refrain from trading personnel, tools, and equipment.
- For distribution of PPE, include face covering please contact you supervisor, or EHS representative on site. Each site will have on hand the following:
  - Disinfectant wipes or spray
  - Face coverings
  - Other PPE as required by Hazard analysis
- For question regarding these procedures please contact Ashley Gauldin at 5406495237

**Worker hygiene and source controls:**

Basic infection prevention measures are always being implemented at our workplaces. Workers are instructed to wash hands for at least 20 seconds with soap and water frequently throughout the day, but especially at the beginning and end of their shift, prior to any mealtimes and after using the restroom. Hand-sanitizer dispensers, which an alcohol content of 60% or greater, will be available through the workplace to be used for hand hygiene. Supply and maintenance of supplies will be maintained by the designated representative onsite, or the highest-ranking supervisor who is assigned to that project or location.

Source controls are being implemented at our workplaces at all times. Face covering are required for use in all tasks are classified as medium risk, when required by client, or in situations where social distancing cannot be maintained regardless of contact duration.

All personnel, visitors, guest, patron, and clients are instructed to cover their mouth and nose with their sleeve or a tissue when coughing or sneezing, and to avoid touching their face, particularly their mouth, nose and eyes, with their hands. All personnel, visitors, guest, patron, and clients are expected to dispose of tissues in provided trash receptacles and wash or sanitize their hands immediately afterward.

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Respiratory etiquette will be demonstrated and supported by making tissues and trash receptable available at locations throughout the workplace.

**Workplace cleaning and disinfection protocol:**

Regular practices of cleaning and disinfecting have been implemented, including a schedule for routine cleaning and disinfection of work surfaces, equipment, tools and machinery, vehicles and area in the work environment, including restrooms, break rooms, lunch rooms, meeting rooms, and the like. Frequent cleaning and disinfection is be conducted on high touch areas including copies, tools, equipment, door knobs, and stair railings.

Appropriate and effective cleaning and disinfecting supplies have been purchased and are available for use in accordance with product labels, SDS sheets and manufacturer specifications, and are being used with required PPE for the product.

**Delivery and receiving of materials**


All delivery of materials shall be scheduled for delivery to Delphine Enterprise Management: Area 200. Project deliveries will be handled by our logistics team members

Office supplies and other small items delivered via UPS, USPS, or FedEx will be received at the designated area of the location via no contact. Areas have signed designating drop off area for these agencies.

**V. Basic Infectious Disease Prevention and Control Measures**

To control the spread of infectious diseases such as COVID 19, basic prevention and control measures must be implemented to ensure that all employees are protected against the hazards of infectious disease.

To control the spread of infectious disease it is important to keep up general housekeeping in the workplace. Additional housekeeping actions must also be implemented to ensure the safety and health of employees and decreasing the chances of spread of an infectious disease such as: All restrooms, common areas that remain in use, door knobs/handles, tools, equipment, and other frequently touched surfaces are disinfected before, in the middle of, and at the end of each shift. All contact surfaces of vehicles used by more than one person are disinfected at the end of each person’s use. All disinfectants are EPA-approved or otherwise comply with [CDC disinfection guidance](#). The area supervisor is

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responsible for designating and enforcing cleaning protocols, training, and for obtaining and reviewing the SDS.

Additional precautions and actions to take are **Mathers Construction Team specific actions being taken:**

- Large gatherings are minimized whenever possible; staff meetings are postponed, cancelled or held remotely;
- Employees are encouraged to maintain physical distance even when on break, as well as before and after working hours;
- Employees are required to maintain physical distance when reporting to work, clocking in, leaving work, and clocking out;
- Employee work stations are greater than six feet apart;
- Supervision may assign flexible work hours, wherever possible, to limit the number of employees simultaneously working on-site; and

## **VI. Identification and Isolation of Sick and/or Exposed Employees**


Risk and exposure determinations are made without regard to employees protected characteristics as defined by local, state, and federal law.

Any health-related information and documentation gathered from employees is maintained confidentially and in compliance with state and federal law. Specifically, medical documentation is stored separate from employee's personnel documentation.

### **1. Employee Self-Monitoring**

The following employees should **not** report to work and, upon notification to **Mathers Construction Team**; will be removed from the regular work schedule:

- Employees who display COVID-19 symptoms, such as fever, cough, shortness of breath, sore throat, new loss of smell or taste, and/or gastrointestinal problems, including nausea, diarrhea, and vomiting, whether or not accompanied by a formal COVID-19 diagnosis;

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- Employees who, in the last 14 days, have had close contact with and/or live with any person having a confirmed COVID-19 diagnosis; and
- Employees who, in the last 14 days, have had close contact with and/or live with any person displaying COVID-19 symptoms, such as fever, cough, shortness of breath, sore throat, new loss of smell or taste, and/or gastrointestinal problems, including nausea, diarrhea, and vomiting.

Such employees may only resume in-person work upon meeting all return-to-work requirements, defined below.

## **2. Daily Screenings**


To prevent the spread of COVID-19 and reduce the potential risk of exposure, **Mathers Construction Team** screens employees on a daily basis.

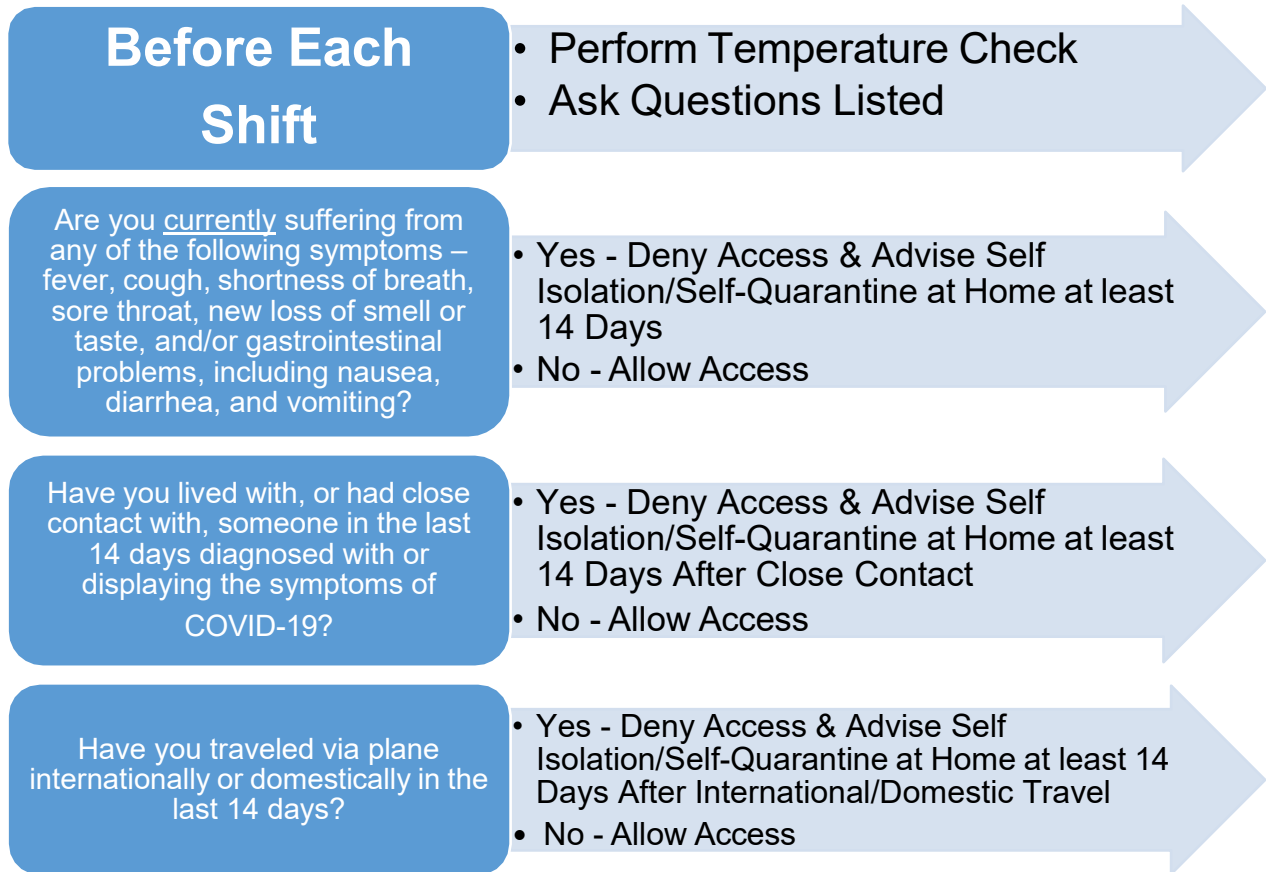
Employees are asked the following questions before entering the worksite:

1. Are you currently suffering from any of the following symptoms – fever, cough, shortness of breath, sore throat, new loss of smell or taste, and/or gastrointestinal problems, including nausea, diarrhea, and vomiting?
  - a. If yes, access is denied, and employee is advised to self-isolate/self-quarantine at home, until employee is permitted to return to work as defined below.
2. Have you lived with, or had close contact with, someone in the last 14 days diagnosed with or displaying the symptoms of COVID-19?
  - a. If yes, access is denied, and employee is advised to self-isolate/self-quarantine at home, until at least 14 days after the close contact.

A reference chart of the above daily screening questions is listed below.




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Employees who develop symptoms during their shift must immediately report to their supervisor and/or Human Resources.

### 3. Return-to-Work Requirements

Employees who were themselves diagnosed with COVID-19 may only return to work upon confirmation of the cessation of symptoms and contagiousness, proof of which may be acquired via the test-based strategy or the non-test-based strategy.

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The test-based strategy is preferred but relies upon the availability of testing supplies and laboratory capacity. Under this strategy, employees may discontinue isolation and return to work upon achieving the following conditions:

- Resolution of fever without the use of fever-reducing medications;
- Improvement in respiratory symptoms (e.g., cough, shortness of breath); and
- Negative results of an FDA Emergency Use Authorized molecular assay for COVID-19 from two consecutive nasopharyngeal swab specimens collected at least 24 hours apart.

Under the non-test-based strategy, employees may discontinue isolation and return to work upon achieving the following conditions:


- At least 3 days (72 hours) have passed since recovery defined as resolution of fever without the use of fever-reducing medications;
- Improvement in respiratory symptoms (e.g., cough, shortness of breath); and
- At least 7 days have passed since symptoms first appeared.

Employees who come into close contact with or who may live with an individual with a confirmed diagnosis or symptoms may return to work after either 14 days have passed since the last close contact with the diagnosed and/or symptomatic individual. This includes the diagnosed and/or symptomatic individual receiving a negative COVID-19 test.

Employees are typically required to submit a release to return to work from a healthcare provider; given the current stressors on the healthcare system, **Mathers Construction Team** may accept written statements from employees confirming all the factors supporting their release.

Actively encourage sick employees to stay home:

- **Include a statement regarding your PTO program. The Families First Coronavirus Response Act Policies and Posters are to be posted in common places as well as on the employee shared IT drives (if employees have questions regarding use of emergency paid sick time, employees should contact [Name of Contact]).**
- **Mathers Construction Team** will follow state and federal guidance for return to work guidance.
  - Guidance from the employee’s health care provider will also be considered.

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## VII. Procedures for Minimizing Exposure from Outside of Workplace

**Mathers Construction** business practices are evaluated to ensure the safety and health of all individuals. This is done on a phased approach. Beginning with appointment only onsite meetings, virtual meetings, and finally transitioning to onsite meetings with appropriate precautions when that time comes.

- Social distancing practices to be observed: ***[Include all that apply]***
  - 6-foot distances are marked in areas where customers might gather/wait
  - In person meetings are to be made by appointments only
  - Limit the number of visitors or guests allowed into workplace
  - Minimize face to face contact

Information is posted throughout the worksite educating individuals on ways to reduce the spread of COVID-19.


Any individual entering one of **Mathers Construction Team** facilities may have to submit to a questionnaire prior to entry.

To minimize exposure from visitors or vendors: **Mathers Construction Team**

- *All business partners that work within **Mathers Construction Team** have been provided this Plan.*
- *When possible, **Mathers Construction Team** will limit the number of visitors in the facility.*
- *Masks may be available to visitors/vendors as well as appropriate disinfectants so individuals can clean work areas before and after use.*

Minimizing exposure from the general public:

- Social distancing practices to be observed: ***[Include all that apply]***
  - 6-foot distances are marked in areas where individuals might gather/wait.
  - Limit number of individuals allowed into workplace.
  - Minimize face to face contact:

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- Information is posted at **Mathers Construction Team** facility educating individuals on ways to reduce the spread of COVID-19.
- Individual symptoms may be assessed of COVID-19 and individuals with symptoms will be removed from the workplace.
- Masks may be available to the general public as well as appropriate disinfectants so individuals can clean work areas before and after use.

### VIII. Training

All employees at **Mathers Construction Team** will be required to have training on the hazards and characteristics of SARS-CoV-2 virus and COVID-19 disease. This training will ensure that all employees recognize the hazards of SARS-CoV-2 and COVID-19 as well as the procedures to minimize the hazards related to the infectious diseases and help prevent the spread of the infectious disease.

The training material will cover the following:

- Requirements of the COVID-19 Emergency Regulation.
- Companies Infectious Disease Preparedness and Response Plan.
- Characteristics and methods of spread of SARS-CoV-2 virus.
- Symptoms of COVID-19 disease as well as the asymptomatic reactions of some persons to the SARS-CoV-2 virus.
- Safe and healthy work practices, including but not limited to, physical distancing, disinfection procedures, disinfecting frequency, and noncontact methods of greeting.
- PPE
  - When PPE is required
  - What PPE is required
  - How to properly don, doff, adjust and wear PPE
  - Limitations of PPE

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- Proper care, maintenance, useful life and disposal of PPE

All employees in the workplace will be trained on this subject and procedures. All training will be certified and recorded according to the Emergency Regulations for COVID-19 by the Virginia Department of Labor and Industry.


Training Records will be certified by the following requirements (see example below):

- Employee name
- Employee’s signature (physical or electronic)
- Date
- Signature of Trainer

The following table is an example.

<b>Date:</b>		<b>Trainer:</b>	
<b>Employee Name (Printed)</b>	<b>Employee Name (Signature)</b>	<b>Work Area</b>	<b>COVID-19 Risk Level</b>


Retention of training records must be retained in employee files. These records are located digitally via our CVS Instant Card Database system. The most recent training records will be maintained.

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### **Construction Industry Guidelines**


Businesses or operations in the construction industry must:

- a) Conduct a daily entry screening protocol for employees, contractors, suppliers, and any other individuals entering a worksite, including a questionnaire covering symptoms and suspected or confirmed exposure to people with possible COVID-19, together with, if possible, a temperature screening.
- b) Create dedicated entry point(s) at every worksite, if possible, for daily screening as provided in sub-provision (b) of this section, or in the alternative issue stickers or other indicators to employees to show that they received a screening before entering the worksite that day.
- c) Provide instructions for the distribution of personal protective equipment and designate on-site locations for soiled face coverings.
- d) Require the use of work gloves where appropriate to prevent skin contact with contaminated surfaces.
- e) Identify choke points and high-risk areas where employees must stand near one another (such as hallways, hoists and elevators, break areas, water stations, and buses) and control their access and use (including through physical barriers) so that social distancing is maintained.
- f) Ensure there are sufficient hand-washing or hand-sanitizing stations at the worksite to enable easy access by employees.
- g) Notify contractors (if a subcontractor) or owners (if a contractor) of any confirmed COVID-19 cases among employees at the worksite.
- h) Restrict unnecessary movement between project sites.
- i) Create protocols for minimizing personal contact upon delivery of materials to the worksite.

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### Office Regulations

- a) Assign dedicated entry point(s) for all employees to reduce congestion at the main entrance.
- b) Provide visual indicators of appropriate spacing for employees outside the building in case of congestion.
- c) Take steps to reduce entry congestion and to ensure the effectiveness of screening (e.g., by staggering start times, adopting a rotational schedule where only half of employees are in the office at a particular time).
- d) Require face coverings in shared spaces, including during in-person meetings and in restrooms and hallways.
- e) Increase distancing between employees by spreading out workspaces, staggering workspace usage, restricting non-essential common space (e.g., cafeterias), providing visual cues to guide movement and activity (e.g., restricting elevator capacity with markings, locking conference rooms).
- f) Prohibit social gatherings and meetings that do not allow for social distancing or that create unnecessary movement through the office.
- g) Provide disinfecting supplies and require employees wipe down their workstations at least twice daily.
- h) Post signs about the importance of personal hygiene.
- i) Disinfect high-touch surfaces in offices (e.g., whiteboard markers, restrooms, handles) and minimize shared items when possible (e.g., pens, remotes, and whiteboards).
- j) Institute cleaning and communications protocols when employees are sent home with symptoms.
- k) Notify employees if the employer learns that an individual (including a customer, supplier, or visitor) with a confirmed case of COVID-19 has visited the office.
- l) Suspend all nonessential visitors.
- m) Restrict all non-essential travel, including in-person conference events.

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**I. Purpose:**

Vaccination is a vital tool to reduce the presence and severity of COVID-19 cases in the workplace, in communities, and in the nation. Due to severity of the pandemic and the COVID-19 vaccination mandate issued by some company clients, Mathers Construction has adopted this policy on vaccination to safeguard the health of our employees from the hazard of COVID-19.


**II. Scope:**

This COVID-19 Vaccination Policy applies to all employees of Mathers Construction, except for employees who do not report to a workplace where other individuals (such as coworkers or customers) are present; employees while working from home; and employees who work exclusively outdoors always maintaining a 10-foot distance from other employees.

All employees covered by this policy are required to give notification of vaccine intent as a term and condition of employment at Mathers Construction. Employees are considered fully vaccinated two weeks after completing primary vaccination with a COVID-19 vaccine, with, if applicable, at least the minimum recommended interval between doses. For example, this includes two weeks after a second dose in a two-dose series, such as the Pfizer or Moderna vaccines, two weeks after a single-dose vaccine, such as the Johnson & Johnson vaccine, or two weeks after the second dose of any combination of two doses of different COVID-19 vaccines as part of one primary vaccination series. All employees are required to report their vaccination status and to provide proof of vaccination. Employees must provide truthful and accurate information about their COVID-19 vaccination status, and, if applicable, their testing results. Employees not in compliance with this policy will be subject to discipline (e.g., unpaid leave, termination).

Employees may request an exception from vaccination if the vaccine is medically contraindicated for them or medical necessity requires a delay in vaccination. Employees also may be legally entitled to a reasonable accommodation if they cannot be vaccinated and/or wear a face covering (as otherwise required by this policy) because of a disability, or if the provisions in this policy for vaccination, and/or testing for COVID-19, and/or wearing a face covering conflict with a sincerely held religious belief, practice, or observance. Requests for exceptions and reasonable accommodations must be initiated by submitting a request for exemption. All such requests will be handled in accordance with applicable laws and regulations and Mathers Construction internal operating procedures.



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### III. Procedures:

#### A. Overview and General Information

All Mathers Construction employees must give notification of vaccine intent no later than November 1, 2021. Mathers Construction Team has no intention of mandating the COVID-19 vaccine, however, must adhere to site requirements imposed by some of our clients/hosts. Non-compliance with those COVID-19 vaccination mandates may have adverse employment effects unless there is work on a job site where no vaccine mandate exist. Mathers Construction Team cannot guarantee work at/ transfer to a non-mandated job site.

Employees will be considered fully vaccinated two weeks after receiving the requisite number of doses of a COVID-19 vaccine. An employee will be considered partially vaccinated if they have received only one dose of a two-dose vaccine.

Medical or religious exemption requests must be accompanied by certification by the team member's physician or religious leader. Submittal of a medical or religious exemption request does not guarantee acceptance by Mathers Construction Team. Acceptance of a medical or religious exemption request by Mathers Construction Team does not guarantee acceptance from clients/hosts.


This policy will be maintained by Human Resources at the direction of the Executive Team.

#### B. Vaccination Status and Acceptable Forms of Proof of Vaccination

All vaccinated employees are required to provide proof of COVID-19 vaccination, regardless of where they received vaccination. Proof of vaccination status can be submitted in person to HR or company officials designated to collect this information.

Acceptable proof of vaccination status is:

1. The record of immunization from a healthcare provider or pharmacy.
2. A copy of the COVID-19 Vaccination Record Card.
3. A copy of medical records documenting the vaccination.
4. A copy of immunization records from a public health, state, or tribal immunization information system.
5. A copy of any other official documentation that contains the type of vaccine administered, date(s) of administration, and the name of the healthcare professional(s) or clinic site(s) administering the vaccine(s).

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Proof of vaccination generally should include the employee’s name, the type of vaccine administered, the date(s) of administration, and the name of the healthcare professional(s) or clinic site(s) that administered the vaccine. In some cases, state immunization records may not include one or more of these data fields, such as clinic site; in those circumstances Mathers Construction will still accept the state immunization record as acceptable proof of vaccination.

All employees must inform Mathers Construction of their vaccination status no later than November 1, 2021. The following table outlines the requirements for submitting vaccination status documentation.


Vaccination Status	Instructions
Employees who are fully vaccinated.	Submit proof of vaccination that indicates full vaccination to HR or designated personnel
Employees who are partially vaccinated (i.e., one dose of a two dose vaccine series).	Submit proof of vaccination that indicates when the first dose of vaccination was received, followed by proof of the second dose when it is obtained, to HR of designated personnel
Employees who have not yet been vaccinated.	Submit statement that you are unvaccinated and request for exemption to HR or designated personnel

### C. Employee Exposure/ Close Contact to Someone with COVID-19

Mathers Construction employees that have been exposed to or in close contact with someone who has tested positive for COVID-19 and are in one of the following groups, ***do not need to quarantine***.

- You are up to date with your COVID-19 vaccines.
- You had confirmed COVID-19 within the last 90 days (meaning you tested positive using a viral test).

These employees should wear a well-fitting mask around others for 10 days from the date of your last close contact with someone with COVID-19 (the date of last close contact is considered day 0). Get tested at least 5 days after you last had close contact with someone with COVID-19. If you test positive or develop COVID-19 symptoms, isolate from other people and follow recommendations in the Isolation section D. If you tested positive for COVID-19 with a viral test within the previous 90 days and subsequently recovered and remain without COVID-19 symptoms, you do not need to quarantine or get

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tested after close contact. You should wear a well-fitting mask around others for 10 days from the date of your last close contact with someone with COVID-19 (the date of last close contact is considered day 0).

Employees that are not up to date on COVID-19 vaccines, including people who are not vaccinated, **should quarantine**. The CDC guidelines for quarantine:

- Stay home and away from other people for at least 5 days (day 0 through day 5) after your last contact with a person who has COVID-19. The date of your exposure is considered day 0. Wear a well-fitting mask when around others at home, if possible.
- For 10 days after your last close contact with someone with COVID-19, watch for fever (100.4°F or greater), cough, shortness of breath, or other COVID-19 symptoms.
- If you develop symptoms, get tested immediately and isolate until you receive your test results. If you test positive, follow isolation recommendations.
- If you do not develop symptoms, get tested at least 5 days after you last had close contact with someone with COVID-19.

After quarantine, employees should watch for symptoms until 10 days after their last contact with someone with COVID-19. If symptoms occur, isolate immediately and get tested.

#### **D. Employee Notification of COVID-19 and Removal from the Workplace**

Mathers Construction will require employees to promptly notify their supervisor or designated personnel when they have tested positive for COVID-19 or have been diagnosed with COVID-19 by a licensed healthcare provider. Notification shall be made by phone call. **EMPLOYEES WHO HAVE TESTED POSITIVE FOR OR DIAGNOSSED WITH COVID-19 DO NOT RETURN TO WORK UNTIL AUTHORIZED TO DO SO!**


#### **Return to Work Criteria**

For any employee removed because they are COVID-19 positive, Mathers Construction will keep them removed from the workplace until the employee receives a negative result on a COVID-19 nucleic acid amplification test (NAAT) following a positive result on a COVID-19 antigen test if the employee chooses to seek a NAAT test for confirmatory testing; meets the return to work criteria in CDC’s “Isolation Guidance”; or receives a recommendation to return to work from a licensed healthcare provider.

**See Attachments** for CDC- Guidance – Isolation, CDC Guidance - Quarantine

If an employee has severe COVID-19 or an immune disease, Mathers Construction will follow the guidance of a licensed healthcare provider regarding return to work.

Whenever client/ host facility return to work criteria are more stringent than CDC criteria, Mathers Construction will apply and follow the client/ host facility return to work criteria.

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### E. COVID-19 Testing

If an employee covered by this policy is not fully vaccinated (e.g., if they are granted an exception from the vaccination requirement because the vaccine is contraindicated for them), the employee will be required to comply with this policy for testing.

Employees who report to the workplace at least once every seven days:

(A) must be tested for COVID-19 at least once every seven days; and

(B) must present the results of the COVID-19 test administered by a licensed provider no later than the seventh day following the date on which the employee last tested. Employees are responsible for supplying the test.

Any employee who does not report to the workplace during a period of seven or more days (e.g., if they were on vacation or working at another jobsite for two weeks prior to reporting to the workplace):

(A) must be tested for COVID-19 within seven days prior to returning to the workplace; and

(B) must present the results of the COVID-19 test administered by a licensed provider upon return to the workplace. Employees are responsible for supplying the test.


If an employee does not comply with the testing procedure as required by this policy, they will be removed from the workplace until they follow the testing procedure.

Employees who have received a positive COVID-19 test or have been diagnosed with COVID-19 by a licensed healthcare provider, are not required to undergo COVID-19 testing for 90 days following the date of their positive test or diagnosis.

***Obtaining weekly test is the responsibility of the exempt employee. The cost of testing will be covered by the exempt employee.***

### F. Face Coverings

If an employee covered by this policy is not fully vaccinated (e.g., if they are granted an exception from the vaccination requirement because the vaccine is contraindicated for them), Mathers Construction will require the employee to wear a face covering. Face coverings must: (i) completely cover the nose and mouth; (ii) be made with two or more layers of a breathable fabric that is tightly woven (i.e., fabrics that do not let light pass through when held up to a light source); (iii) be secured to the head with ties, ear loops, or elastic bands that go behind the head. If gaiters are worn, they should have two layers of fabric

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or be folded to make two layers; (iv) fit snugly over the nose, mouth, and chin with no large gaps on the outside of the face; and (v) be a solid piece of material without slits, exhalation valves, visible holes, punctures, or other openings. Acceptable face coverings include clear face coverings or cloth face coverings with a clear plastic panel that, despite the non-cloth material allowing light to pass through, otherwise meet these criteria and which may be used to facilitate communication with people who are deaf or hard-of-hearing or others who need to see a speaker’s mouth or facial expressions to understand speech or sign language respectively.

Employees who are not fully vaccinated must wear face coverings over the nose and mouth when indoors and when occupying a vehicle with another person for work purposes. Policies and procedures for face coverings will be implemented as part of a multi-layered infection control approach for unvaccinated workers.

Mathers Construction may provide face covering if there is a particular jobsite requirement or a contractual obligation to do so. In all other circumstances, face coverings will be self-provided by the employee.


The following are exceptions to Mathers’ requirements for face coverings:

1. When an employee is alone in a room with floor to ceiling walls and a closed door.
2. For a limited time, while an employee is eating or drinking at the workplace or for identification purposes in compliance with safety and security requirements.
3. When an employee is wearing a respirator or facemask.
4. Where Mathers Construction has determined that the use of face coverings is infeasible or creates a greater hazard (e.g., when it is important to see the employee’s mouth for reasons related to their job duties, when the work requires the use of the employee’s uncovered mouth, or when the use of a face covering presents a risk of serious injury or death to the employee).

**G. New Hires**

All new employees are required to comply with the vaccination requirements outlined in this policy as soon as practicable and as a condition of employment. Potential candidates for employment will be notified of the requirements of this policy prior to the start of employment.

No new hires will begin working until submitting proof of full vaccination or partial vaccination indicating when the first dose of vaccination was received, followed by proof of the second dose when it is

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obtained. Those new hires who have submitted a request for exemption will not begin working until the request for exemption has been received by HR for review and consideration.

**H. Confidentiality and Privacy**

All medical information collected from individuals, including vaccination information, test results, and any other information obtained because of testing, will be treated in accordance with applicable laws and policies on confidentiality and privacy.

# Recommendations for People with COVID-19

Have you tested positive for COVID-19 or have mild symptoms and are waiting for test results?

## Here's What To Do:

### Isolate. Stay at home for at least 5 days.\*



To keep others safe in your home, wear a mask, stay in a separate room and use a separate bathroom if you can.



Do not travel for **10 days**.



If you can't wear a mask, stay home and away from other people for **10 days**.



To calculate the recommended time frames, **day 0** is the day you were tested if you don't have symptoms, or the date your symptoms started.



Contact your healthcare provider to discuss your test results and available treatment options. Watch for symptoms, especially fever. If you have an [emergency warning sign](#), such as trouble breathing or persistent chest pain or pressure, seek emergency medical care immediately.



### Day 6: Do a self-check. How are you feeling?

You could have loss of taste or smell for weeks or months after you feel better. These symptoms should not delay the end of isolation.



No symptoms or symptoms improving. No fever without fever-reducing medication for 24 hours: You can leave isolation. Keep wearing a mask around other people at home and in public for **5 more days** (days 6-10).



Symptoms not improving and/or still have fever: Continue to stay home until 24 hours after your fever stops without using fever-reducing medication and your symptoms have improved.

After you feel completely better, keep wearing a mask around other people at home and in public through **day 10**.

\*If you are [moderately or severely ill](#) (including being hospitalized or requiring intensive care or ventilation support) or [immunocompromised](#), please talk to your healthcare provider about when you can [end isolation](#). Please refer to [COVID-19 Quarantine and Isolation](#) for guidance on isolation in healthcare settings and high risk congregate settings (such as correctional and detention facilities, homeless shelters, or cruise ships).



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# Recomendaciones para las personas con COVID-19

¿Dio positivo en una prueba de COVID-19 o tiene síntomas leves y está esperando los resultados de una prueba?

**Esto es lo que debe hacer:**

**Aíslese. Quéedese en casa por al menos 5 días.\***



**Día 6: Autoevalúe sus síntomas. ¿Cómo se siente?**

*Podría presentar pérdida del gusto o del olfato por semanas o meses después de sentirse mejor. Estos síntomas no deberían demorar el final del aislamiento.*



Para mantener sanas a las demás personas en su casa, use una mascarilla, quéedese en una habitación separada y use un baño separado, si es posible.



**No viaje durante los próximos 10 días.**



Si no puede usar una mascarilla, quéedese en casa y alejado de los demás durante **10 días**.



Para calcular los periodos recomendados, el **día 0** es el día en que se le hizo la prueba si no tiene síntomas, o el día en que sus síntomas comenzaron.



Comuníquese con su proveedor de atención médica para conversar sobre los resultados de su prueba y las opciones de tratamiento disponibles. Esté atento a si presenta síntomas, especialmente fiebre. Si tiene algún [signo de advertencia de una emergencia](#), como dificultad para respirar, o dolor o presión persistente en el pecho, busque atención médica de emergencia de inmediato.



No tiene síntomas o están mejorando. No tuvo fiebre en las últimas 24 horas sin usar medicamentos para reducirla: puede finalizar el aislamiento. Continúe usando una mascarilla cuando esté cerca de otras personas en su casa y en lugares públicos por **5 días más** (días 6-10).



Los síntomas no mejoran o todavía tiene fiebre: continúe quedándose en casa hasta 24 horas después de que haya dejado de tener fiebre sin usar medicamentos para bajarla y sus síntomas hayan mejorado.



Después de que se sienta completamente mejor, siga usando una mascarilla cuando esté cerca de otras personas en su casa y en lugares públicos hasta completado el **día 10**.

\*Si está [moderada o gravemente enfermo](#) (incluso si está hospitalizado, o necesita cuidados intensivos o respirador mecánico) o [inmunodeprimido](#), contacte a su proveedor de atención médica sobre cuándo puede [finalizar el aislamiento](#). Consulte la página [Cuarentena y aislamiento por el COVID-19](#) para obtener información sobre el aislamiento en los entornos de atención médica y de alto riesgo con concentración de personas (como centros correccionales y de detención, refugios para personas sin hogar o cruceros).



# Recommendations for COVID-19 Close Contacts

Have you been in close contact with someone who has COVID-19? You were a close contact if you were less than 6 feet away from someone with COVID-19 for a total of 15 minutes or more over a 24-hour period ([excluding K-12 settings](#)).

## Here's What To Do:



### Protect Others

Take these steps to keep others safe.



**Quarantine** if you are not up to date with COVID-19 vaccines or didn't have COVID-19 in the past 90 days. Stay home and away from other people for at least **5 days**.

If you are up to date or had COVID-19 in the past 90 days you do not have to quarantine.



**Avoid travel through day 10.**



**Wear a mask** around other people for **10 days**.



**Watch for symptoms of COVID-19 for 10 days.**

*Up to date means a person has received all recommended COVID-19 vaccines, including any booster dose(s) when eligible.*



### Get Tested

Get a COVID-19 test on or after **day 5** or if you have **symptoms**.

*People who had COVID-19 in the past 90 days should only get tested if they develop symptoms.*



You tested **negative**. You can leave your home.



Keep **wearing a mask** in public and when traveling through **day 10**.



You tested **positive** or have **symptoms**.



**Isolate** away from other people. Stay home for at least **5 days** and follow steps for [isolation](#).



**Do not travel for 10 days.**

If you are unable to get tested, you can leave your home after **day 5** if you have not had symptoms. Keep wearing a mask in public and avoid travel through **day 10**.



To calculate the recommended time frames, **day 0** is the date you last had close contact to someone with COVID-19.



If you can't wear a mask, **stay home** (quarantine) and away from other people, and do not travel for **10 days**.



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Please refer to [COVID-19 Quarantine and Isolation](#) for guidance on quarantine in healthcare settings and high risk congregate settings (such as correctional and detention facilities, homeless shelters, or cruise ships).

¿Ha tenido contacto cercano con alguien que tiene COVID-19? Fue un contacto cercano si estuvo a menos de 6 pies (2 metros) de alguien con COVID-19 durante 15 minutos o más en un periodo de 24 horas ([no incluye los entornos escolares K-12](#)).

## Esto es lo que debe hacer:



### Proteja a los demás

Tome estas medidas para proteger a los demás.



**Póngase en cuarentena** si no está al día con las vacunas contra el COVID-19 o no tuvo COVID-19 en los últimos 90 días. Quédese en casa y alejado de los demás por al menos **5 días**. Si está al día con las vacunas contra el COVID-19 o tuvo COVID-19 en los últimos 90 días, no tiene que ponerse en cuarentena.



**Evite viajar hasta completado el día 10.**



**Use una mascarilla por 10 días** cuando esté cerca de otras personas.



Esté atento a si presenta síntomas de COVID-19 por **10 días**.

*Estar al día significa que una persona ha recibido todas las vacunas contra el COVID-19 recomendadas, incluidas las dosis de refuerzo, al ser elegible.*



### Hágase una prueba

Hágase una prueba de COVID-19 en el **día 5** o más adelante si tiene **síntomas**.

*Las personas que tuvieron COVID-19 en los últimos 90 días solo deberían hacerse una prueba si presentan síntomas.*



El resultado dio **negativo**. Puede salir de su casa.



Siga **usando una mascarilla** en lugares públicos y cuando viaje hasta completado el **día 10**.



El resultado dio **positivo** o tiene **síntomas**.



**Aíslese** de otras personas. Quédese en casa por al menos **5 días** y siga los pasos para [aislarse](#).



**No viaje durante los próximos 10 días.**


Si no puede hacerse una prueba, puede salir de su casa después del **día 5** de no tener síntomas. Siga usando una mascarilla en lugares públicos y cuando viaje hasta completado el **día 10**.



Para calcular los periodos recomendados, el **día 0** es el último día en que tuvo contacto cercano con alguien con COVID-19.



Si no puede usar una mascarilla, **quédese en casa** (póngase en cuarentena) y manténgase alejado de los demás, y no viaje durante los próximos **10 días**.

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		Revision Date:	10/26/2020
<b>Hydrogen Sulfide</b>			
Prepared By:	Ashley L. Gauldin, E.H.S Director	Page:	1

## I. Purpose

This standard will outline the protective measures needed when working inside oil refineries or other sites that have the potential for exposure to Hydrogen Sulfide. Section 26 of the Mathers Team EHS Manual will detail the procedures for assessing risk for health issues such as Hydrogen Sulfide exposure.

## II. Scope

To define the requirements, responsibilities, and procedures necessary to reduce the risk of our employees to Hydrogen Sulfide gas exposure.

## III. Responsibilities

*The Program Administrator: Mathers Team Safety Manager*


This person is responsible for:

- Issuing and administering this program and making sure that it satisfies all applicable federal, state and local requirements.
- Ensuring that employees have available to them initial and refresher training on the use of this policy.
- Maintaining training records for all employees included in the training sessions

*Project Managers, Superintendents and Foremen*

These people are responsible for:

- Ensuring that all employees working at site that has the potential for exposure to Hydrogen Sulfide gas be trained in this standard.
- Providing training in the signs and symptoms of H<sub>2</sub>S exposure to workers on site
- Ensure employees are familiar with project site alarms for Hydrogen Sulfide.
- Ensure all personal monitors and testing equipment is functioning properly, calibrated and assigned a competent user.
- Ensure that all supervision is trained in emergency procedures when an employee exhibits symptom consistent with possible overexposure to H<sub>2</sub>S.

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### *Employees*

- Understanding common signs and symptoms of H2S exposure
- Review the H2S Safety Data Sheet before work commences
- Understand the routes of entry and exposure to H2S
- Report any rotten egg smells while at jobsite
- Be aware that each client or customer has their own set of emergency plans. Consult the Mathers Team site specific safety plan before working at new facility.
- If a H2S personal monitor alarms, evacuate the area and call your supervisor

#### **I. General**

Hydrogen sulfide (H<sub>2</sub>S) is the chemical compound with the formula H<sub>2</sub>S. It is a colorless gas; it is heavier than air, very poisonous, corrosive, flammable and explosive. In concentrations less than 100 ppm, H<sub>2</sub>S has an offensive odor similar to rotten egg, but at approximately 100 ppm, loss of the sense of smell occurs.


Hydrogen sulfide is introduced during drilling and excavation activities. The gas may be associated with recycled mud, water from sour crude wells, blowouts, tank gauging, and field maintenance. Hydrogen sulfide may be associated with decaying material in natural setting

#### **II. Health Hazards**

Vapors are extremely hazardous and are absorbed through the mucous membranes of the respiratory tract causing respiratory paralysis and suffocation. Symptoms of overexposure include headache, fatigue, irritability and gastrointestinal problems. Causes strong eye irritation and some skin irritation. Loss of sense of smell at 100 ppm, drowsiness, loss of consciousness, respiratory failure, or death can result from exposure above 100 ppm.

#### **III. Emergency First Aid**

- **Eye Contact** - Flush eyes thoroughly with water for at least 15 minutes. Call Fire and Safety for immediate medical assistance.
- **Skin Contact** - Wash contact areas with soap and water.
- **Inhalation** - Remove the victim from further exposure. Rescuer must wear properly fitted self-contained breathing apparatus before attempting rescue. If breathing has stopped, use artificial respiration, administer supplementary oxygen if available, and call

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Fire and Safety for immediate medical assistance.

#### **IV. Exposure Limits**

- STEL: 10 ppm

#### **V. Monitoring**

Monitors with the capability to monitor H<sub>2</sub>S will be used during all operations where the chemical could be present. Monitor is use will be calibrated every 30 days, and bump tested daily. The monitors will be set to alarm for exposure limits of 10 PPM.

Upon alarm employees must immediately evacuate the area. The area shall be assessed by a competent person who will perform a hazard analysis with a written plan of action before work resumes.

#### **VI. Training**


All Mathers Team employees who work inside facilities that have the potential for H<sub>2</sub>S exposures shall have H<sub>2</sub>S Awareness training.

1. Initial training shall include awareness of H<sub>2</sub>S safety and its health effects, emergency response procedures, and proper use of personal protective equipment (when applicable). This is satisfied by completing Mathers Team's Orientation I & II
2. Annual H<sub>2</sub>S awareness training shall be provided by completing an annual Three Rivers computer-based training module or site orientation training for the facility the employee will be working in.
3. Refresher training may also be satisfied by completing the section 37 test located at the end of this policy.

#### **VII. Methods of Compliance**

Where feasible, H<sub>2</sub>S exposure must be controlled through engineering controls and work practices in preference to respiratory protection. Respirators can and should be used to control exposures that are intermittent or caused by emergency conditions and while awaiting engineering controls.

In cases of exposure levels above the limit, a written plan to reduce that exposure will be prepared. This plan will be explained in the monitoring results letter sent to the exposed

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employee. The area superintendent will receive a copy of this notice and will be responsible for the prompt implementation of this plan.

### **VIII. Respiratory Protection**

Respirators shall be provided at Company expense and used by the employee in the following circumstances:


1. During the time period necessary to install and/or implement feasible engineering controls
2. Where feasible engineering controls and work practices by themselves are not sufficient to reduce employee exposure to or below the PEL.
3. During intermittent or limited duration work operations where engineering controls and work practices are not feasible or required
4. In emergencies.

The Mathers Construction Team EHS Manual section Respiratory Protection shall be referenced if the use of respirators will be used to control H<sub>2</sub>S exposure on the jobsite.

Generally, for exposures in atmospheres between 10 and 20 PPM, the appropriate respirator will be a negative pressure respirator with organic vapor cartridges. Filter elements must be changed at the end of the service life or at the beginning of each shift, whichever comes first.

### **IX. Personal Protective Equipment**

Mathers Team does not open any process equipment therefore the exposures to H<sub>2</sub>S will most likely be from impacted soils or from process leaks. If a situation arises that a Mathers Team employee will be working in an area contaminated with H<sub>2</sub>S gas a specific plan will developed and approved by the Safety Department.

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<b>CADMIUM AWARENESS AND PROTECTION PROCEDURE</b>			
Prepared By:	Ashley L. Gauldin, E.H.S Director	Page:	1

## PURPOSE


The purpose of this program is to inform interested persons, including employees that the EMA is complying with the OSHA cadmium standard, Title 29 Code of Federal Regulations 1926.1127 and 1910.1027 by:

- Ensuring that no employee is exposed to cadmium at concentrations greater than 5 ug/m<sup>3</sup> of air averaged over an eight (8) hour period.
- Knowing that when respirators are used to limit employee exposure as required by paragraph (c) of Section 1926.1127, and all requirements of paragraphs (e)(1) and (f) of Section 1926.1127, have been met, employee exposure may be at the level provided by the protection factor of the respirator for those periods the respirator is worn. Those periods may be averaged with exposure levels during periods when respirators are not worn to determine the employee's daily TWA exposure.

This program applies to all abatement, construction, demolition, or renovation work where one of our employees may be occupationally exposed to cadmium. All work related to construction, alteration, including painting is included.

## EXPOSURE TO CADMIUM

Cadmium exerts toxic effects on the kidney, the skeletal system and the respiratory system and is classified as a human carcinogen. It is generally present in the environment at low levels; however, human activity has greatly increased those levels. Cadmium can travel long distances from the source of emission by atmospheric transport. It is readily accumulated in many organisms, notably mollusks and crustaceans. Lower concentrations are found in vegetables, cereals, and starchy roots. Human exposure occurs mainly from consumption of contaminated food, active and passive inhalation of tobacco smoke and inhalation by workers in the non-ferrous metal industry. National, regional, and global actions are needed to decrease global environmental cadmium releases and reduce occupational and environmental exposure.

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## SOURCES OF EXPOSURE TO CADMIUM

Cadmium is used frequently as a rust-preventive coating on steel and as an alloying element. Acute exposures to high concentrations of cadmium fumes can produce severe lung irritation. Long-term exposure to low levels of cadmium in air can result in emphysema (a disease affecting the ability of the lung to absorb oxygen) and can damage the kidneys.

Cadmium fumes or fine dust can cause serious injury or death when inhaled. It is easy to mistake cadmium-plated steel for galvanized steel. However, when heated, cadmium leaves an olive-drab color as it oxidizes. Always know the metal you are working with. Cadmium oxide fumes often cause no symptoms until a few hours after exposure.


Cadmium can be released to the environment in several ways, including:

- natural activities, such as volcanic activity (both on land and in the deep sea), weathering and erosion, and river transport;
- human activities, such as tobacco smoking, mining, smelting and refining of non-ferrous metals, fossil fuel combustion, incineration of municipal waste (especially cadmium-containing batteries and plastics), manufacture of phosphate fertilizers, and recycling of cadmium-plated steel scrap and electric and electronic waste;
- remobilization of historic sources, such as the contamination of watercourses by drainage water from metal mines.
- Cadmium releases can be carried to and deposited on areas remote from the sources of emission by means of long-range atmospheric transport.

## INDUSTRIAL PROCESSES

Commercial cadmium has been used for manufacturing nickel–cadmium batteries. Cadmium is also used in paint pigments, for electroplating and in making polyvinyl chloride plastics. The majority of cadmium present in the atmosphere is the result of



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human activities, especially smelting of nonferrous metal ores, fossil fuel combustion and municipal waste incineration.

Soluble inorganic cadmium compounds are of greatest concern for occupational safety. Occupational exposure of workers in the non-ferrous smelting industry can be significant. Smelting and mining operations contaminate the aquatic environment, as does the effluent produced by air pollution control (gas scrubbers, in the absence of strict control measures). Atmospheric deposition of cadmium on arable soils exceeds its elimination in many countries, resulting in a gradual increase in cadmium levels in soils and crops. Application of municipal sewage sludge to agricultural soil can also be a significant source of cadmium.


#### FOOD AND DRINKING WATER

Cadmium contained in soil and water can be taken up by certain crops and aquatic organisms and accumulate in the food-chain. Food constitutes the main environmental source of cadmium for nonsmokers. Highest cadmium levels are found in the kidney and liver of mammals fed with cadmium-rich diets and in certain species of oysters, scallops, mussels, and crustaceans. Lower cadmium concentrations are found in vegetables, cereals, and starchy roots.

Cadmium exposure from drinking-water is relatively unimportant compared with exposure from the diet. However, impurities in the zinc of galvanized pipes and solders in fittings, water heaters, water coolers and taps can sometimes lead to increased cadmium levels in drinking-water.

#### SMOKING

The tobacco plant naturally accumulates relatively high concentrations of cadmium in its leaves. Thus, smoking tobacco is an important source of exposure, and the daily intake may exceed that from food in the case of heavy smokers. Cigarette smoking can cause significant increases in the concentrations of cadmium in the kidney, the main target organ for cadmium toxicity.

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## PROVISIONAL TOLERABLE MONTHLY INTAKE (PTMI)

The Joint Food and Agriculture Organization of the United Nations (FAO)/WHO Expert Committee on Food Additives (JECFA) recently (in 2010) established a provisional tolerable monthly intake for cadmium of 25 µg/kg body weight.

- Drinking Water 3 µg/l
- Air 5 ng/m<sup>3</sup> (annual average)

## HEALTH EFFECTS

The kidney is the critical target organ. Cadmium accumulates primarily in the kidneys, and its biological half-life in humans is 10–35 years. This accumulation may lead to renal tubular dysfunction, which results in increased excretion of low molecular weight proteins in the urine. This is generally irreversible.


High intake of cadmium can lead to disturbances in calcium metabolism and the formation of kidney stones. Softening of the bones and osteoporosis may occur in those exposed through living or working in cadmium contaminated areas.

High inhalation exposure to cadmium oxide fume results in acute pneumonitis with pulmonary oedema, which may be lethal. Long-term, high-level occupational exposure is associated with lung changes, primarily characterized by chronic obstructive airway disease.

There is sufficient evidence that long-term occupational exposure to cadmium (e.g. through cadmium fume) contributes to the development of lung cancer. There is limited evidence that cadmium may also cause cancers of the kidney and prostate.

## SAFE WORK PRACTICES / EXPOSURE ASSESSMENT

Protection of Employees during Exposure Assessment-- When tasks are presumed to generate cadmium exposures greater than the permissible exposure limit (PEL) of 5

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ug/m<sup>3</sup> of air averaged over an eight-hour period, we will treat affected employees as if they were exposed above the PEL and implement procedures to protect workers until we perform an employee exposure assessment and document that an employee's cadmium exposure is not above the PEL.

Tasks estimated to generate a TWA of 5 ug/m<sup>3</sup> of air include:


- Manual demolition, manual scraping, manual sanding, heat gun applications, and power tool cleaning with dust collection systems where cadmium coatings or contaminants are present.
- Emergency operations involving cadmium or cadmium burning.
- Power tool cleaning without dust collection systems where cadmium contamination is present.

Cleanup activities, where dry expendable abrasives are used, and abrasive blasting enclosure movement and removal where cadmium containing coatings or contaminants are present.

Based on historical data from previous cadmium jobs, we will take measures as recommended in 29 CFR 1926.62 to protect our employees. These measures include but are not limited to:

- Appropriate respiratory protection (protection factor of 10, 25, 5, or 100 depending on the tasks involved and the estimated exposures).
- Proper personal protective clothing and equipment
- Change areas
- Hand washing facilities
- Biological monitoring

Procedures shall be developed and implemented to minimize employee exposure to cadmium when maintenance of ventilation systems and changing of filters.

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Where the PEL is exceeded, a written compliance program shall be established and implemented to reduce employee exposure to or below the PEL by means of engineering and work practice controls.

### EMERGENCY SITUATIONS


In emergency situations, which involve a substantial release of cadmium, Mathers shall ensure workers are protected by following all aspects of this program. This will include limiting access to authorized employees, provision and use of PPE, exposure monitoring, medical surveillance, hygiene facilities, work practices, fugitive emission controls, and proper disposal.

If exposure occurs:

- 1: Wash hands, face, and other contact areas immediately
2. Contact supervisor and safety personnel.
3. Supervisor will STOP work IMMEDIATELY

### TRAINING DOCUMENTATION

A training program must be provided for all employees who are potentially exposed to cadmium. Employees can do much to protect themselves from the risks of occupational cadmium exposure if they know about them. In our training programs we inform employees of the specific hazards associated with their work environment, protective measures which can be taken, and their rights under the standard prior to the time of initial assignment and annually thereafter. All employees working in areas with airborne cadmium levels above the PEL are required to possess appropriate training certifications. Training documentation will detail identity of employee trained, signature of qualified trainer, and date(s) of training. Training documents will be kept according to the OSHA, VOSH, and Mathers' policy.

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Please direct any questions or concern to safety manager or project manager.

Employees using hand or power tools and those who are exposed to falling, flying, abrasive, splashing objects, dusts, fumes, mists, vapors, or gases will be provided with the particular protective equipment and associated training necessary to protect them from these hazards.

All employees of Mathers will be instructed on the proper use, care and maintenance of PPE prior to use. Each employee will be fitted for proper fit, consideration will be given to some extent for comfort. All training is documented. Retraining will occur as necessary. PPE must be used and maintained in a sanitary condition at all times. Employees will be retrained if improper use is recognized, or management feels there is a lack of proper understanding.


All new employees will be issued a hard hat and safety glasses prior to beginning work with Mathers. Employees are required to provide their own safety-toed work boots. Special needs such as safety goggles that fit over prescription glasses will be provided. Hazard assessment will be evaluated and documented per each job site, and made aware to all employee precautions to take. The hazard assessment must be signed by the person who completed the assessment, specifying the required PPE. Special equipment such as face shields, respirators, hearing protection and gloves, will be issued on a need basis. Employees are responsible for the care and maintenance of all special equipment issued and will be held accountable for any damages/replacements.

All damaged PPE shall be marked as DO NOT USE and given to supervisor to be properly discarded.

Any employee owned PPE must be inspected by Mathers supervision to assure it is adequate and being maintained properly and is sanitized per manufacturer's instructions. It is the company's responsibility to ensure compliance and maintenance of all PPE.

## HEAD PROTECTION

ANSI approved hard hats issued by Mathers are required at all times.

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All hard hats are to worn correctly. Persons wearing hats under their hard hat and/or wearing them backwards, will be cited for a safety violation.

Hard hats will be inspected before each use for defects and weaknesses. The company safety coordinator will inspect any hard hat involved in an accident before it is used again.

#### EYE AND FACE PROTECTION

Approved safety glasses are required during chipping, cutting, breaking, sawing, drilling or any activity that poses a hazard to the eyes.

Face shields are required for grinding, welding, chemical handling and other operations that pose a hazard to the face and forehead. Safety glasses shall be worn underneath the face shield.

#### RESPIRATORS

Only persons who have been approved medically and been trained and fit tested are allowed to wear respirators. Each employee will be reevaluated annually.

Respirators are selected based on conditions and are NIOSH certified. Respirators cannot be worn if seal is broken due to facial hair and/or glasses. If cartridges, mask needs to be washed, than the employee should leave the area to do so.


IDLH atmospheres is not allowed

#### FOOT PROTECTION

Approved steel-toed, durable leather safety footwear is required at all times on the job.

#### HEARING PROTECTION

Hearing protection will be provided when employees are exposed to loud noises for a long enough duration that hearing loss becomes a risk.

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The general rule is that hearing protection is not necessary unless an employee is exposed to a continuous noise level of 90 dBA for eight hours per day.

#### BODY AND CLOTHING REQUIREMENTS


Long pants will be worn at all times. Excessive jewelry and loose clothing are not allowed.

#### HAND PROTECTION

While utilizing tools and handling materials that could cause injury to the hand, appropriate gloves shall be worn.

Leather gloves shall be worn when working with sharp or abrasive materials.

Rubber gloves shall be worn when working with chemicals.

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Hearing conservation programs shall be implemented when employees are exposed to a steady noise that has an 8 hour time weighted average (TWA) noise level of 85 A weighted decibels or above.

Sound pressure levels in potentially noise hazardous work areas will be tested using instrumentation that meets or exceeds the requirements in ANSA Standard S1.41983. Minimally, steady noise measurements shall be made using “A” weighting, with the meter response set to “slow”. Host facilities with potentially noise hazardous work areas are responsible for such testing as well as informing Mathers of the hazard.


When information indicates that employee exposure may equal/exceed the 8 hr. time-weighted average of 85 decibels, area monitoring may be used to determine worker exposure. In circumstances such as high worker mobility, significant variations in noise levels, or a significant component of impulse noise, representative personal sampling shall be conducted.

All employees who routinely work in designated hazardous noise areas must be provided with training on at least an annual basis, and shall be updated to be consistent with changes in the PPE and work processes. Such training shall include:

- Effects of noise on hearing
- The purpose of hearing protection
- The advantages, disadvantages, and attenuation of various hearing protectors
- The purpose of audiometric testing
- Explanation of the test procedures

They shall also be encouraged to use hearing protectors when they are exposed to hazardous noise while not at work.



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All employees routinely exposed to hazardous noise (exposures that equal or exceed the 8 hr TWS of 85dba) shall be placed in a hearing-testing program. That program shall include pre-placement, periodic (at least once, annually for employees who continue to work in designated hazardous noise areas), and termination audiograms. Medical evaluation is required to validate the existence of a permanent noise induced threshold shift and shall be done by an audiologist, otolaryngologist, or physician. If a standard threshold shift has occurred the employee will be notified in writing within 21 days of determination. The individual shall be refitted with hearing protection, instructed in its care and use, and strongly encouraged to wear the hearing protection. Employees who infrequently or incidentally enter designated hazardous noise areas need not participate in the audiometric testing program.

In no case shall a reference audiogram be conducted more than 6 months from the date of a workers initial exposure to hazardous noise. Regardless of the time of initiation, the first valid hearing test administered is the reference audiogram and shall be preceded by at least 14 hours without exposure to workplace noise. The worker shall be cautioned to avoid high levels of non-occupational noise exposure during a 14 hour period preceding the examination.


All audiometric testing data shall be maintained for the duration of employment plus 30 years. Results of hearing tests performed for hearing conservation, as well as exposure documentation, shall be a permanent part of the individual's health record. All employees who routinely work in designated hazardous noise areas shall be identified, and a current roster maintained.

Mathers shall issue personal hearing protectors free to all employees who work in designated hazardous noise areas.

The hearing protectors provided shall be capable of attenuating worker noise exposure below an 8 hr TWA of 85 DBA. If hearing protectors do not provide sufficient attenuation, control of exposure shall be necessary. Mathers shall assess the adequacy of

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hearing protectors when used in very high noise environments or for extended exposure periods.


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## Appendix D to Sec. 1910.134 (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.
5. Employees will be trained on proper storage, inspection and cleaning of respirators to ensure cleanliness and sanitation. Competent persons will be trained on inspection.
6. This procedure will be reviewed upon hire and annually thereafter with all Mathers employees.

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7. Mathers Employees will not perform work in areas or equipment where harmful vapors or oxygen deficient atmospheres exist. Working in IDLH atmospheres is prohibited.
8. Mathers' Safety Director is the Respirator Program Administrator.
9. Respirators will be provided, at no cost, to Mathers employees.
10. Medical evaluation prior to fit testing will be confidential, during work hours, convenient, understandable, and employee will have the opportunity to discuss the results with the physician or of licensed health care professional. Fit testing will be done using the qualitative method.



Appendix D, Information and Acknowledgement Form for Employees using Respirators When Not Required Under the OSHA Standard Sec. 29 CFR 1910.134, Appendix D

You have indicated that you wish to voluntarily wear a respiratory protection device. The following information is required by OSHA to be supplied to employees who wish to use respiratory protection devices voluntarily. Please read this information and sign the form to indicate that you have received this information:

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard. You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Wear the respirator in non-hazardous areas only (voluntary respirator use is permitted in non-hazardous atmospheres only).
5. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

I acknowledge that I have read the Mathers Team Respiratory Protection Program and have received a copy of the information for voluntary use of respirators when not required under the Standard Sec. 1910.134. I have discussed these documents with my supervisor and am following the Mathers Team Respiratory Protection Program. I will receive a signed copy of this document from my supervisor for my records.


Employee Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Supervisor Signature: \_\_\_\_\_ Date: \_\_\_\_\_



This document must be kept on file in the user's department respiratory protection records.

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## Policy

This program addresses that fall protection and meets industry stands such as OSHA 1926 subpart M.

All incidents involving fall protection will be investigated according to the Mathers' accident recording and prevention policy. Such investigation will be used to improve practice, procedures, and training to prevent reoccurrence.

## Scope

Mathers requires 100% continuous fall protection for all employees when working above (6) six feet. There are some tasks that may require 100% continuous fall protection when working above (4) four feet. All employees will be trained on the recognition of fall hazards and the procedures needed to prevent them. Retraining of employees will be performed as necessary. All training will be documented on the employee CVS training card. All personal fall arrest systems (PFAS) will be provided by Mathers. PFAS will be issued to an employee prior to performing any elevated work which requires wearing the fall protection.


## Requirements

All jobs and tasks will be evaluated for fall hazards and appropriate measures shall be taken to prevent falls prior to beginning any duties. Job specific fall protection plan, and task related safe plan of action will address rescue plan specific to the hazards of each task and location.

## TRAINING

Fall Protection training requirements shall include:

1. New employees with work responsibilities requiring the use of fall protection will be oriented to the Mathers Fall Protection Program (and any local addendums) as part of the 'new employee orientation program'.
2. At new worksites, i.e. Mathers offices, client job sites, etc., during the pre-job meeting to describe specific fall protection requirements of the job.
3. Thereafter, every foreseeably exposed employee will be trained at least annually, and include the following:

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- The nature of fall hazards in the typical work area
- The correct procedures for erecting, maintaining, disassembling, and inspecting fall protection systems
- The use and operation of conventional and non-conventional fall protection systems
- The role of each employee in the safety monitoring system when such a system is in use
- The limitations on the use of mechanical equipment during the performance of roof work on low-slope roofs
- The correct procedures for equipment and materials handling and storage, and the erection of overhead protection
- The correct fit, maintenance and use of (personal) fall arrest system components, as determined by the manufacturer(s)
- Rescue procedures in the event an individual falls
- All other details in this section (local addendums)

4. Toolbox talks for related issues of this manual section shall be covered periodically.
5. Retraining shall also occur whenever deficiencies in the training program are identified, standard requirements change or are modified or new fall protection systems are introduced.
6. Any employee who has not received orientation or annual training (as previously outlined) shall not be allowed to work at heights identified by this section.

## GUARDRAILS

1. If wire rope is used for top rails, it shall be flagged at not more 6 feet intervals with high-visibility material. Steel and plastic banding are prohibited for use as top rails or mid-rails.
2. The top edge height of top rails, or (equivalent) guardrails shall be 42 inches, plus or minus 3 inches, above the walking/working level.
3. Screens, mid-rails, mesh, intermediate vertical members, or equivalent intermediate structural members shall be installed between the top edge of the guardrail system and the walking/working surface when there are no walls or parapet walls at least 21 inches high. When mid-rails are used, they shall be installed at a height midway between the top edge of the guardrail system and the walking/working level. When screens and mesh are used, they shall extend from




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the top rail to the walking/working level. Intermediate members, such as balusters, when used between posts, will not be more than 19 inches apart.

4. The guardrail system shall be capable of withstanding a force of at least 200 pounds of force applied within 2 inches of the top edge in any outward or downward direction. When the 200 pounds is applied in a down-ward direction, the top edge of the guardrail shall not deflect to a height less than 39 inches above the walking/working level.
5. Mid-rails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members will be capable of withstanding a force of at least 150 pounds of force applied in any downward or outward direction at any point along the mid-rail or other member.
6. Guardrail systems shall be free of sharp edges and burrs to protect against punctures or lacerations and to prevent clothing from snagging.
7. The ends of top rails and mid-rails shall not overhang terminal posts, except where such an overhang does not constitute a projection hazard.
8. When guardrail systems are used at hoisting areas, a chain, gate, or removable guardrail section shall be placed across the access opening between guardrail sections when hoisting operations are not taking place.
9. At uncovered holes, guardrail systems shall be set up on unprotected sides or edges. When holes are used for the passage of materials, the hole shall have not more than two sides with removable guardrail sections. When the hole is not in use, it shall be covered or provided with guardrails along unprotected sides/edges.
10. If guardrail systems are used around uncovered holes that are used as access points (such as ladderways), gates shall be used, or the guardrail shall be offset at a 45-degree angle to prevent accidental walking into the hole. Toe boards shall be utilized around the edges not utilized as the actual access point.
11. If guardrails are used at unprotected sides or edges of ramps and runways, they shall be erected on each unprotected side/edge.
12. When guardrail systems, in combination with netting, is used to prevent materials from falling from one level to another, openings shall be small enough to prevent passage of potential falling objects.

## LADDERS


1. All ladders must be inspected before use and be maintained in good repair. Any defective ladder must be removed from the job site and tagged "DO NOT USE".
2. Portable ladder feet must be placed on a firm, substantial base.

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3. The area around the top and bottom of a ladder must be kept clear of debris, cords, welding leads and other tripping hazards.
4. Portable ladders shall be used at such a pitch that the horizontal distance from the top of the support to the foot of the ladder is about one-quarter of the working length of the ladder.
5. Ladders are not to be used in a horizontal position as platforms, walk boards, runways or scaffolds.
6. Ladders must not be placed in passageways, doorways, driveways or any location where they may be displaced by activities conducted on any other work, unless protected by barricades or guards.
7. Ladder rails must extend at least 3 feet above the upper landing surface to which the ladder is used to gain access.
8. Portable ladders in use must be tied, blocked, or otherwise secured to prevent them from movement.
9. Portable metal ladders must not be used for electrical work, or where they may come in contact with electrical conductors.
10. Prior to ascending or descending a ladder, the user shall ensure that the ladder is secured against displacement, and extends at least 3 feet above the landing.
11. Ladders shall not be used to support scaffold boards.
12. Hands must be free from tools or equipment when climbing on a ladder.
13. All ladders be OSHA certified and have the correct load capacity for the task

#### SCAFFOLDING

1. All manufacturer's directions, load capacities and height requirements shall be followed when using scaffolds. All employees working on scaffold must be trained. Re-training will take place if improper use is observed and not more than three years.
2. All scaffolds shall be inspected before use.
3. The footing or anchorage for scaffolding must 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, must not be used to support scaffolds or planks.
4. A competent person must supervise all scaffolding erection, movement, dismantling or alteration. A competent person will inspect the scaffolding daily.
5. Guardrails and toe boards must be installed on all open sides and ends of platforms

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- more than ten feet above the ground or floor. Scaffolds 4 feet to 10 feet in height, having a minimum horizontal dimension in either direction of less than 45 inches, must have standard guardrails installed on all open sides and ends of the platform.
6. Guardrails must be 2 x 4 inches, or the equivalent, approximately 42 inches high, with a mid-rail when required. Supports must be at intervals not to exceed 8 feet. Toe boards must be a minimum of 4 inches in height.
  7. Fall protection must be used in the case when guardrails cannot be properly installed.
  8. Where persons are required to work or pass under the scaffold, scaffolds must be provided with a screen between the toe board and guardrail, extending along the entire opening, consisting of No. 18 gauge U.S. Standard wire ½ inch mesh or the equivalent.
  9. Overhead protection must be provided for workers on scaffolds exposed to overhead hazards.
  10. Slippery conditions on scaffolds must be eliminated as soon as possible after they occur.
  11. No welding, burning, riveting or open flame work must be performed on any staging suspended by means of fiber or synthetic rope. Only treated or protected fiber or synthetic rope must be used for or near any work involving the use of corrosive substances or chemicals.
  12. Wire, synthetic or fiber rope used for scaffold suspension must be capable of supporting at least 6 times the maximum intended load.
  13. Scaffolds and their components must be capable of supporting, without failure, at least 4 times the maximum intended load.
  14. Any scaffold or accessories, damaged or weakened from any cause, must be immediately repaired or replaced. Damaged equipment must be tagged out.
  15. All scaffolds and work platforms must be a minimum of 2 planks wide.
  16. All planking or platforms must be overlapped a minimum of 12 inches, or be secured from movement.
  17. Platform planks must be laid with their edges close together so there will be no spaces through which tools or fragments of material can fall.
  18. Employees shall not climb scaffold frames or braces.
  19. All scaffolds shall be provided with properly secured access ladders.
  20. Scaffold planks must extend over their end supports between 6 and 12 inches.
  21. The poles, legs or uprights of scaffolds must be plumb, and securely and rigidly braced to prevent swaying and displacement.

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22. Employees shall ensure that the wheels on manually propelled mobile scaffolds are locked.
23. Manually propelled scaffolds are to be moved only when all employees are off the scaffold.
24. Scaffolds must be secured against tipping by guying, tying, bracing or other equivalent means. When scaffolding over three feet wide exceeds heights 4 times their width, the scaffold must be secured beginning at 4 times the width height, then at intervals not greater than 26 feet vertically and 30 feet horizontally. Scaffolds 3 feet wide or less, must be secured beginning at 4 times the width, and then be secured at 20 feet vertical intervals.
25. Training shall include discussion of fall protection, electrical hazards, falling objects and load capacity
26. Scaffold inspections will be conducted periodically throughout the shift by the competent person.

#### ELEVATED PLATFORMS/ AERIAL LIFTS

1. Ensure operators are trained to operator equipment
2. Inspect equipment for malfunction or defective equipment including but not limited: electrical components and controls, fire extinguishers, tires, guardrails, gates, oil and other fluids, hydraulics, tie off points.
3. Use tool tethers when working from lifts.
4. Ensure personnel working from lift wear PFAS including the use of retractable lanyards. (PFAS should be identified for fall restraint) Do not sit or stand on the top or mid-guardrails.
5. Inspect terrain and working surface to ensure terrain is appropriate for use and travel of equipment.
6. Use spotter when operating equipment.
7. Clean as you go throughout use to ensure tools and materials do not present a trip hazard. Ensure platform of lift remains clear of clutter and debris.
8. Do not use equipment modified or altered outside of the manufacturers' recommendation.
9. Monitor weather conditions. Sustained wind speeds of 20 mph require all lift to be shut down until wind speeds have subsided. Monitor approaching lightning and storm. With lightning approaching 30 miles begin preparations to shutdown work if it come into the range. Work must be shut down by the time lightning reaches within 10 miles. Work cannot resume until 30 mins after the last strike within 10

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miles. Mathers will use the WeatherBug App, unless a more reliable system that can be easily accessed and relayed in provided to us.

#### BODY HARNESSSES AND LIFELINES

1. A complete fall arrest system shall consist of a full body harness, a shock-absorbing lanyard with a self-locking clip and an adequate anchorage point.
2. All parts of the fall arrest system must be inspected before each use to ensure that no parts are damaged or deteriorated. If damage or deterioration has occurred, remove that part and tag “Do Not Use”.
3. In the case that a fall arrest system is utilized during a fall, it shall be removed from operation immediately and a new arrest system is to be issued.
4. An approved safety harness and lanyard shall be always worn while working 6 or more feet above any surface.
5. Fall protection will be utilized to prevent falls from ladders, lifts, elevated platforms, scaffolds, vessels or any elevation in which there are no other means of protection from falling.
6. Lifelines and lanyards must be secured above the point of operation to an anchorage point or structural member capable of supporting a minimum dead weight of 5,400 pounds. The anchorage must be independent of any anchorage being used to support or suspend platforms.
7. Fall arrest systems must be rigged in such a manner that no employee can either free fall or fall more than 4 feet or contact any lower level.

#### HOLES


1. All openings 2 in. x 2 in. or greater must be protected by perimeter guarding or a clearly marked, properly secured hole cover.
2. Perimeter guarding or covers will not be removed without the approval of the erecting supervisor.

#### LEADING EDGES

Employees working near a leading edge 6 feet or more above lower levels shall be protected by guardrail, safety net, restraint/positioning, or (personal) fall arrest systems.

#### FALL PROTECTION PLAN

1. Where conventional fall restraint and fall arrest methods cannot be utilized (or utilized safely), the following non-conventional methods can be utilized with the

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development of a written fall protection work plan.

2. A Competent Person will develop and implement a written Fall Protection Work Plan.

3. The Risk Assessment for this project/task should be reviewed for this document.

The written Fall Protection Work Plan shall include:

- Identification of fall hazards in the work area
- Describe the non-conventional method (or in combination with conventional method) of fall protection to be provided
- Describe the correct procedures for the assembly, maintenance, inspection, and disassembly of any fall protection system to be used
- Describe the correct procedures for the handling, storage, and securing of tools and materials
- Describe the method of providing overhead protection for workers who may be in or pass through the area below the work site
- Describe the method for prompt, safe removal of injured workers
- Describe the method for destruction of personal fall arrest system equipment subjected to the forces of any fall
- Be always available on the jobsite

# Fall Protection Work Plan

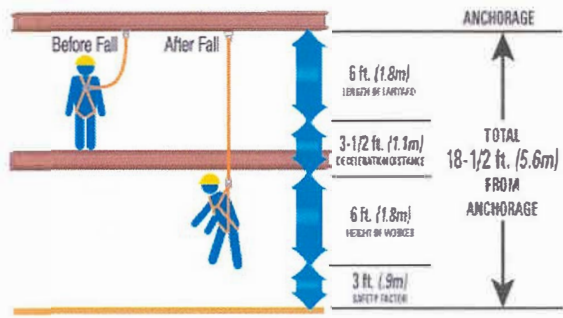


<b>Project No./Contract No.</b>	<b>Date:</b>
<b>Contractor:</b>	<b>Area:</b>
<b>Location:</b>	
<i>Note: Employees review the requirements of this fall protection work plan prior to starting work. This plan is available at the jobsite during work activities. Also, employees are trained and instructed in accordance with Fall Protection Practices.</i>	
<b>Job Location Description:</b>	
1. <b>Justify:</b> Use of Fall Protection Plan (why conventional fall protection cannot be used)	
2. Identify all fall hazards 6 ft. (1.83 m) or more in the work area:	
<input type="checkbox"/> Floor Openings	<input type="checkbox"/> Ladders
<input type="checkbox"/> Scaffold Erection/Disassembly	<input type="checkbox"/> Stairways
<input type="checkbox"/> Other:	<input type="checkbox"/> Leading Edge
	<input type="checkbox"/> Steel Erection
	<input type="checkbox"/> Perimeter Edge
	<input type="checkbox"/> Through a Roof
3. Method of fall protection to be provided:	
<input type="checkbox"/> Catch Platform	<input type="checkbox"/> Fall Arrest
<input type="checkbox"/> Guardrails	<input type="checkbox"/> Safety Monitor
<input type="checkbox"/> Fall Restraint	<input type="checkbox"/> Warning Line
<b>Describe:</b>	
<b>Self-Retracting Lanyard (SRL) – Highly Recommended</b>	
4. Describe the correct procedure for assembly, maintenance, inspection, and disassembly of the fall protection system to be used.	
5. Describe the correct procedure for handling, storage, and securing of tools and material.	
6. Describe the method of providing overhead protection for employee's who may be in, or pass through, the area below the work site:	
<input type="checkbox"/> Barricading	<input type="checkbox"/> Toe-boards on Scaffolds and Floor Openings
<input type="checkbox"/> Hard Hats Required	<input type="checkbox"/> Warning Signs
<b>Describe:</b>	
7. Describe the method for prompt, safe removal of injured employees:	
<input type="checkbox"/> Initiate Emergency Response (911)	<input type="checkbox"/> Use Drop Lines or Retraction
<input type="checkbox"/> Use Lift Truck or Personnel Platform	<input type="checkbox"/> Utilize Scaffolds
<input type="checkbox"/> Other (describe):	<input type="checkbox"/> Use Ladders
	<input type="checkbox"/> Trauma (Relief) Stirrups

# Fall Protection Work Plan

8.	Describe the method used to determine the adequacy of attachment points: <input type="checkbox"/> Evaluation by Qualified Engineer <input type="checkbox"/> Existing Engineering/Design Documents <input type="checkbox"/> Good Faith Assessment <input type="checkbox"/> Manufacturer's Data
9.	Identify the employees working under this Fall Protection Plan:  _____ _____ _____ _____
10.	Justify selecting controlled access zone and/or safety monitor (if used – or N/A):  Identify the safety Monitor(s) (if used – or N/A):
<b>Approvals</b>	
Fall Protection Plan Completed By: _____	
Approved By:	_____ Responsible Supervisor                      Date                      HSE Representative                      Date
	_____ Competent Person                      Date                      Other                      Date

## Personal Fall Arrest System - Anchorage Points for Shock-Absorbing Lanyard and D-Ring Anchorage Connector.



### Calculating Fall Clearance Distance Using a Shock-Absorbing Lanyard (SAL) and D-Ring- Example

1. First, add the length of the shock absorbing lanyard (e.g., 6 feet. (1.8 meters)) to the maximum elongation of the shock absorber during deceleration (3.5 feet (1.06 meters)) to the average height of a worker (6 feet (1.8 meters)).
2. Then, add a safety factor of 3 feet (1 meter) to allow for the possibility of an improperly fitted harness, a taller than average worker and/or a miscalculation of distance.
3. The total of 18.5 feet (5.6 meters) is the suggested safe fall clearance distance for this example.
4. **Note: Consult specific manufacturer suggested guidance for fall clearance specification**





# Fall Protection Work Plan

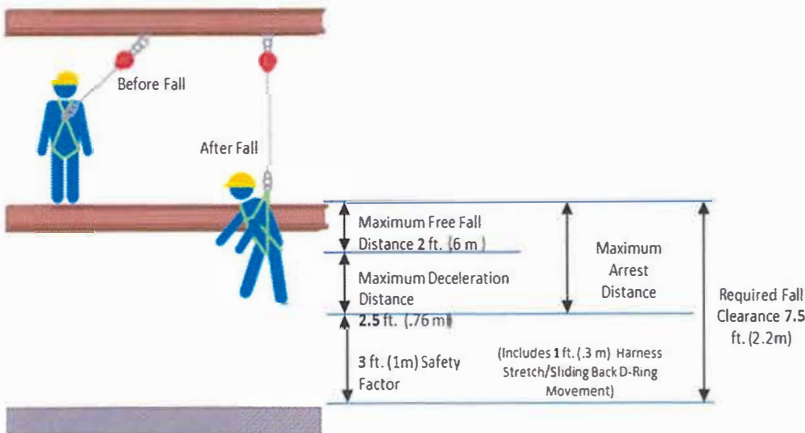
## Fall Clearance Calculations Using Shock Absorbing Lanyard:

(See above)

Body Positioning –	SAL Anchor	_____
Free Fall (FF) –	SAL Free Fall (see #1)	_____
Deceleration Distance (DD) –	Shock Absorber Deceleration	_____
Maximum Arrest Distance –	(see #2)	_____
<b>Required Fall Clearance –</b>	<b>Add Safety Factor of 3 feet</b>	_____

## Calculating Fall Clearance Distance Using a Self-Retractable Lifeline (SRL)

1. First, identify body position factor (Anchor above (0 ft.) or Worker laying down (Worker height (min. 6ft)), Worker kneeling (Half of Worker Height (min. 3ft))).
2. Take body position factor and add the maximum free fall distance (FF) with a retractable lifeline to the maximum deceleration distance (DD). Take the free fall distance and deceleration distance on SRL device.
3. Then, add a safety factor of 3 feet to allow for the possibility of an improperly fitted harness, a taller than average worker and/or a miscalculation of distance.
4. MAX Arrest Distance = (body position factor) + FF + DD Then add a safety factor of 3 feet – Required Distance = \_\_\_\_\_



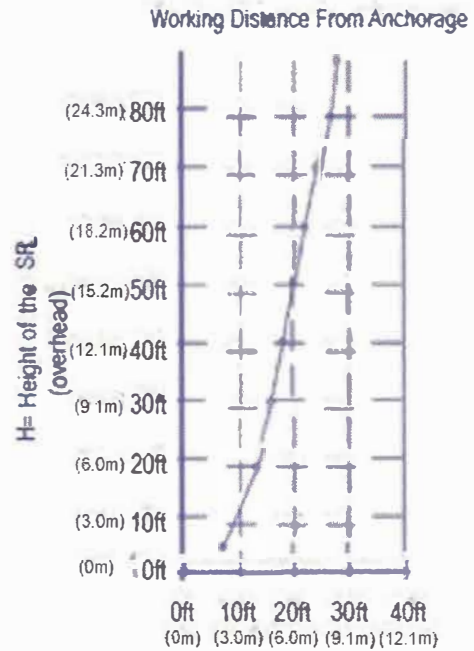
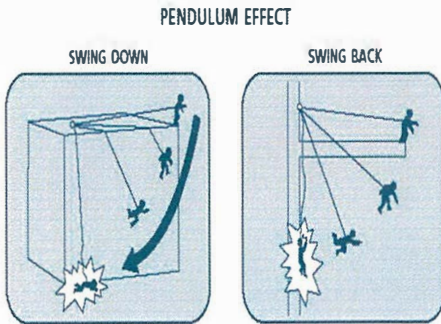
## Fall Clearance Calculations Using SRL:

Body Positioning –	SRL Anchor (see #1)	_____
Free Fall (FF) –	SRL Free Fall	_____
Deceleration Distance (DD) –	SRL Deceleration (on SRL)	_____
Maximum Arrest Distance –	(see #4)	_____
<b>Required Fall Clearance –</b>	<b>Add Safety Factor of 3 feet</b>	_____

# Fall Protection Work Plan

## Calculating the Allowable Swing Fall Radius

Use the table to determine the allowable working distance the worker can move horizontally from the **overhead anchorage point**. The example provided in the tables has the worker using a Self-Retracting Lifeline (SRL)



D = Distance person can move (horizontally)


# Fall Protection Work Plan

## Rescue Plan

### **Call 911 if fall occurs**

Identify method for prompt, safe rescue of injured or suspended workers (check all that apply):

- Emergency Services (Police/ Fire/ Rescue)
  
- Self-rescue: *Describe*  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  
- Onsite equipment available: ladders, lifts, winches, pulleys, work platforms, etc.
  
- Onsite attendants
  
- Obstructions that may impede rescue:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  
- Methods of communicating with injured worker:
  - \_\_\_ Radio
  - \_\_\_ Cell phone

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Management, supervisors and employees shall adhere to the applicable requirements of the Virginia Construction and Telecommunications Industries Confined Space Standard Procedure Manual CNSP.146 and the OSHA and VOSH Standard 29 CFR 1910.268.

In the course of normal work, personnel may be required to enter confined space. However, it is the company policy **not** to enter an environment containing a hazardous atmosphere presenting a potential for death, disablement, injury or acute illness. Mathers will not perform any work in IDLH (Immediately Dangerous to Life and Health) atmospheres.

Policy is to enter a confined space only after the space is verified to be no more than “Potentially Hazardous”. The criteria for this classification are:

- a. Oxygen Level – 19.5% to 23.0%
- b. Flammability is less than 10% of the lower exposure limits (LEL) of potential flammable substances.
- c. An atmospheric concentration of any substance listed in Subpart Z of 29 CFR Part 1910, less than the numerical value of the permissible exposure limit (PEL).  
Maximum Safe Entry Levels –  
Carbon Monoxide – 35 parts per million (PPM)  
Hydrogen Sulfide – 10 parts per million (PPM)

Entry of confined spaces by employees will be accomplished in accordance with the following plan.

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These practices and procedures establish the minimum requirements to protect employees whose work may require them to enter a confined space, from all potentially hazardous conditions encountered in the accomplishment.

This program will be reviewed on a period of annually. The permit program system, including closed permits, will be reviewed within one year of issuance. For permits that are issued through client permitting system the client audit system will be followed, as they hold and audit all permit in accordance to their standards.

### 1. Definition

Confined space is any space:


- a) That is not intended for continuous human occupancy, and
- b) Having a limited means for egress, and
- c) Which is subject to either the accumulation of an actual or potentially hazardous atmosphere or a potential for engulfment as defined CNSP.146, Virginia Construction Industry Confined Space Standard.

This may include, but is not limited to, storage tanks or vessels, bins, sewers, underground utility vaults, tunnels, pipelines and manholes.

### 2. Mandatory Compliance

All employees are required to comply with this policy and plan. Noncompliance with or violation of these procedures will result in immediate disciplinary action up to and including termination.

### 3. Responsibility

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All employees shall comply with the Virginia Construction Industry Confined Space Standard CNSP.146 and the OSHA and VOSH Confined Space Standard 29 CFR 1910.146 as applicable.


Company management is responsible for assuring that all personnel are adequately trained to perform their respective tasks in this regard. Management will provide all training and necessary equipment and materials to safely affect confined space entry work and will ensure compliance with this plan, established safety practices and applicable directives by periodically inspecting confined space entry operations.

The Project Manager will be notified of all confined space entries in advance and the expected or suspected hazards and their controls discussed. He will assign a qualified person to supervise all aspects of entry and be satisfied that all personnel involved are adequately trained and prepared to perform their assigned tasks. For confined spaces that require entry by multiple employer the project manager is responsible for developing a safe plan of action to review with the safety department for the start of work. Additionally, he will ensure that all required material and equipment are available on site and that it is in serviceable condition.

The qualified person will be trained to recognize the hazards of the confined space and to evaluate those anticipated hazards. The qualified person shall also be capable of specifying the necessary control measures to assure worker safety. The qualified person shall be available on site during all confined space entry operations and supervise all activities.

#### **4. Preparation For Entry Into Confined Space**

All confined spaces will be tested for the presence of a harmful atmosphere prior to entry by an individual. The qualified person shall assure that all confined spaces are purged of flammable, injurious or incapacitating substances. Mechanical ventilation

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shall be used where a hazardous atmosphere is demonstrated to be present and continued to prevent re-accumulation. Entry will not be made until conclusive evidence from testing indicates the hazardous atmosphere has been eliminated.

The qualified person shall assure that all mechanical devices and equipment in a confined space capable of causing injury are disabled.

Preventative measure for unauthorized entries must be taken such as barricades and appropriate signage. Barricades must protect from pedestrian entry, vehicle traffic, and any adjacent work.


Only after the qualified person is satisfied that safe entry may be made into a confined space will he/she issue a permit for entry.

## **5. Atmospheric Testing**

The qualified person shall assure continuous monitoring of the confined space during entry by the use of atmospheric testing instruments during attendant-required and non-attendant entry. The qualified person shall assure the immediate cessation of operations and exit any space upon alert to changing conditions within the space. Any employee can request additional monitoring at any time. Atmospheric monitoring should be done at the top, middle and bottom of the space. (See Appendix A)

## **6. Customer Confined Space Entry Program**

All Mathers Construction Employees must follow the confined space procedures at the particular site where work is being conducted. Training on these procedures must take place before confined space work commences. If a confined space entry needs to take place at Mathers Construction Team corporate offices/shop or at a commercial site, the safety coordinator must be notified and approval given before commencing work.

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## 7. Permit Systems

The company has developed a written permit entry system to be used for confined space entries that take place at Mather’s corporate offices or at a commercial job site. A copy of the permit is shown in Appendix B. This permit shall be initiated and signed by the qualified person. The permit may only be issued for up to a twelve (12) hour period and extended for an additional twelve (12) hour period one time only. The permit shall remain available on site during the entry and, on completion, be submitted to the Project Manager. The permit must be closed out after the end of the twelve-hour period by a qualified person. If an unexpected emergency occurs, the entry permit will be cancelled immediately, and all entry personnel will be removed. A new permit will be required for re-entry.

## 8. Attendants

The entrant supervisor shall identify and evaluate the hazards and potential hazards of the confined space. If required, an attendant shall be assigned who is trained in the attendant’s responsibilities. The attendant shall perform atmospheric monitoring, documenting the results on the permit and shall remain in contact with the entrants at all times. The attendant shall have no other duties distracting from his responsibilities as an attendant. The attendant shall have the capability of summoning immediate assistance and rescue personnel via the fire alarm system, radio, or telephone communication. The means of summoning rescue personnel will be addressed in the morning toolbox talk to include: form of contact (radio ,fire alarm location, or phone numbers) and review of location. Mather’s will specify that trained rescue personnel be provided by the host site. If more than one confined space entry needs to take place at any time, an additional attendant will be assigned.



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**9. All Entrants Must Perform The Following:**


- a) Assure Lockout/Tagout has been performed correctly before attaching their own Lockout/Tagout.
- b) Assure that the ventilation is adequate.
- c) Assure the atmosphere is acceptable.
- d) Assure they know what to do in emergencies.
- e) Assure they know how to use special equipment and tools.
- f) Visually inspect all equipment/tools for defects and remove defective equipment/tools immediately.
- g) Follow all aspects of this procedure 100% of the time.

**10. Training**

Management will provide training to establish and maintain the qualifications, job knowledge and skills of qualified persons, attendants and entrants of confined space. Training shall be with respect to their duties and include hazard recognition, use of atmospheric testing devices for those employees required to perform atmospheric tests including field checks specified by the manufacturer, normal use of the equipment and specific limitations. Training will also be conducted prior to a change in assigned duties, if a new hazard has been created, and/or if special deviations have occurred.

Participants will also be trained in Lockout/Tagout procedures, use of special equipment and tools and emergency and rescue methods and procedures. At least the attendant or qualified person shall hold current first aid and CPR certification. All training shall be documented to include the date(s) of training, the instructor's name, subjects presented and the persons trained and the records maintained. This procedure will be reviewed at least annually and revised as necessary.

**11. Special Equipment and Tools**

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No sources of ignition shall be introduced into a confined space until the implementation of the appropriate steps have been taken to ensure that dangerous air contamination due to flammable and/or explosive substances are not present.

All electrical cords, tool and equipment shall be inspected for visually detectable defects before use in a confined space. Equipment shall be of the heavy duty insulation type, low voltage or protected with ground fault circuit interrupters.


No fan or other equipment used for removing flammable gases or vapors shall create an ignition hazard.

Cylinders of compressed gases shall never be taken into a confined space and shall be turned off at the cylinder valve when not in use. When left unattended, the torch and hose shall be removed from the confined space. Open end fuel gas and oxygen hoses shall be immediately removed from the enclosed spaces when they are disconnected from the torch or other gas consuming device. (Compressed gas cylinders that are part of breathing or resuscitation equipment are exempt from this requirement).

Barricades must be placed around the confined space area to prevent vehicles, pedestrians and other external hazards from affecting Mather's personnel.

## **12. Multi-Employees Working In The Same Confined Space**

If a confined space entry requires multi-employee entry, Mather's will ensure that these employees follow our procedures unless their procedures are equal or better than ours. Mathers will review their procedures and documented training to ensure their adequacy.

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**DOCUMENTED EMPLOYEE TRAINING  
TRAINING FOR CONFINED SPACE ENTRY**

**Topics Presented:**

1. Confined spaces – what they are and how to recognize a confined space.
2. The potential hazards to employees entering confined space.
3. The competent person and what his/her responsibilities and authorities are in assuring a safe entry for employees, including the issuance of any entry permit.
4. Atmospheric testing procedures.
5. Consequences for noncompliance or violation of the Mathers Construction Team Confined Space Entry Plan

I have received a copy of the Mathers Construction Team Confined Space Entry Policy and Plan and have received and understood the training outlined above.

Employee Name	Date	Trainer Name
Employee Signature	Date	Trainer Signature



## CONFINED SPACE ENTRY PERMIT

Confined Space Location/Description/ID Number \_\_\_\_\_

Date: \_\_\_\_\_

Purpose of Entry \_\_\_\_\_

Time In: \_\_\_\_\_

Permit Canceled Time: \_\_\_\_\_

Time Out: \_\_\_\_\_

Reason Permit Canceled: \_\_\_\_\_

Supervisor: \_\_\_\_\_

**Rescue and Emergency Services-**

Hazards of Confined Space	Yes	No	Special Requirements	Yes	No
Oxygen deficiency			Hot Work Permit Required		
Combustible gas/vapor			Lockout/Tagout		
Combustible dust			Lines broken, capped, or blanked		
Carbon Monoxide			Purge-flush and vent		
Hydrogen Sulfide			Secure Area-Post and Flag		
Toxic gas/vapor			Ventilation		
Toxic fumes			Other- List:		
Skin- chemical hazards			<b>Special Equipment</b>		
Electrical hazard			Breathing apparatus- respirator		
Mechanical hazard			Escape harness required		
Engulfment hazard			Tripod emergency escape unit		
Entrapment hazard			Lifelines		
Thermal hazard			Lighting (explosive proof/low voltage)		
Slip or fall hazard			PPE- goggles, gloves, clothing, etc.		
			Fire Extinguisher		

**Communication Procedures:** \_\_\_\_\_

DO NOT ENTER IF PERMISSABLE ENTRY LEVELS ARE EXCEEDED		Test Start and Stop Time:	
	Permissible Entry Level	Start	Stop
% of Oxygen	19.5 % to 23.5 %		
% of LEL	Less than 10%		
Carbon Monoxide	35 PPM (8 hr.)		
Hydrogen Sulfide	10 PPM (8 hr.)		
Other			

Name(s) or Person(s) testing: \_\_\_\_\_

Test Instrument(s) used- Include Name, Model, Serial Number and Date Last Calibrated: \_\_\_\_\_

CFM-Ventilation	Size-Cubic Feet	Pre Entry Time	<input type="checkbox"/> Central Notified Before Entrance	Time Notified:
			<input type="checkbox"/> Central Notified After Entrance	Time Notified:

Authorized Entrants

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Authorized Attendants

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<b>PERMIT AUTHORIZATION</b>	
<b>I Certify that all actions and conditions necessary for safe entry have been performed.</b>	
Name-Print:	
Signature:	
Date:	Time:

**Entry Procedure Checklist:** Complete the following steps before, during, and after a confined space entry:

**Step 1**

Obtain a Permit-Confined Space Entry Form from Program Coordinator.

**Step 2**

Notify Supervisor before the **Confined Space Entry**

**Step 3**

Verify Confined Space Meter has been calibrated and is in working order

**Step 4**

Complete the top portion of the Permit-Confined Space Entry Form

**Step 5**

Ensure all rescue equipment (e.g. tripod, body-belt, lanyard) is in place prior to entry

**Step 6**

Monitor the confined space with the MSA 4-Gas Detector prior to entry. The entrant and attendant should sign the permit authorization section on the bottom of the permit to ensure all actions and conditions necessary for safe entry have been performed.

**Step 7**

Employee entering the confined space should wear the 4-Gas Detector after the pre-atmosphere test. The employee should also have a full body harness and lanyard attached to the rescue tripod. Employee shall have a radio and any other necessary personal protective equipment.

**Step 8**

Employee can enter the confined once Step 7 is completed. The entrant and attendant should complete the Hazards of Confined Spaces and Special Requirements Section of the Permit-Confined Space Entry Form once the employee is within the confined space. The entrant should also gather the % Oxygen, % Explosive Gases, Carbon Monoxide, and Hydrogen Sulfide readings and communicate them to the attendant to place on the Permit Form.

**Step 9**


The attendant should maintain constant communication with the entrant until the entrant has exited the confined space.

**Step 10**

The attendant should contact Supervisor once the entrant has exited the confined space.

**Step 11**

The Permit-Confined Space Entry Form should be given to program coordinator, to file in the Confined Space Records.

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Mather’s employees may, in the course of their duties, be required to work in close proximity to, or in contact with, harmful energy transmission devices or in such fashion that the sudden start up of machinery or equipment, or the release of energy, or materials capable of engulfment could cause injury or death. To provide for the protection and well being of these employees the following Lockout/Tagout program is established. All Mather’s personnel must follow the Lockout procedure in effect at the customer site where work is being conducted. Training on these customer Lockout procedures must take place before work proceeds.

### **1. PURPOSE**

This procedure establishes the minimum requirements for the Lockout and or tagging out of energy isolating devices. It shall be used to ensure that all machines, equipment and energy transmission lines are isolated from potentially hazardous energy before employees perform any servicing, set up or maintenance activities or employees are otherwise exposed to injury from energy sources.


### **2. DEFINITION**

Lockout/Tagout is a method (or process) of shutting down and isolating equipment or energy transmission devices to prevent its unexpected start-up or the sudden release of energy whether stored or kinetic (active). Lockout/Tagout involves the use of mechanical devices, such as locks, hasps, and tags to secure energy sources (electrical, hydraulic, mechanical, pneumatic, thermal, etc.) at energy control devices (switches, circuit breakers, valves, piping connections, etc.)

### **3. GENERAL PROVISIONS**

This procedure outlines the steps required to:

- a. Ensure that the equipment’s energy control devices are locked in the off or “safe” position.

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- b. Control stored energy and the sudden movement of components.

Lockout procedures will be utilized rather than Tagout procedures whenever feasible.

Locks used for the purpose of lockout will be designated and used for the purpose only. The locks will be maintained by the Project Supervisor in a secure fashion and issued to authorized persons as needed. Devices such as hasps, chains, cables and other securing devices shall include a tag to facilitate the identification of the authorized person affixing the lockout.

The Safety Director will inspect and document to ensure that compliance with these procedures is accomplished and that the procedures are adequate for energy control and isolation at least once per year.

In the event outside contractor personnel are involved in activities affected by this plan, then the contents of this plan shall be made known to them and their plans and intended procedures for energy Lockout/Tagout are made known to management and affected employees.


#### **4. MANDATORY COMPLIANCE**

All employees are required to comply with this policy and plan. Noncompliance with or violation of these procedures will result in immediate disciplinary action up to and including termination. The following actions will result in termination:

- a. Attempting to operate or energize locked out or tagged out equipment.
- b. Removal of another employee's locks and/or tags. (See exception procedure below)
- c. Willful negligence in complying with Lockout/Tagout procedures.

#### **5. RESPONSIBILITIES**

Company Management is responsible for assuring that all personnel are adequately trained to perform their respective tasks with regard to this plan and the procedures

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involved. Management will provide training materials, tools and equipment necessary for the accomplishment of this plan.

Supervisors will be aware of all operations requiring the exercise of this plan and the expected or suspected hazards to be encountered. Supervisors will issue the appropriate devices and equipment ensuring that the devices are in serviceable condition.

Supervisors will assure that the personnel are adequately trained and competent to perform the tasks required.


Supervisors with the assistance from appropriate technical support as necessary shall make a survey to locate and identify all isolating devices so as to be certain that all sources and forms of energy (electrical, mechanical, hydraulic, pneumatic, thermal, etc.) are positively controlled and isolated in the area of exposure.

When operations or work to be performed requires the isolation of machines, equipment, or work areas, the Supervisor will:

- a. Coordinate with management and affected employees.
- b. Assign competent and trained personnel to perform the work.
- c. Identify all potentially harmful energy sources including stored energy and the effective means of control and isolation.
- d. Obtain the approved Lockout/Tagout devices and issue the devices to authorized employees.
- e. Ensure compliance with all aspects of this plan and applicable Safety procedures.

## 6. TRAINING



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Mathers will train employees in the importance of Lockout/Tagout procedures and the purpose and function of those procedures. Authorized employees will be instructed in the types and magnitude of energy sources in the workplace, the recognition of those energy sources and the methods and means necessary to isolate and control those sources. Employees will be retrained whenever there is an introduction of new machines, energy sources, or personnel are assigned to a new position involving new exposures or in the event management inspection reveals deficiency in the knowledge, training or compliance of employees.

Documentation of all training will be maintained, including the identities of the employees trained, the trainer, date of training and subject matter of the training.

## 7. LOCKOUT/TAGOUT PROCEDURE


Step 1: Notify Management – Supervisors must notify management of the following

information prior to beginning work:

- Type of work (servicing equipment, new work start-up, proximity to energy, etc.)
- Type of magnitude of energy sources (electrical, mechanical, etc.).
- Date and duration of work.
- Lockout/Tagout devices required (justification of Tagout if lockout is not feasible).

Step 2: Notify affected employees – Notify all affected employees of the systems to be locked out/tagged out, commencements, and the authorized employee will:

- Identify the types and amounts of energy involved
- Determine the energy sources, controls and isolation devices i.e. switches, valves, circuit breakers, spring retainers, hydraulic lines, etc. including the potential for stored energy.

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- Determine and acquire equipment necessary to accomplish Lockout/Tagout.

Step 3: Machine or equipment shutdown:


- The machine or equipment shall be turned off or shut down using the normal established procedures for this purpose.
- All energy isolating devices that control energy to the equipment shall be located and operated in such a manner as to isolate the equipment from the energy sources.

Step 4: Attach lock out devices to each energy control device.

- Lockout devices shall include at least a designated lock and identifying tag. The tag shall include at least the authorized employee's name. Additionally, devices may include hasps, cables, chains and other specialized devices to prevent the actuation of the control.
- Lockout devices will be placed on each energy isolating device by the authorized employee in such a manner to hold energy controlling device in the off or "safe" position and the tag identifying the employee completed.
- Tagout – if lockout is not feasible and acknowledged by management, then a tag shall be affixed in such a manner so as to clearly indicate that the operation of movement of the energy isolating device from the "safe" or off position is prohibited. The tag shall be placed as close to the control device as is safe and in an immediate obvious position.

Step 5: Test Operate Controls:

- Test operate the controls for normal start or actuation after verifying all personnel are clear of the equipment or machine. **WARNING:**

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turn off or neutralize the controls to off or a “safe” position after testing.

Step 6: Release, disconnect or restrain all stored or residual energy:

- After locking/tagging out all energy sources, release, disconnect, restrain or otherwise render “safe” all stored or residual energy. This may be mechanical, thermal, electrical, hydraulic or any other form of energy and, may include fluids under pressure, springs under tension, capacitors retaining an electric charge or other forms of potential energy. This may involve the blocking of mechanical parts and preventing the movement of parts and components. If there is a potential for a re-accumulation of this stored energy, then this verification of isolation must be continued until work is completed or the potential of accumulating no longer exists.


Step 7: Perform work:

- Maintain or reaffirm Lockout/Tagout on a daily basis.
- Maintain identifying tags to indicate accurately all authorized persons performing the lockout. Each authorized person involved shall affix their lock to the lockout device or mechanism. Should one authorized person replace another who is leaving the site, then the second person shall affix their lock and add their name to the tag before the first removes their lock and identification.

Step 8: Release from Lockout/Tagout

Prior to removal of Lockout/Tagout devices and tags, the following procedures must be strictly adhered to:

- Physically verify that all tools and equipment have been removed from the area and that the machine or equipment is operationally intact and guarding has been restored.

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- Physically verify that all employees have been safely positioned or removed.
- Notify all affected employees that Lockout/Tagout devices are to be removed.
- Authorized employees shall remove the devices they installed. The supervisor in charge shall verify that all devices are removed by the installing employees and all devices have been removed.
- Re-energize the equipment/system.
- Return all Lockout devices to the issuing Supervisor.

## **8. EXCEPTION REGARDING LOCKOUT REMOVAL PROCEDURE**

Should an authorized employee having affixed a Lockout device not be present when a system is to be re-energized, removal of the device may only be accomplished at the direction of the company President or Vice President. Prior to removal of the Lockout device by other than the affixing individual, the following steps must be accomplished:

- Verification by the management that the authorized employee is not present at the site.
- All reasonable efforts to contact the employee are made to advise that the Lockout is being removed.
- Ensuring that the employee has this knowledge before returning to the work site.
- That all of the steps in the re-activation procedure are strictly complied with.

## Lockout / Tag Out Permit

**Number** \_\_\_\_\_  
Project #: \_\_\_\_\_

Purpose for LO/TO: \_\_\_\_\_

Major Maintenance       Electrical     Mechanical       Operations

Requested By: \_\_\_\_\_ Date: \_\_\_\_\_

Scope of work: \_\_\_\_\_

Duration of work: \_\_\_\_\_

Are Contractors involved in this scope of work?  YES  NO

If YES, list Contactors affected. \_\_\_\_\_

### Equipment or systems to be removed from service:

Equipment Number	Equipment Description	HECP Attached		Supervisor Authority to Tag	Personnel Performing LO/TO
		Yes			
		Yes			
		Yes			

Lockout/ Tagout (LO/TO) Log MUST be attached.

**LOCKOUT / TAG-OUT is complete and verified to commence work. Notice to proceed.**

Supervisor: \_\_\_\_\_ Date: \_\_\_\_\_

### Equipment Lock out / Tag out Removal Authorization

	Yes	N/A	Operator
All work is complete and the equipment is ready for service.			
Compete person has verified equipment is ready to operate.			
All effected contractors have reported work complete.			
Equipment has been inspected for operational readiness.			


Contractor work complete: \_\_\_\_\_ N/A

Removal of Locks and Tags authorized. Return all breakers and valves to their normal positions unless advised differently by the Supervisor.

Supervisor: \_\_\_\_\_ Date: \_\_\_\_\_

File the completed Permit in the Lockout /Tag-out permits folder



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## 1. Purpose

The purpose of this program is to set forth procedures for the safe use of electrical equipment, tools, and to comply with NFPA 70E requirements.

## 2. Scope

This program applies to all Mather's employees, temporary employees, and contractors. When work is performed on a customer's site, the customer shall take precedence, however, this document covers Mather's employees and contractors and shall be used on owned premises, or when a customer's program doesn't exist or is less stringent.

Mathers shall advise the host of employer of:

- Any unique hazards presented by the contract employer's work
- Any unanticipated hazards found during work by Mathers that the host employer did not mention and
- The measures Mathers took to correct any hazards reported by the host employer to prevent such hazards from recurring in the future.


## 3. Responsibilities – Managers/Supervisors

The Safety Manager will develop electrical safety programs and procedures in accordance with OSHA requirements and/or as indicated by events and circumstances.

Electrical superintendent, or other designated competent person will be responsible for the assured equipment grounding conductor program.

Project Managers and Supervisors are responsible for ensuring that only qualified employees and or qualified contractors perform electrical repairs or installations. Unqualified persons shall not be permitted to enter spaces that are required to be accessible to qualified employees only, unless the electric conductors and equipment involved are in an electronically safe work condition.

Project Managers and Supervisors shall ensure a documented job briefing is held before starting each job and will include all employees involved. The briefing will cover

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hazards associated with the job, work procedures involved, special precautions, energy source controls and PPE requirements.

Project Managers are also responsible for ensuring all applicable electrical safety programs are implemented and maintained at their job sites.

Employees are responsible to use electrical equipment, tools, and appliances according to this program, for attending required training sessions when directed to do so and to report unsafe conditions to their supervisor immediately.

Only qualified employees may work on electric circuit parts or equipment that has not been de-energized. Such employees shall be made familiar with the use of special precautionary techniques, PPE, insulating and shielding materials and insulated tools.

#### **4. Safe Work Practices**

Prior to any work being done within the Limited Approach Boundary a hazard risk analysis shall be performed. The analysis shall contain event severity, frequency, probability and avoidance to determine the level of safe practices employed.


#### **Safe Work Practices for Working within the Limited Approach Boundary**

The Limited Approach Boundary is the distance from an exposed live part within which a shock hazard exists. Only qualified persons may complete tasks such as testing, troubleshooting, and voltage measuring within the Limited Approach Boundary.

The restricted approach boundary is the closest distance to exposed live parts a qualified person can approach without proper PPE and tools. Inside this boundary accidental movement can put a part of the body or conductive tools in contact with live parts or inside the prohibited approach boundary. To cross the restricted approach boundary, the qualified person must:

1. Have an energized work permit that is approved by the supervisor or manager responsible for the safety plan



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2. Use PPE suitable for working near exposed live parts and rated for the voltage and energy level involved.
3. Be certain that no part of the body enter prohibited space.
4. Minimize the rest from unintended movement, by keeping as much of the body as possible out of the restricted space; body parts in the restricted space should be protected.

The prohibited approach boundary is the minimum approach distance to exposed live parts to prevent flashover or arcing. Approaching any closer is comparable to making direct contact with a live part. To cross the prohibited approach boundary, the qualified person must:

1. Have a specified training to work on exposed live parts.
2. Have a permit with proper written work procedures and justifying the need to work that close.
3. Do a risk analysis.
4. Have (2) and (3) approved by the appropriate supervisor.
5. Use PPE appropriate for working near exposed live parts and rated for the voltage and energy level involved.

The Flash Protection Boundary is the approach limit at a distance from exposed live parts within which a person could receive a second degree burn if an electrical arc flash were to occur.

1. Use PPE appropriate for working near exposed live parts and rated for the voltage and energy level involved.
2. For systems of 600 volts and less, the flash protection boundary is 4 feet, based on an available bolted fault current of 50 kA and a clearing time of 6 cycles for the circuit breaker to act, or any combination of fault currents and clearing times not exceeding 300 kA cycles.
3. When working on de-energized parts and inside the flash protection boundary for nearby live exposed parts – if the parts cannot be de-energized, use barriers such as insulated blankets to protect against accidental contact or wear proper PPE.

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## Arc Flash Hazard Analysis

An arc flash hazard analysis includes the following:

1. Collect data on the facility's power distribution system.
  - Arrangement of components on a one-line drawing with nameplate specifications of every device.
  - Lengths and cross-section area of all cables.
2. Contact the electric utility for information including the minimum and maximum fault currents that can be expected at the entrance to the facility.
3. Conduct a short circuit analysis followed by a coordination study is performed.
4. Feed the resultant data into the NFPA 70E equations.
  - These equations produce the necessary flash protection boundary distances and incident energy to determine the minimum PPE requirement.
  - The flash protection boundary is the distance at which PPE is needed to prevent incurable burns (2<sup>nd</sup> degree or worse) if an arch flash occurs. (It is still possible to suffer 1<sup>st</sup> or 2<sup>nd</sup> degree burns.)
5. For systems of 600 volts and less, the flash protection boundary is 4 feet, based on an available bolted fault current of 50 kA (kilo amps) and a clearing time of 6 cycles (0.1 seconds) for the circuit breaker to act, or any combination of fault currents and clearing times not exceeding 300 kA cycles (5000 ampere seconds.)

When working on de-energized the parts, but still inside the flash protection boundary for nearby live exposed parts:

1. If the parts cannot be de-energized, barriers such as insulated blankets must be used to protect against accidental contact or PPE must be worn.
2. Employees shall not reach blindly into areas that might contain exposed live parts.
3. Employees shall not enter spaces containing live parts unless illumination is provided that allows the work to be performed safely.

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4. Conductive articles of jewelry and clothing (such as watchbands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, metal headgear, or metal frame glasses) shall not be worn where they present an electrical contact hazard with exposed live parts.
5. Conductive materials, tools, and equipment that are in contact with any part of an employee's body shall be handled in a manner that prevents accidental contact with live parts. Such materials and equipment include, but are not limited to long conductive objects such as ducts, pipes, tubes, conductive hose and rope, metal-lined rules and scales, steel tapes, pulling lines, metal scaffold parts, structural members, and chains.
6. When an employee works in a confined space or enclosed spaced (such as a manhole or vault) that contains exposed live parts, the employee shall use protective shields, barriers or insulating materials as necessary to avoid contact with these parts. Doors, hinged panels, and the like shall be secured to prevent them from swinging into employees. Refer to the confined space entry program.


### **Inspections**

1. Electrical equipment, tools, and appliances must be inspected prior to each use.
2. The use of a hard fixed GFCI or a portable GFCI adapter shall be used on all 120-volt, single phase 15 and 20 ampere temporary wiring on construction sites..
3. Faulty equipment, tools, or appliances shall be removed from service immediately and tagged "Out of Service", dated and signed by the employee applying the tag.

An audit of field work associated with these tasks will be performed annually by appropriate safety personnel.

### **Equipment**

Test instruments, equipment, and their accessories shall meet the requirements of ANSI/ISA-61010-1 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use Part 1 General Requirements, for rating and design requirements for voltage measurement and test instruments intended for use on electrical systems 1000 volts and below.

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When test instruments are used for the testing for the absence of voltage on conductors or circuit parts operating at 50 volts or more, the operation of the test instrument shall be verified before and after an absence of voltage test is performed.

### **Alerting Techniques for Potential Hazards**

Following hazard analysis, all potential hazards will be clearly marked using attention catching signage (i.e. Large, Bold, Red, Obvious Lettering) that is appropriately affixed to equipment/structures in the immediate work area.

Potential hazards will also be explicitly reviewed with each employee performing work on equipment/system to appropriately the hazards associated with the task.


### **Personal Protective Equipment**

All insulating PPE must be inspected before each day's use and immediately following any incident that can reasonably be suspected of having caused damage. Insulating gloves shall be given an air test, along with the inspection.

All insulating PPE must comply with all applicable laws and regulations.

Maximum test intervals for rubber insulating personal protective equipment (PPE) shall include:

1. Blankets – before first issue/every 12 months thereafter
2. Gloves – before first issue and every 6 months
3. Sleeves – before first issue and every 12 months
4. Covers and line hose shall be tested if insulating valve is suspect.

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## **Energized Electrical Work Permit**


Work on energized electrical conductors or circuit parts that are not placed in an electrically safe work condition shall be considered energized electrical work and shall be performed by written permit only.

## **Lighting**


Employees shall not enter spaces containing electrical hazards unless illumination is provided that enables the employees to perform the work safely. Where lack of illumination or an obstruction precludes observation of the work to be performed employees shall not perform any task within the Limited Approach Boundary of energized electrical conductors or circuit parts operating at 50 volts or more or where an electrical hazard exists.

## **Extension Cords**

1. Use only three-wire, grounded, extension cords and cables that conform to a hard service rating of 14 amperes or higher, and grounding of the tools or equipment being supplied.
2. Only commercial or industrial rated-grounded extension cords may be used in shop and outdoors.
3. Cords for use other than indoor appliances must have a rating of at least 14 amps.
4. Cords must have suitable strain relief provisions at both the plug and receptacle ends.
5. Work lamps (drop lights) used to power electrical tools must have a 3 wire, grounded outlet unless powering insulated tools.
6. Adapters that allow three wire, grounded prongs, connected to two wire non-grounded outlets are strictly prohibited.
7. Cords must have a service rating for hard or extra-hard service and have S, AJ, ST, SO, SJO, SJT, STO or SJTO printed on the cord.
8. Cords may not be run through doorways, under mats or carpets, across walkways or aisles, concealed behind walls, ceilings or floors or run through holes in walls, or anywhere they can become a tripping hazard.
9. High current equipment or appliances should be plugged directly into a wall outlet whenever possible.

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- All extension cords shall be plugged into one of the following:
    - A GFCI outlet
    - A GFCI built into the cord
    - A GFCI adapter used between the wall outlet and cord plug
10. All extension cords and or electrical cords shall be inspected daily or before each use, for breaks, plug condition and ground lugs, possible internal breaks, and any other damage. If damage is found, the extension cord or electrical cord shall be removed from service and repaired or replaced.
11. Extension cords shall not be used on compressor skid to operated heat tapes or any other type of equipment on a temporary basis. Heat tapes or other equipment shall be hard wired per applicable electrical codes.

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## Outlets

Outlets connected to circuits with different voltages must be a design such that the attachment plugs on the circuits are not interchangeable.

## Multiple Outlet Boxes

1. Multiple outlet boxes must be plugged into a wall receptacle.
2. Multiple outlet boxes must not be used to provide power to microwave ovens, toasters, space heaters, hot plates, coffee pots, or other high-current loads.

## Double Insulated Tools


1. Double insulated tools must have the factory label intact indicating the tool has been approved to be used without a three wire grounded supply cord connection.
2. Double insulated tools must not be altered in any way, which would negate the factory rating.

## Switches, Circuit Breakers, and Disconnects

1. All electrical equipment and tools must have an on and off switch and may not be turned on or off by plugging or unplugging the supply cord at the power outlet.
2. Circuit breaker panel boxes and disconnects must be labeled with the voltage rating.
3. Each breaker within a breaker panel must be labeled for the service it provides.
4. Disconnect switches providing power for individual equipment must be labeled accordingly.

## Ladders

1. Only approved non-conductive ladders may be used when working near or with electrical equipment, which includes changing light bulbs.
2. Ladders must be either constructed of wood, fiberglass or have non-conductive side rails.


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3. Wood ladders should not be painted, which can hide defects, except with clear lacquer.
4. When using ladders they shall be free from any moisture, oils and greases.

### **Energized and Overhead High Voltage Power Lines & Equipment**

1. A minimum clearance of 10 feet from high voltage lines must be maintained when operating vehicular and mechanical equipment such as forklifts, cranes, winch trucks and other smaller equipment.
2. When possible, power lines shall be de-energized and grounded or other protective measures shall be provided before work is started.
3. Minimum approach distance to energized high power voltage lines for unqualified employees is 10 feet.
4. Minimum approach distance for qualified employees shall be followed per 29 CFR 1910.333(c)(3)(i) Qualified – Table S5 Selection and use of work practices – approach distances for qualified employees – alternating Current.



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### **Confined or Enclosed Work Spaces**


1. When an employee works in a confined or enclosed space that contains exposed energized parts, the employee shall isolate the energy source and turn off the source and lockout and Tagout the energy source. (Only qualified electricians can work on an exposed energy source).
2. Protective shields, protective barriers or insulating materials as necessary shall be provided.

### **Enclosures, Breaker Panels, and Distribution Rooms**


1. A clear working space must be maintained in the front, back and on each side of all electrical enclosures and around electrical equipment for a safe operation and to permit access for maintenance and alteration.
2. A minimum two-foot working floor space in front of panels and enclosures shall be painted yellow.
3. Employees may not enter spaces containing exposed energized parts unless illumination is provided that enables the employees to work safely.
4. Housekeeping in distribution rooms must receive high priority to provide a safe working and walking area in front of panels and to keep combustible materials to the minimum required to perform maintenance operations.
5. All enclosures and distribution rooms must have “Danger: High Voltage – Authorized Personnel Only” posted on the front panel and on entrance doors.
6. Flammable materials are strictly prohibited inside distribution rooms (boxes, rags, cleaning fluids, etc.)

### **Lockout/Tagout**

1. No work shall be performed on (or near enough to them for employees to be exposed due to the dangers of tools or other equipment coming into contact with the live parts) live parts and the hazards they present.
2. If any employee is exposed to contact with parts of fixed electric equipment or circuits which have been de-energized, the circuits energizing the parts shall be locked out or tag or both.
3. Conductors and parts of electrical equipment that have been de-energized but not been locked or tagged out shall be treated as live parts.

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4. Per Mathers Construction Team policy all electrical will be outsourced and performed only by qualified and licensed electrical contractors who are familiar with the use of special precautionary techniques, PPE, insulating and shielding materials and insulated tools. Any equipment being made ready for maintenance will be locked out using Mathers Control of Hazardous Energy - Lockout/Tagout Program. Lockouts are performed by the Project Supervisor or the Shop Foreman. Designated employees on some jobs may be trained by local management to lockout equipment. If live sources are to be worked it will only be performed with the knowledge of local management. Only certified electricians may work on electric circuit parts or equipment.
5. Only authorized personnel may perform lockout/Tagout work on electrical equipment and will follow Mathers Control of Hazardous Energy – Lockout/Tagout Program.
6. Authorized personnel will be trained in lockout/Tagout procedures
7. Affected personnel will be notified when lockout/Tagout activities are being performed in their work area.

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### **Contractors**

1. Only approved, certified, electrical contractors may perform construction and service work on Mathers or client property.
2. It is the Project Manager/Supervisor's responsibility to verify the contractor's certification.

### **Fire Extinguishers**

1. Approved fire extinguishers must be provided near electrical breaker panels and distribution centers.
2. Water type extinguishers shall not be located closer than 50 feet from electrical equipment.


### **Electric Shock-CPR**

1. If someone is discovered that has received an electric shock and is unconscious, first check to see if their body is in contact with an electrical circuit. Do not touch a person until you are sure there is no contact with an electrical circuit.
2. When it is safe to make contact with the victim, begin CPR if the person's heart has stopped or they are not breathing.
3. Call for help immediately.


### **Electric Welders**

1. A disconnecting means shall be provided in the supply circuit for each motor-generator arc welder and for each AC transformer and DC rectifier arc welder which is not equipped with a disconnect mounted as an integral part of the welder.
2. A switch or circuit breaker shall be provided by which each resistance welder and its control equipment can be isolated from the supply circuit. The ampere rating of this disconnecting means may not be less than they supply conductor ampacity.

### **Equipment Grounding**

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1. All gas compressors, air compressors, separators, vessels, etc shall be grounded by means of using a lug and ground strap, nominal in size to a ½” bolt or larger, attached to a ground rod six feet or longer.
2. Equipment bonding jumpers shall be of copper or other corrosion-resistance material.
3. The transfer of hazardous or flammable material from a metal or plastic container with a flash point of 100 degrees F or less shall have a ground strap from the container and attached to the skid or a ground rod placed in the ground.

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## Training

1. Employees are trained to understand the specific hazards associated with electrical energy. Employees shall be trained in safety-related work practices and procedural requirements as necessary to provide protection from the electrical hazards associated with the respective jobs. Employees shall be trained to identify and understand the relationship between electrical hazards and possible injury.
2. Employees shall be trained in the skills and techniques to distinguish exposed energized electrical conductors and circuit parts from other parts of electrical equipment, to determine the nominal voltage of exposed energized electrical conductors and circuit parts, the approach distances specified in Table 130.2 (below) and the decision making process necessary to determine the degree and extent of the hazard and the personal protective equipment and job planning necessary to perform the task safely.

<b>Limited Approach Boundary</b>				
<b>Nominal System Voltage range, phase to phase</b>	<b>Exposed movable conductor</b>	<b>Exposed fixed-circuit part</b>	<b>Restricted approach boundary (allowing for accidental movement)</b>	<b>Prohibited approach boundary</b>
0 to 50 volts	Not Specified	Not Specified	Not Specified	Not Specified
51 to 300 volts	10 ft 0 in	3 ft 6 in	Avoid Contact	Avoid Contact
301 to 750 volts	10 ft 0 in	3 ft 6 in	1 ft 0 in	0 ft 1 in
751 to 15 KV	10 ft 0 in	5 ft 0 in	2 ft 2 in	0 ft 7 in
15.1 KV to 36 KV	10 ft 0 in	6 ft 0 in	2 ft 7 in	0 ft 10 in
36.1 KV to 45 KV	10 ft 0 in	8 ft 0 in	2 ft 9 in	1 ft 5 in
46.1 KV to 72.5 KV	10 ft 0 in	8 ft 0 in	3 ft 2 in	2 ft 1 in


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72.6 KV to 121 KV	10 ft 8 in	8 ft 0 in	3 ft 3 in	2 ft 8 in
138 to 145	11 ft 8 in	10 ft 0 in	3ft 7 in	3 ft 1 in
161 KV to 169 KV	11 ft 0 in	11 ft 8 in	4 ft 0 in	3 ft 6 in
230 KV to 242 KV	13 ft 0 in	13 ft 0 in	5 ft 3 in	4 ft 9 in
345 KV to 362 KV	15 ft 4 in	15 ft 4 in	8 ft 6 in	8 ft 0 in

### **Training (cont'd)**

3. Employees shall be trained in the safety related work practices that pertain to their respective job assignments.
4. Safe work practices shall be employed to prevent electric shock or other injuries resulting for either direct or indirect electrical contacts when work is performed near or on equipment or circuits which are or may be energized.
5. Training shall be documented and maintained for the duration of the employee's employment. Documentation shall be made when the employee demonstrates proficiency, be maintained for the duration of the employees' employment, and contain each employee's name and date of training.

Retraining will be required when employee is not complying with appropriate work practices or when work conditions change. Retraining shall not exceed 3 years

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## 1. General – Arc Welding

Workers near welding operations should be instructed in the safe use of welding equipment. Only qualified welders are allowed to use welding equipment.

Suitable fire protections should be available where welding is performed. When welding is near combustible materials, a trained fire watch should be provided.

Screens, shields, or other safeguards should be provided to protect workers and combustible materials from sparks. Shielding material should be made from noncombustible materials.

If welding cannot be done safely, then it must be suspended until all safety concerns are addressed.

Engineering controls should be provided when possible to reduce fumes. Appropriate respiratory protection should be used as required.

## 2. Arc Welding Equipment

Only standard electric arc welding equipment conforming to the requirements of the National Electrical Manufacturer’s Association or listed by Underwriter’s Laboratories should be used.

Power circuits should be installed and maintained in accordance with the National Electrical Code.


Frames of electric welding machines operated from power circuits should be effectively grounded.

Electrode and ground cables should be supported to prevent interference with workers. The ground lead for the welding circuit should be adequate for the service required.

Where it is necessary to couple several lengths of cable for use as a welding circuit, insulated connectors should be used on both the ground and electrode holder lines.

For permanent connection, the connection/splice should be insulated so that it is equivalent to the cable in use. Defective cable or equipment must be repaired or replaced immediately.

An electrode holder should be properly rated and insulated. Electrodes should be removed from electrode holder when unattended.

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### 3. Protective Clothing For Arc Welding

Protective clothing required for any welding operation will vary with the size, nature, and location of the work.

Some suggested protective measures for welders and helpers are listed below.

Flame resistant aprons of leather or other suitable material should be used as protection against heat and sparks.

Clothing should be free of oil and grease.

Collars and shirt cuffs should be buttoned. Pant cuffs should be turned inside. Pockets should be eliminated from vests, shirts and aprons.

Fire resistant leggings, high boots, or other leg protection should be used as needed.

Safety shoes should be used. Low cut shoes with unprotected tops should not be permitted.

Fire resistant capes or shoulder covers should be worn during overhead welding operations.

Leather caps worn under helmets may prevent burns during overhead welding.


Ear protection is desirable for overhead welding.

Welding helmets should be used as needed. The proper shade of welding lens should be used, and an adequate supply of cover lenses should be available. Workers assisting an operator should also wear protective lenses.

Safety glasses should be worn under the helmet during chipping and cleaning. Glasses should have tinted lenses affording ultra-violet and infra-red radiation protection.

Combination safety hats and welding helmets should be used where welders are exposed to falling objects.



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#### **4. Chipping, Cleaning and Grinding**

When removing metal, appropriate eye and face protection should be used.

Gloves should be worn to protect hands and wrists. Screening or shielding should be provided when needed to protect other workers.

Gloves should be worn for wire-brushing.

When cleaning and brushing surfaces to be welded, avoid metal slivers and sharp edges. Gauntlet gloves are available.

#### **5. Fire Protection**

In welding and cutting operations, suitable fire extinguishing equipment should be available.


If excess dust or any hazardous gases or fumes occur during welding, then welding must be stopped until atmosphere is rendered safe.

A fire watch should be used when cutting or welding is performed in locations where a fire could develop. Continue the watch for at least ½ hour after completion of the welding operation. A 20lb ABC fire extinguisher must be within 15 feet of the fire watch and made readily available whenever hot work activities are conducted.

Cutting and welding are procedures of fires on construction projects because of molten metal and sparks. Sparks from cutting and welding operations may retain heat for several seconds. Remove all loose, easily combustible materials, such as wood shavings, wood scraps, sawdust, paper, rags and oil and grease-soaked materials. Remove all highly volatile materials such as gasoline and solvents. If all fire hazards cannot be removed then guards shall be used to confine the heat, sparks and slag to protect the immovable fire hazards.

When welding or cutting work must be done on or near an automatic sprinkler system, or where the sprinklers are shut off for any reason, ensure that alternate fire protection measures are taken.

If at a plant site, a hot work permit must be completed before welding or cutting takes place.

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## 6. Gas Welding And Cutting

Only standard welding and cutting equipment should be used. Only trained workers should be permitted to use the equipment.

## 7. Storage Of Cylinders

Keep gas cylinders away from sources of heat. If stored in buildings, keep away from highly combustible materials, stoves, and radiators.

Cylinders should be securely placed in an upright position to prevent tipping and should not be stored where they can be knocked over. Oxygen cylinders should be stored at least 20 feet from acetylene cylinders and other fuel gas. Cylinders stored outside should be protected from the elements. Labels and hazard warning on cylinders should be protected.

Empty cylinder valves should be closed. Valve protection caps should always be in place when cylinders are not in use.

While in use, valve key wrenches should be kept in place on the valve spindle.

# HOT WORK PERMIT



PERMIT ISSUED TO:

- Civil Team     
  Mechanical Team     
  Structural Team

Date: \_\_\_\_\_

Project #:

Time Issued: \_\_\_\_\_

Job Description:

Expiration Time: \_\_\_\_\_

Company: \_\_\_\_\_

CHECKED PRECAUTIONS SHALL BE OBSERVED		PROTECTIVE EQUIPMENT REQUIRED
<input type="checkbox"/> Gas test _____% LEL	<input type="checkbox"/> O <sub>2</sub> _____%	<input type="checkbox"/> Wear goggles-face shield
<input type="checkbox"/> Drains Covered	<input type="checkbox"/> Plugged	<input type="checkbox"/> Wear gloves-rubber/thermal
<input type="checkbox"/> Tag & Disconnect electrical equipment	<input type="checkbox"/> Lock out	<input type="checkbox"/> Fire extinguisher at site
<input type="checkbox"/> Lines blinded	<input type="checkbox"/> Lines disconnected	<input type="checkbox"/> Wear hood-acid/thermal
<input type="checkbox"/> Charged fire hose	<input type="checkbox"/> Fire watch	<input type="checkbox"/> Wear suit-rubber/thermal
<input type="checkbox"/> Valves closed, tagged, and locked with Personal lock	<input type="checkbox"/> Contain sparks	<input type="checkbox"/> Temperature Controlled
<input type="checkbox"/> Bleeders open	<input type="checkbox"/> Shield arc	<input type="checkbox"/> Wear rubber boots
<input type="checkbox"/> Grounded air mover operating	<input type="checkbox"/> Grounded welding machine to piece being welded at proper location	<input type="checkbox"/> Wear safety belt and line
<input type="checkbox"/> Safety lookout/firewatch postwork	<input type="checkbox"/> Line standing full _____PSI	<input type="checkbox"/> Flowing
<input type="checkbox"/> Barricade area	<input type="checkbox"/> Cold cut, plug, and vent	<input type="checkbox"/> Wear respirator-air purifying
<input type="checkbox"/> Stop work and shut down motor equipment if leak occurs	<input type="checkbox"/> Keep area free of combustibles	<input type="checkbox"/> Wear SCBA
<input type="checkbox"/> Do not leave motor running unattended	<input type="checkbox"/> No sampling, venting, or draining	<input type="checkbox"/> Stand by with SCBA
<input type="checkbox"/> Shut down engines to refuel	<input type="checkbox"/> Smoke in designated area only	<input type="checkbox"/> Wear hearing protection


Other Precautions:

PERMIT CONDITIONS AND REQUIREMENTS UNDERSTOOD	PERMIT ISSUED BY:
Signed _____ <i>Supervisor</i>	Signed: _____
	Print: _____
	Title: _____

Foreman, craftsman, or supervisor must indicate with signature and time when job is complete.

Job completed \_\_\_\_\_ Time: \_\_\_\_\_     
  Job incomplete \_\_\_\_\_ Time: \_\_\_\_\_

**TO BE KEPT ON THE JOB UNTIL WORK IS COMPLETED, PERMIT EXPIRES, OR PERMIT IS REVOKED**

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**PURPOSE:**

The purpose of this procedure is to ensure that proper precautions are taken during line breaking, blockage cleaning, and tank opening activities of any system which contains, or has contained, any dangerous chemical. By following this procedure, employees will reduce the risk of injury to themselves and others during these potentially dangerous tasks.

Dangerous systems, for the purpose of this procedure, will not include systems conveying water or air (See also scope for further information on water and air lines). For the purposes of this procedure, dangerous systems are those conveying hazardous liquids or gases.

**SCOPE:**

This procedure is applicable to all Mathers employees involved in any line breaking, cleaning blockages, or tank opening activity where there is exposure or potential exposure involving hazardous materials.

This procedure includes line breaking on all lines directly connected to a system or tank containing a hazardous material, e.g., airline connection to a chemical tank

This procedure presents the minimum requirements which must be met or exceeded by anyone involved in activities defined in this procedure.


Supervisors may deem the use of this procedure necessary for line breaking activities on water and air systems, based on potentially dangerous system pressures or other dangerous condition relating to the job.

**RESPONSIBILITIES:**

When operating a dangerous system, it is the **combined responsibility** of the Safety Department, Project Managers, superintendents, and employees to ensure that the appropriate safety procedures are followed.

**PROCEDURE:**

- 1) Prior to opening a “hazardous system”, a hazard analysis will be conducted by the Project Manager and Superintendent. The safety office will be included in the findings of the hazard analysis, and will participate if further analysis is needed. This analysis should include detailed discussion concern how the system/equipment will be made safe for the task presented

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(isolation points, depressurization requirements, flushing, lock out tag out, etc). Roles and responsibilities for draining and flushing shall be determined at this point.

- a. This analysis should cover hazards expected throughout the job task and measures to protect against those hazards, A lock out tag out plan, cut point labeling as required, and any other safety checklist (e.g., confined space entry permit), must be reviewed at this time.
  - b. All employees involved in the high hazard task must be included in the finding of the safety analysis. Each employee should sign off on their comprehension. If the customer has a procedure in place (e.g, JSA or TSA) this is acceptable documentation.
- 2) Project Management is responsible for “clearing” the system/equipment for work including: isolation, depressurization, flushing, and the initial LOTO performed in accordance with Mathers “Lock Out Tag Out Procedure”.
- a. All isolation points are to be listed on the “LockOut/ Tagout Valve Isolation sequencing sheet. The sheet must be reviewed and initialed by the Project Manager.
  - b. Most often the customer is responsible for identifying and disabling appropriate control functions associated with the system. Customers are most often the first to preform LOTO and documentation procedures. If customer is not assuming this responsibility, follow these guidelines.

**Capture and Disposal of Hazardous Materials**


- 1) In the event that hazardous materials cannot be fully drained from the system prior to line breaking, it is the responsibility of those most knowledgeable of the system to drain and capture. These responsibilities, such as capturing, temporarily storing, and disposing of the hazardous materials must be clearly establish during the hazard analysis. This remains the customer’s responsibility unless clearly given instruction are discussed with project management and safety personnel.

**Positive isolation for Mitigation of Hazard**

In some instances positive isolation or full mitigation of hazard must be employed for health and safety consideration and to be compliant with OSHA regulation.

Positive isolation of the hazards should be employed first before considering mitigation through the use of PPE.

If positive isolation is not possible, other means of hazard mitigation must be employed. Examples of other means of hazard mitigation include: dewatering, use of level “A” suits, or glove bag

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Mathers Lockout/ Tagout procedures shall be incorporated at all times to ensure the health and safety of all personnel and outside contractors.

Isolation and hazard mitigation items will be discussed and agreed upon during the hazard analysis meeting

Positive isolation applies when the following conditions exist:

- When working in permit required confined space and engulfment or atmospheric hazards are not fully mitigated
- During line breaking involving hazardous materials when the hazard is not fully mitigated.

**DEFINITIONS:**

**Opening hazardous systems-** any activity during which normally closed systems such as pipelines, hose rigs, pumping systems or sight/gauge glasses which contain or have contained any dangerous material are opened to atmosphere pressure by unbolting/separating flanges, removing valves, opening pump covers, or removing instruments or gauges.


**Blockage clearing-** any activity associated with removing actual or suspected blockages or obstruction from lines, fittings, valves, pumps, or vessels which contain or have contained any dangerous materials or pressures above atmospheric. This is a special group of line breaking activities which may involve the additional hazard of opening a closed system without being able to drain dangerous material or depressurized system.

**Tank Opening-** any activity during which normally closed tanks or other vessels which contain or have contained any dangerous materials are opened. Examples of tank opening are opening manholes, removing inspection covers, disconnecting pipelines at the point they enter a tank and similar activities.

**Hazardous Materials-** for the purpose of this procedure, dangerous material include, but should not be limited to, corrosive liquids and gases, hot (150F or above) liquids and gases including steam and condensate, toxic liquids and gases, combustible, flammable, or explosive liquids and gases.

**“Clearing” a system-** any activity involving equipment isolation from all potentially harmful energy sources, including liquid, gaseous and electrical, in accordance with Mathers Lock Out Tag out procedure, including depressurization or draining, flushing and all other appropriate steps necessary such that the equipment is safe for maintenance to proceed.

**Protective Clothing Requirements**

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All Employees exposed to hazardous material during line breaking will be required to use the appropriate PPE as defined during the hazard analysis. The first break requires the use of maximum PPE based on worst case scenario (e.g; face shield, Level C Suit). Refer to the Safety Data sheet for the required PPE.

### **Job Site Requirements**

Before any activity covered by this procedure is begun, review of this procedure, the hazardous material involved and system isolation must be performed by the employees and the appropriate supervisors. If the employees are relieved, the on-coming employees must be updated. The purpose of review is to remind employees of the precautions required to be taken and to ensure proper steps are taken in the correct order. It may be necessary to utilize a checklist conspicuously posted at or near the worksite until the work is completed.

Employees must take reasonable steps to ensure that others passing through the work area will not be exposed to potential hazards or injury. These steps may include:


- Blocking the job site with warning signs, barricades, or barricade tape. A stand-by person to warn other employees might also be necessary.
- Allowing only people involved in the job inside the blocked off area.
- Requiring everyone inside the blocked off areas to use the required protective clothing
- Using containers to collect drainage and spills.
- Blocking off exposed areas on lower floors when floor opening are near the job site.

Safety Showers and eyewashes near the job site must be identified in the hazard analysis and checked for proper operation prior to starting work. If no shower or eyewash in available, hoses connected to a source of cool, clean water must be provided.

All employees working at the job site must know the location of and have access to safety shower, eyewash, or hose stations and firefighting equipment where applicable.

Wash down hoses should be set up where appropriate to wash away and dilute any spills that might occur. Care must be taken if acids and caustics are likely to be mixed. Neutralizing materials should be available at the job site if the material being handles deserves it.

While each specific job may necessitate different ways to open hazardous material systems, standard steps must be followed, such as this example:


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- 1) Shield flanges whenever possible include the partial use of flange cover where appropriate, and stand to the side to avoid any sprays or spillages.
- 2) When loosening the bolts of flanges or covers, loosen those bolts which are farthest from the worker first
- 3) Whenever possible, and in any case where flange or cover bolts must be cut or burned off, the old bolts must be removed one at a time and replaced with new bolts which can be gradually backed off. This will help prevent sudden opening of the joint particularly when the joint may be under stress. Removal and replacement of bolts is only allowed once the system has been secured using Mather LOTO Procedure.
- 4) Once the system is opened any line, fitting, and nearby valve must be flushed with water to wash away and dilute any dangerous materials. All dismantled line, fittings, valves, and other equipment or materials should be free of dangerous materials before leaving the job site. This step includes items going to scrap metal pickup points or salvage yard.
- 5) The Project manager has the primary responsibility for ensuring equipment; Systems are properly cleared for maintenance; locked out and tagged and then the equipment/systems remain secured and isolated until closed or placed in service again. For work performed for clientele it is the Project manager's responsibility to ensure that procedures set in place by clientele are followed and role responsibilities are clearly defined in hazard analysis. All personnel involved in the work are responsible for ensuring that the equipment/systems are safe to work on and that proper safety precautions and procedure are followed.
- 6) All openings in the system made during the job must be checked for closure before completion of the job and reactivation of the system.

#### **Additional concern for clearing Blockages**

- Working on a line that may not be completely drained requires extra caution to ensure that the obstruction is removed in a controlled fashion so that the dangerous material does not splash or spray out rapidly
- Tight spaces or hard to reach locations may reduce a worker's ability to escape a dangerous situation rapidly. Special equipment or special work platforms with clear escape paths may be needed to provide adequate protection. When clearing blockages haste is a frequent cause of accidents. The clearing operation should proceed cautiously with frequent stops to check on progress and condition of the blockage.
- Ensure all non-essential person are clear of the area before attempting to clear a blockage. No one should be exposed to an opening on a pipeline or vessel when pressure is applied by steam, gas, or fluid to unplug an obstruction. This is to reduce the risk of injury should a sudden surge of material come out of the pipeline during the blockage clearing.



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- Anyone approaching an opening should first make sure that all pressure has been relieved on the pipeline, vessel, or tank; then proceed with caution.
- The use of protective barriers or shields (including doors or adjacent equipment) must be considered as a means to reduce hazards of clearing blockages.
- No one should be on top of or below a tank or tank truck when steam, gas, or fluid pressure is being applied to remove an obstruction from piping entering the container if sudden removal of the obstruction could cause a surge of material into the container.


**Line Tagging Procedure**

- 1) The line set work should be clearly defined and confirmed by all personnel before the start of work. Appropriate identification measures include marking the line with colored ribbon of neon colors at a maximum of 10' increments
  - a. If more than one line is set for work, each line should be clearly defined using a different color for each line.
  - b. The colors used should be identified in the safety analysis.
- 2) Additional tagging guidelines should be taken for demo. (e.g.; removal of insulation (if applicable) in congested area, and adding cut tag to the specific area where the cut will take place)

Employee Training Record:


Employee Name: \_\_\_\_\_ Date: \_\_\_\_\_

Instructor: \_\_\_\_\_ Date: \_\_\_\_\_

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## CONCRETE

1. Construction loads must not be placed on a concrete structure or portion of a concrete structure unless the employer determines, based on information received from a person who is qualified in structural design, that the structure or portion of the structure can support the loads.
2. Employees must not be permitted to work under concrete buckets while buckets are being elevated or lowered into position.
3. To the extent practical, elevated concrete buckets must be routed so that no employee or the fewest number of employees is exposed to the hazards associated with falling concrete buckets.
4. Formwork must be designed, fabricated, erected, supported, braced and maintained so that it is capable of supporting without failure all vertical and lateral loads that may reasonably be anticipated to be applied to the formwork.
5. Forms and shores (except those 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 complying with one of the following:
  6. The plans and specifications stipulate conditions for removal of forms and shores, and such conditions have been followed, or
  7. The concrete has been properly tested with an appropriate American Society for Testing 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.
8. All exposed rebar will be capped or covered to protect against impalement or injury.
9. Employees operating equipment such as vibrators, pump nozzles, and/ or buggies will wear appropriate clothing and PPE, such as boots, eye protection and hearing protection. Long sleeve shirts will be worn to protect against the exposure of concrete.
10. Concrete contractor must appropriately barricade working area during concrete forming and after concrete has been poured.


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11. Material used for formwork must be removed and properly disposed of. Employees will remove all debris and conduct a cleanup of the work area daily.

### MASONRY

1. A limited access zone will be established whenever a masonry wall is being constructed. The limited access zone must conform to the following:

- a. The limited access zone must be established prior to the start of construction of the wall.
  - b. The limited access zone must be equal to the height of the wall to be constructed plus 4 feet (1.2 m) and must run the entire length of the wall.
  - c. The limited access zone must be established on the side of the wall that will not have a scaffold.
  - d. The limited access zone must be restricted to entry by employees actively engaged in constructing the wall. Other employees must not be permitted to enter the zone.
  - e. Employees working within restricted fall zone must be trained and certified to work in restricted fall zone area.
  - f. The limited access zone must remain in place until the wall is adequately supported to prevent overturning and to prevent collapse. Where the height of a wall is more than 8 feet (2.4 m), the limited access zone must remain in place until the requirements of 1926.706(b) have been met.
2. All masonry walls more than 8 feet (2.4 m) in height will be adequately braced to prevent overturning and to prevent collapse unless the wall is adequately supported so that it will not overturn or collapse. The bracing will remain in place until permanent supporting elements of the structure are in place.
3. Competent person (foreman) must conduct daily inspections of scaffold.

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## ***PURPOSE***

This program outlines procedures and guidelines for the protection of employees working in and around excavations and trenches. This program requires compliance with OSHA Standards described in Subpart P (CFR 1926.650) for the construction industry.

Compliance is mandatory to ensure employee protection when working in or around excavations. The programs in this manual on confined space, hazard communication, lock-out/tag-out, respiratory protection, and any other safety programs or procedures deemed essential for employee protection, are to be used in conjunction with this program.

## ***SCOPE***

This program pertains to all **company** projects that require any excavations or trenches.

## ***REFERENCES***

- 29 CFR 1926.650, Subpart P - Excavations
- Excavation Equipment Manufacturer Safety Procedures

## ***RESPONSIBILITIES***


It is the responsibility of each superintendent and supervisor to implement and maintain the procedures and steps set forth in this program. Each employee involved with excavation and trenching work is responsible to comply with all applicable safety procedures and requirements of this program.

## ***DEFINITIONS***

**BENCHING** - A method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near vertical surfaces between levels.

**CAVE-IN** - The separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by failing or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a person.

**COMPETENT PERSON** - One who is capable of identifying existing and predictable hazards in the surroundings or working conditions, which are

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unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

**DURATION OF EXPOSURE** - The longer an excavation is open, the longer the other factors have to work on causing it to collapse.

**EXCAVATION** - Any man-made cut, trench, or depression in an earth surface, formed by earth removal.

**HAZARDOUS ATMOSPHERE** - An atmosphere which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.

**PROTECTIVE SYSTEM** - A method of protecting employees from cave-ins, from material that could fall or roll from an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide necessary protection.

**SHIELD** - A structure that is capable of withstanding the forces imposed on it by a cave-in and thereby protects employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. All shields must be in accordance with 29 CFR 1926.652(c)3 or (c)4.


**SLOPING** - A method of protecting workers from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences such as soil type, length of exposure, and application of surcharge loads.

**SURCHARGE LOADS** - Generated by the weight of anything in proximity to the excavation, push starts for a cave-in (anything up top pushing down).

Common surcharge loads:

- weight of spoil pile
- weight of nearby buildings, poles, pavement, or other structural objects.
- weight of material and equipment

**TRENCH** - A narrow excavation below the surface of the ground, less than 15 feet wide, with a depth no greater than the width.

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**UNDERMINING** - Undermining can be caused by such things as leaking, leaching, caving or over-digging. Undermined walls can be very dangerous.

**VIBRATION** - A force that is present on construction sites and must be considered. The vibrations caused by backhoes, dump trucks, compactors and traffic on job sites can be substantial.

## **Hazards**


One of the reasons the company requires a competent person on-site during excavation & trenching are the numerous potential hazardous that may be encountered or created. Hazards include:

- Electrocution
- Gas Explosion
- Entrapment
- Struck by equipment
- Suffocation

## **Hazard Controls**

Before any work is performed and before any employees enter the excavation, a few items must be checked and insured:

- 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 the excavation is to be over 20 feet deep, it must be designed by a registered professional engineer who is registered in the state where work will be performed.
- Adequate protective systems will be utilized to protect employees. This can be accomplished through sloping, shoring, or shielding.
- The worksite must be analyzed in order to design adequate protection systems and prevent cave-ins. There must also be an excavation safety plan developed to protect employees.
- Workers must be supplied with and wear any personal protective equipment deemed necessary to assure their protection.

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- All spoil piles will be stored a minimum of four (4) feet from the sides of the excavation. The spoil pile must not block the safe means of egress.
- If a trench or excavation is 4 feet or deeper, stairways, ramps, or ladders will be used as a safe means of access and egress. For trenches, the employee must not have to travel any more than 25 feet of lateral travel to reach the stairway, ramp, or ladder.
- No employee will work in an excavation where water is accumulating unless adequate measures are used to protect the employees.
- A competent person will inspect all excavations and trenches daily, prior to employee exposure or entry, and after any rainfall, soil change, or any other time needed during the shift. The competent person must take prompt measures to eliminate all hazards.
- Excavations and trenches 4 feet or deeper that have the potential for toxic substances or hazardous atmospheres will be tested at least daily. If the atmosphere is inadequate, protective systems will be utilized.
- If work is in or around traffic, employees must be supplied with and wear orange reflective vests. Signs and barricades must be utilized to ensure the safety of employees, vehicular traffic, and pedestrians.

### **COMPETENT PERSON RESPONSIBILITIES**

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.
- 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, or shielding systems) for employee protection.
- Conduct all air monitoring for potential hazardous atmospheres.

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- Conduct daily and periodic inspections of excavations and trenches.
- Approve design of structural ramps, if used.

### **EXCAVATION SAFETY PLAN**

An excavation safety plan is required. This plan is to be developed to the level necessary to ensure complete compliance with the OSHA Excavation Safety Standard and state and local safety standards.

#### **Excavation safety plan factors:**

- Utilization of the local one-call system
- Determination of locations of all underground utilities
- Consideration of confined space atmosphere potential
- Proper soil protection systems and personal protective equipment and clothing
- Determination of soil composition and classification
- Determination of surface and subsurface water
- Depth of excavation and length of time it will remain open
- Proper adherence to all OSHA Standards, this excavation and trenching safety program, and any other coinciding safety programs.

### **SOIL CLASSIFICATION AND IDENTIFICATION**

The OSHA Standards define soil classifications within the Simplified Soil Classification Systems, which consist 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 classifications.


Stable rock is defined as natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.

#### **Type A soil is defined as:**

- Cohesive soils with an unconfined compressive 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:**



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- It is fissured.
- The soil is subject to vibration from 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 is defined as:**

- 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 is defined as:**

- 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.

***Soil Test & Identification***

The competent person will classify the soil type 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: the cohesiveness, the presence of fissures, the presence and amount of water, the unconfined compressive strength, the duration of exposure, undermining, and the presence of layering, prior excavation, and vibration.

The cohesion tests are based on methods to determine the presence of clay. Clay, silt, and sand are size classifications, with clay being the smallest sized particles,

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silt intermediate and sand the largest. Clay minerals exhibit good cohesion and plasticity (can be molded). Sand exhibits no elasticity and virtually no cohesion unless surface wetting is present. The degree of cohesiveness and plasticity depend on the amounts of all three types and water.

When examining the soil, three questions must be asked: Is the sample granular or cohesive? Fissured or non-fissured? What is the unconfined compressive strength measured in TSF?

**Methods of testing soils:**

- Visual test: If the excavated soil is in clumps, it is cohesive. If it breaks up easily, not staying in clumps, it is granular.
- Wet manual test: Wet your fingers and work the soil between them. Clay is a slick paste when wet, meaning it is cohesive. If the clump falls apart in grains, it is granular.
- Dry strength test: Try to crumble the sample in your hands with your fingers. If it crumbles into grains, it is granular. Clay will not crumble into grains, only into smaller chunks.
- 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. 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.
- Thumb penetration test: The competent person attempts to penetrate a fresh sample with thumb pressure. If the sample can be dented, but penetrated only with great effort, it is Type A. If it can be penetrated several inches and molded by light pressure, it is Type C. Type B can be penetrated with effort and molded.
- Shear vane: 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

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determine the level of protection based on what conditions exist at the time of the test and allow for changing conditions.

### **EXCAVATION PROTECTION SYSTEMS**

The three basic protective systems for excavations and trenches are sloping and benching systems, shoring, and shields.

The protective systems shall have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied to or transmitted to the system. Every employee in an excavation shall be protected from cave-ins by an adequate protective system.

- Exceptions to using protective system:
- Excavations are made entirely in stable rock
- Excavations are less than 5 feet deep and declared safe by a competent person

### **SLOPING AND BENCHING SYSTEMS**

There are four options for sloping:

- Slope to the angle required by the Standard for Type C, which is the most unstable soil type.
- The table provided in Appendix B of the Standard may be used to determine the maximum allowable angle (after determining the soil type).
- Tabulated data prepared by a registered professional engineer can be utilized.
- A registered professional engineer can design a sloping plan for a specific job.


Sloping and benching systems for excavations five (5) to twenty (20) feet in depth must be constructed under the instruction of a designated competent person.

Sloping and benching systems for excavations greater than twenty (20) feet must be designed and stamped by a registered professional engineer.

Sloping and benching specifications can be found in Appendix B of the OSHA Standard (Subpart P).

### **SHORING SYSTEMS**

Shoring is another protective system or support system. Shoring utilizes a framework of vertical members (uprights), horizontal members (whales), and

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cross braces to support the sides of the excavation to prevent a cave-in. Metal hydraulic, mechanical or timber shoring is common examples.

**The different examples of shoring are found in the OSHA Standard under these appendices:**

**APPENDIX C** - Timber Shoring for Trenches

**APPENDIX D** - Aluminum Hydraulic Shoring for Trenches

**APPENDIX E** - Alternatives to Timber Shoring


### **SHIELD SYSTEMS (Trench Boxes)**

Shielding is the third method of providing a safe workplace. Unlike sloping and shoring, shielding does not prevent a 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 in the 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 jobsite office. **ANY REPAIRS OR MODIFICATIONS MUST BE APPROVED BY THE MANUFACTURER.**

#### **SAFETY PRECAUTIONS FOR SHIELD SYSTEMS**

- Shields must not have any lateral movement when installed.
- Employees will be protected from cave-ins when entering and exiting the shield (examples - 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.
- Shields can be 2 ft. above the bottom of an excavation if they are designed to resist loads at the full depth and if there are no indications of caving under or behind the shield.
- 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).
- 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.

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## ***PERSONAL PROTECTIVE EQUIPMENT***

It is **company** policy to wear a hard hat, safety glasses, and work boots on the jobsite. Because of the hazards involved with excavations, other personal protective equipment may be necessary, depending on the potential hazards present (examples -goggles, gloves, and respiratory equipment).

## ***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.

- All inspections shall be conducted by the competent person prior to the start of work and as needed throughout the shift.
- Inspections will be made after every rainstorm or any other increasing hazard.
- All documented inspections will be kept on file in the jobsite safety files and forwarded to the Safety Director weekly.
- A copy of the Daily Excavation Inspection form is located at the end of this program.

## ***TRAINING***

The competent person(s) must be trained in accordance with the OSHA Excavation Standard, and all other programs that may apply (examples Hazard Communication, Confined Space, and Respiratory Protection), and must demonstrate a thorough understanding and knowledge of the programs and the hazards associated.

All other employees working in and around the excavation must be trained in the recognition of hazards associated with trenching and excavating.



# EXCAVATION PERMIT

PERMIT

PERMIT Number:

Project:

**WORK IS NOT TO COMMENCE UNTIL A SIGNED AND APPROVED PERMIT IS ON THE WORKSITE**

**PART A: Application (Completed by persons intending to excavate)**

Name	Company	Date
------	---------	------

Proposed Works	Maximum Depth (m)
----------------	-------------------

Location:

(Plan attached) Drawing/Sketch No.:

Commencement of Work:	Time:
-----------------------	-------

Completion of Work:	Time:
---------------------	-------

Has the area been checked for public and private services, and a Utility and Services Permit completed and authorised?  Yes  No

**PART B: Safe System of Work (Completed by Competent Person)**

Items	Yes	No	Comments
SWMS in place and understood by all	<input type="checkbox"/>	<input type="checkbox"/>	List details:
Overhead/Underground services identified and marked Utility and Services Permit in place	<input type="checkbox"/>	<input type="checkbox"/>	List details:
Will exposed services be protected to prevent mechanical damage?	<input type="checkbox"/>	<input type="checkbox"/>	List details:
Has the ground condition been inspected and assessed	<input type="checkbox"/>	<input type="checkbox"/>	List details:
Access/egress to excavation is in place	<input type="checkbox"/>	<input type="checkbox"/>	List details:
Excavation protection in place (edge protection, barricades, signage)	<input type="checkbox"/>	<input type="checkbox"/>	List details:
Excavation is protected from traffic and pedestrian movements	<input type="checkbox"/>	<input type="checkbox"/>	List details:
Slope stability, settlement or vibration monitoring to manage and control ground movement are in place.	<input type="checkbox"/>	<input type="checkbox"/>	List details:
Shoring and battering are in place as per the geotechnical design	<input type="checkbox"/>	<input type="checkbox"/>	List details:
Emergency rescue plan in place and communicated to all	<input type="checkbox"/>	<input type="checkbox"/>	List details:

**PART C: Permit Induction (Carried out by Supervisor)**

Inductee Name	Signature	Date	Position	Employer
---------------	-----------	------	----------	----------

**PERMIT Number:**

Inductee Name	Signature	Date	Position	Employer
---------------	-----------	------	----------	----------

**PART D: Approval**

Permit Issuer Name:	Signature	Date
---------------------	-----------	------

Comments:

Permit Expiry Date (1 week maximum)

**PART F: Permit Holder**

Excavation Permit issued to:

Name	Date
------	------

Signature	Time
-----------	------

Name	Date
------	------

Signature	Time
-----------	------

Name	Date
------	------

Signature	Time
-----------	------

**PART G: Completion**

Works are complete	<input type="checkbox"/> Yes <input type="checkbox"/> No	Work site is in a safe condition	<input type="checkbox"/> Yes <input type="checkbox"/> No
--------------------	--	----------------------------------	--

Isolations have been restored	<input type="checkbox"/> Yes <input type="checkbox"/> No	Do any Drawings need revision?	<input type="checkbox"/> Yes <input type="checkbox"/> No
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**Sign Off**

Permit Holder Name	Signature	Date
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Area Supervisor Name	Signature	Date
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Competent Person's Name	Signature	Date
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Competent Person Comments on completed works:

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## 1.0 Purpose

- Cranes, hoists, and rigging devices are used by Mathers Construction Team for lifting and moving materials. Mathers Construction Team employees are restricted from operating cranes or hoist connected to occupied personnel platforms. All training and certification will be provided by licensed, qualified crane and hoist operator instructors.

## 2.0 Scope

- The safety rules and guidance in this chapter apply to all Mathers Construction Team operations that involve the use of cranes and hoists and to all Mathers Construction Team employees, supplemental labor, and subcontractor personnel who use such devices.


## 3.0 Regulatory References

- This crane and hoist safety program is intended to satisfy the following regulatory requirements applicable to periodic use in support of construction activities:
  - 29 CFR 1926.550, 1926.553, 1926.554, 1910.179, 1910.180
  - API 2D- 2.3, 3.13, 3.14

## 4.0 Policy

- Only licensed or certified individuals are permitted to operate cranes or hoists and are designated as competent personnel.
- Mathers Construction Team employees are not permitted to operate cranes or hoists connected to occupied personnel platforms.
- Cranes and hoists are used primarily for the transportation of materials and equipment or to assist in the setting of heavy equipment.
- Mathers Construction Team employees will not work from or be transported by personnel platforms connected to cranes, hoists, derricks, etc. except where the use of more conventional means of reaching the worksite, such as a ladder, stairway, elevating work platform or scaffold, would be more hazardous or impractical because of structural design or worksite conditions



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## 5.0 Responsibilities

### 5.1 EHS Team is responsible for:


- Arranging training classes for all Crane & Hoist Operators
- Maintaining records of Crane and Hoist Operators licenses or certificates
- Obtaining annual test and inspections of Mathers Construction Team owned crane and hoist equipment.
- Overseeing the monthly inspection and test of each crane unit
- Maintaining qualification records on approved third party crane and hoist operator instructors.

### 5.2 Supervisors are responsible for:

- Ensuring that employees under their supervision receive the required training and are certified and licensed to operate the cranes and hoists in their areas.
- Providing or arranging training for prospective crane and hoist operators in accordance to NCCCO or NCCER program.
- Ensuring that hoisting equipment is inspected and tested monthly by a responsible individual and that rigging equipment is inspected annually.

### 5.3 Crane and Hoist Operators are responsible for:

- Meeting the physical, mental, educational, training, written and practical testing requirements as indicated in ASME B30.5-3.1.2(a) through (c).
- Operating hoisting equipment safely and exercising their authority to stop and refuse to handle loads if there is a safety concern.
- Conducting functional tests prior to using the equipment.
- Selecting and using rigging equipment appropriately.
- Having a valid operator's license or certificate on file with Mathers

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Construction Team while operating cranes or hoists.


- Ensure safe operations of lifts according to the lift plan, and or the instruction of the Lift Director/ EHS Team

## 6.0 General Procedures

### 6.1 General Safety Rules

Operators shall comply with the following rules while operating the cranes and hoists:

- Ground conditions must firm, drained, graded and be able to support the crane, supporting materials plus the material or equipment that is being lifted.
- All assembling and disassembling of equipment such as booms or counterweights must follow manufacturer's instructions and prohibitions.
- A competent person shall supervise all assembling and disassembling
- Do not engage in any practice that will divert your attention while operating the crane.
- A signal person will be provided if the operators view is obstructed, if the operator determines one is necessary.
- Respond to signals only from the person who is directing the lift or any appointed signal person. Obey a stop signal always, no matter who gives it.
- Do not move a load over people. People shall not be placed in jeopardy by being under a suspended load. Also, do not work under a suspended load unless the load is supported by blocks, jacks, or a solid footing that will safely support the entire weight. Have a crane or hoist operator remain at the controls or lock open and tag the main electrical disconnect switch.
- Accessible areas within the swing radius of the rear of the rotating superstructure of the crane, either permanently or temporarily mounted, shall be barricaded in such a manner as to prevent an employee from being struck or crushed by the crane.
- Ensure that the rated load capacity of a crane's bridge, individual

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hoist, or any sling or fitting is not exceeded. Know the weight of the object being lifted or use a dynamometer or load cell to determine the weight.

- Ensure that a manufacturer’s load rating chart and other essential information is conspicuously posted in all cranes cabs and on all hoists and other lifting equipment.
- Check that all controls are in the OFF position before closing the main-line disconnect switch.
- If spring-loaded reels are provided to lift pendants clear off the work area, ease the pendant up into the stop to prevent damaging the wire.
- Avoid side pulls. These can cause the hoist rope to slip out of the drum groove, damaging the rope or destabilizing the crane or hoist.
- To prevent shock loading, avoid sudden stops or starts. Shock loading can occur when a suspended load is accelerated or decelerated and can overload the crane or hoist. When completing an upward or downward motion, ease the load slowly to a stop.
- Adequate clearance shall be maintained between moving and rotating structures of the crane and fixed objects to allow the passage of employees without harm.
- A fire extinguisher, rated at least 5 BC is in the cab of each crane.
- In the event the crane or hoist is powered by an internal combustion engine and is being operated in an enclosed space, the atmosphere will be tested, and the results recorded verifying that the atmosphere is safe for work.

## 6.2 Pre-operational Test

At the start of each work shift, operators shall perform the following steps before making lifts with any crane or hoist:

1. Test the upper-limit switch. Slowly raise the unloaded hook block until the limit switch trips.
2. Make sure load lines are not crossed, twisted, or kinked.
3. Make sure audible warning signals are operational if applicable.
4. Visually inspect the hook, load lines, trolley, and bridge as much as


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possible from the operator's station; in most instances, this will be the floor of the building.

5. If provided, test the lower-limit switch.
6. Test all direction and speed controls for both bridge and trolley travel.
7. Test all bridge and trolley limit switches, where provided, if operation will bring the equipment near the limit switches.
8. Test the pendant emergency stop.
9. Test the hoist brake to verify there is no drift without a load.
10. If provided, test the bridge movement alarm.
11. Lock out and tag for repair any crane or hoist that fails any of the above tests.
12. Ensure that all deficiencies are repaired prior to use.
13. Ensure that all manufacturer procedures applicable to the operational function of the equipment is complied with and that a copy is readily available.

### **6.3 Operating Near Power Lines**

- A Job Safety Analysis will be completed prior to beginning any task and include a determination as to the proximity (within 20') of overhead power lines.
- Lines rated 50KV or below:
  - Minimum clearance between lines and any part of crane or load shall be 20 feet.
- Lines rated over 50KV:
  - Minimum clearance shall be 20 feet plus 0.4 inches per 1KV above 50KV
- If the clearances indicated above cannot be maintained, then the power line will be de-energized and visibly grounded.
- A person shall be designated to observe clearance of the equipment and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means.
- Any overhead wire shall be considered energized unless and

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until the person owning such line or the electrical utility authorities indicate that it is not an energized line and it has been visibly grounded.

#### 6.4 Moving a Load

- Center the hook over the load to keep the cables from slipping out of the drum grooves and overlapping, and to prevent the load from swinging when it is lifted. Inspect the drum to verify that the cable is in the grooves.
- Use a tag line when loads must traverse long distances or must otherwise be controlled. Manila rope may be used for tag lines.
- Plan and check the travel path to avoid personnel and obstructions.
- No personnel shall be allowed to work or pass under a suspended load.
- Lift the load only high enough to clear the tallest obstruction in the travel path.
- Watch for pinch points
- Start and stop slowly
- Land the load when the move is finished. Choose a safe landing.
- Never leave suspended loads unattended. In an emergency where the crane or hoist has become inoperative, if a load must be left suspended, barricade and post signs in the surrounding area, under the load, and on all four sides. Lock open and tag the crane or hoist's main electrical disconnect switch.

#### 6.5 Parking a Crane or Hoist


- Remove all slings and accessories from the hook. Return the rigging device to the designated storage racks.
- Raise the hook at least 2.1 m (7-ft) above the floor.
- Store the pendant away from aisles and work areas or raise it at least 2.1 m (7 ft) above the floor.
- Place the emergency stop switch (or push button) in the OFF position.

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## 7.0 Rigging

### 7.1 General Rigging Safety Requirements

- Crane load rigging shall only be performed by Qualified Rigger.
- Only select rigging equipment that is in good condition.
- All rigging equipment, including slings and fasteners, shall be inspected for damage or defects by a qualified person prior to each use and as necessary during its use to ensure that it is safe.
- Defective equipment is to be removed from service and destroyed to prevent inadvertent reuse.
- Slings and shackles shall have permanently affixed and legible identification markings, as prescribed by the manufacturer, that indicate the recommended safe working load.
- Slings and shackles that do not have affixed and legible identification markings as required shall not be used.
- Slings and shackles shall not be loaded more than their rated capacities depicted on the identification markings permanently affixed to the sling.
- All rigging equipment when not in use will be removed from the immediate work area.
- Proof coil steel chain shall not be used for hoisting purposes.
- Wrought iron chains in constant use shall be annealed or normalized at intervals not exceeding 6 months when recommended by the manufacturer.
- Annealing or normalizing shall be done only in accordance with the chain manufacturer's specifications.
- Deformed hooks or rings shall be replaced or repaired and reshaped under proper metallurgical control and proof tested.
- Hooks and shackles shall be used in accordance with manufacturer's recommendations.
- All hooks for which no applicable manufacturer's

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recommendations are available shall be tested to twice the intended safe working load before they are initially put into use.

- Special custom design grabs, hooks, clamps, or other lifting accessories for such units as modular panels, prefabricated structures, and similar materials, shall be marked to indicate the safe working loads and shall be proof-tested to 125 percent of the rated load prior to use.
- Rigging equipment, when not in use, shall be removed from the immediate work area so as not to present a hazard to employees.

## 7.2 Qualifications for Riggers

A Qualified Rigger is defined as employees who have the training, experience and have completed a rigger training program that covers the following basic classroom and hands on instruction:

- Procedures and Precautions
  - Load control/taglines
    - Lift planning
    - Sling inspection
    - Unbinding loads
    - Personnel transfer
    - Sling handling and storage
  - Rigging Basics
    - Pinch points/body positions
    - Personal Protective Equipment (PPE)
    - Signals/communications
    - Load stability
  - Rigging Hardware
    - Sheaves, blocks, hooks, latches, rings links, swivels
    - Shackles, turnbuckles, cable clips
    - Spreader and equalizer beams
    - Pad eyes, eyebolts, and other attachment points
  - Slings
    - Sling configurations
    - Sling angle
    - Rated load
    - Sling types

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- Cargo nets, baskets

### 7.3 Rigging a Load

Do the following when rigging a load:

- Determine the weight of the load. Do not guess.
- Determine the proper size for slings and components.
- Do not use manila rope for rigging.
- Make sure that shackle pins and shouldered eyebolts are installed in accordance with the manufacturer's recommendations.
- Make sure that all hooks have functional latches in place.
- Make sure that ordinary (shoulder less) eyebolts are threaded in at least 1.5 times the bolt diameter.
- Use safety hoist rings (swivel eyes) as a preferred substitute for eye bolts wherever possible.
- Pad sharp edges to protect slings. Remember that machinery foundations or angle-iron edges may not feel sharp to the touch but could cut into rigging when under several tons of load. Wood, tire rubber, or other pliable materials may be suitable for padding.
- Do not use slings, eyebolts, shackles, or hooks that have been cut, welded, or brazed.
- Chain or wire rope slings shall not be kinked, shortened with knots or bolts, or other makeshift devices.
- Install wire-rope clips with the base only on the live end and the U-bolt only on the dead end. Follow the manufacturer's recommendations for the spacing for each specific wire size.
- Determine the center of gravity and balance the load before moving it.
- Slings used in a basket hitch must be balanced to prevent slippage.
- All slings shall be set to avoid slippage.
- Initially lift the load only a few inches to test the rigging and balance.



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- Employees must stay clear of loads about to be lifted and from suspended loads.
- Tag lines should always be used when possible when hoisting a load.
- Hands or fingers shall not be placed between the sling and its load while the sling is being tightened around the load.
- Always wear gloves while handling a tag line
- Never wrap a tag line around your hand, arm, leg or any other part of your body.
- Do not step into the loop of a tag line.
- Keep tag lines from becoming tangled around your feet.
- Do not place your body between an immovable object and the load to be hoisted or being hoisted.
- Suspended loads shall be kept clear of all obstructions.
- Shock loading is prohibited.
- Slings shall not be pulled from under a load when the load is resting on the sling and damage to the sling may result.

#### **7.4 Crane Overloading**

- Cranes or hoists shall not be loaded beyond their rated capacity for normal operations.
- Any crane or hoist suspected of having been overloaded shall be removed from service by locking open and tagging the main disconnect switch. Additionally, overloaded cranes shall be inspected, repaired, load tested, and approved for use before being returned to service.

#### **7.5 Hand Signaling**

- A signal person must be provided in each of the following situations:
  - The load travel or the area near or at load placement is not in full view of the operator
  - When the equipment is traveling, the view in the direction of travel is obstructed


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- The operator or person handling the load determines a signal person is necessary due to site specific safety concerns
- Signals to operators must use the hand, voice, audible method. Means of transmitting the signals (direct line of sight, radio, etc.) must be suitable and appropriate for the site conditions. Hand signals must follow the Standard Method in Appendix “A” of Subpart CC.
- The ability to transmit signals between the operator and signal person must be maintained. If the ability to transmit signals is interrupted at any time, the operator must safely stop operations requiring signals until communication is reestablished and a proper signal is given and understood.
- Each signal person must:
  - Know and understand the type(s) of signals used
  - Be competent in the application of the type of signals used
  - Have a basic understanding of equipment operation and limitations, including the crane dynamics involved in swinging and stopping loads and boom deflection from hoisting loads
  - Demonstrate that he/she meets the qualification requirements through an oral or written test, and through a practical test
- Only one person shall give signals to a crane at a time, unless the emergency stop signal is given due to safety issues.
- The device used to transmit signals must be tested on site before beginning operations to ensure that the signal transmission is effective, clear, and reliable.

## 8.0 Inspections

EHS Team shall schedule and supervise (or perform) prior to use, monthly and annual inspections of all cranes, hoists, ropes, slings, fasteners, and attachments by qualified personnel.

### 8.1 Prior to Use Inspections

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- Inspections shall be performed by the crane operator prior to the use and through observation during normal operation of the equipment.
- All deficiencies shall be documented and examined by qualified personnel to determine if they constitute a safety hazard.
- Inspections shall include:
  - All functional operating mechanisms for maladjustment interfering with proper operation.
  - Deterioration or leakage in lines, tanks, valves, drain pumps, and other parts of air or hydraulic systems.
  - Hooks, if deformations or cracks are found the hook shall be tagged out of service until repaired and tested by qualified personnel.
  - Hoist chains, ropes, including end connections, for excessive wear, twist, distorted links interfering with proper function, or stretch beyond manufacturer's recommendations

## 8.2 Monthly Inspections

Monthly inspections shall include all items from the daily inspections and shall be documented with a certification record which includes the signature of the qualified person who performed the inspection, the date, and identifier (serial number, unit number, etc.) for each piece of equipment.

If safety hazards are found during inspections, the equipment in question shall be tagged out and not used until repairs are made.


## 8.3 Annual Inspections

At least annually, a periodic inspection of all equipment covered by this program shall be inspected by a qualified third party.

The inspection shall be documented as stated in section 8.2 above.

Any deficiencies constituting a safety hazard shall cause the equipment to be tagged out of service until repairs are made.


The inspection shall include the items from the daily and monthly inspections as well as the additional items below:

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- Hoisting and lowering mechanisms.
- Trolley travel or monorail travel.
- Bridge travel.
- Limit switches and locking and safety devices.
- Structural members.
- Bolts or rivets.
- Sheaves and drums.
- Parts such as pins, bearings, shafts, gears, rollers, locking devices, and clamping devices.
- Brake system parts, linings, pawls, and ratchets.
- Load, wind, and other indicators over their full range.
- Gasoline, diesel, electric, or other power plants.
- Chain-drive sprockets.
- Crane and hoist hooks.
- Electrical apparatus such as controller contractors, limit switches, and push button stations.
- Wire rope.
- Hoist chains.

#### 8.4 **Rope Inspections**

- A thorough inspection of all running ropes shall be made and a certification record which includes the signature of the person who performed the inspection and an identifier for the ropes which were inspected. The record shall be kept on file where readily available to appointed personnel.
- **Monthly**
  - Any deterioration resulting in appreciable loss of strength shall be carefully observed and the determination made as to whether further use of the rope would constitute a safety hazard. Conditions that could result in an appreciable loss of strength are:
    - Reduction of rope diameter below nominal diameter due

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to loss of core support, internal or external corrosion, or wear of outside wires,


- Several broken outside wires and the degree of distribution or concentration of such broken wires.
- Worn outside wires.
- Corroded or broken wires at end connections.
- Corroded, cracked, bent, worn, or improperly applied end connections.
- Severe kinking, crushing, cutting, or unstranding.

- **Other Rope Inspections**

- All rope which has been idle for a period of a month or more due to shutdown or storage of a crane on which it is installed shall be given a thorough inspection before it is placed in service. This inspection shall be for all types of deterioration and shall be performed by an appointed person whose approval shall be required for further use of the rope. A written and dated report of the rope condition shall be available for inspection.

### 8.5 Sling Inspections


- All slings, fasteners and attachments shall be inspected each day prior to use and whenever service conditions warrant more frequent inspections. The inspections will be performed by a Mathers Construction Team designated competent person and will examine the slings, fasteners and attachments for defects or damage. Damaged or defective slings or components will be immediately removed from service. Below is a listing of damage that typically occurs on the various slings and components that warrant removal from service:
- Nylon slings
  - Abnormal wear.

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- Torn stitching.
- Broken or cut fibers.
- Discoloration or deterioration.
- Wire-rope slings
  - Kinking, crushing, bird caging, or other distortions.
  - Evidence of heat damage.
  - Cracks, deformation, or worn end attachments.
  - Six randomly broken wires in a single rope lay.
  - Three broken wires in one strand of rope.
  - Hooks opened more than 15% at the throat.
  - Hooks twisted sideways more than 10deg. from the plane of the unbent hook.
- Alloy steel chain slings
  - Cracked, bent, or elongated links or components.
  - Cracked hooks.
- Shackles, eye bolts, turnbuckles
  - Stripped threads.
  - Deformed shafts or pins.

## 9.0 Load Testing

- Rated load test. Prior to initial use Mathers Construction Team will verify that all newly installed, extensively repaired/altered cranes and hoists are tested by or under the direction of an appointed or authorized person, confirming the load rating of the crane.
- The load rating will not be more than 80 percent of the maximum load sustained during the test.
- Test loads shall not be more than 125 percent of the rated load unless otherwise recommended by the manufacturer.
- All tests reports shall be placed on file where readily available to appointed personnel.
- Slings shall have appropriate test data when purchased. It is the responsibility of the purchaser to ensure that the appropriate test data


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are obtained and maintained.

- Re-rated cranes and hoists shall be load tested to 125% of the new capacity if the new rating is greater than the previous rated capacity.
- Fixed cranes or hoists that have had major modifications or repair shall be load tested to 125% of the rated capacity.
- Cranes and hoists that have been overloaded shall be inspected prior to being returned to service.
- Personnel platforms, baskets, and rigging suspended from a crane or hoist hook shall be load tested initially, then re-tested annually thereafter or at each new job site.
- All cranes and hoists with a capacity greater than 2722 kg (3 tons) should be load tested every four years to 125% of the rated capacity. Cranes and hoists with a lesser capacity should be load tested every eight years to 125% of the rated capacity.
- All mobile hoists shall be load tested at intervals to be determined by third party inspectors.
- Written reports on rated load test showing the test procedures and attesting to the correctness of any alteration or repair to the equipment. These written tests reports shall be placed on file where readily available to appointed personnel.

## 10.0 Maintenance

- Mathers Construction Team will verify that a preventive maintenance program based on the crane manufacturer's recommendations will be followed. If any deteriorated components or unsafe conditions are discovered during the required inspections, they must be corrected before the crane is returned to service. Qualified designated personnel will complete all maintenance and repairs.
- Before adjustments and repairs are started on a crane the following precautions shall be taken:
- The crane to be repaired shall be run to a location where it will cause the least interference with other cranes and operations in the area.

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- All energy systems associated with the crane will be locked out and tagged as per Sect. B. 30 of the Safety Manual. In addition, the following will apply for Overhead and Gantry Cranes.
  - All controllers shall be at the off position.
  - The main or emergency switch shall be open and locked in the open position.
  - Warning or "out of order" signs shall be placed on the crane, also on the floor beneath or on the hook where visible from the floor.
  - Where other cranes are in operation on the same runway, rail stops, or other suitable means shall be provided to prevent interference with the idle crane.
- Where temporary protective rail stops are not available, or practical, a signalperson should be placed at a visual vantage point for observing the approach of an active crane and warning its operator when reaching the limit of safe distance from the idle crane.
- After adjustments and repairs have been made the crane shall not be operated until all guards have been reinstalled, safety devices reactivated, and maintenance equipment removed.


## **11.0 Design Requirements**

### **11.1 Crane and Hoist Safety Design Requirements**

All rental and company owned cranes used by Mathers Construction Team will meet the following minimum design requirements.

- The design of all commercial cranes and hoists shall comply with the current requirements of ASME/ANSI B30.5 standards and Crane Manufacturer's Association of America standards (CMAA-70 and CMAA-74). Fabricated lifting equipment shall comply with the requirements in Chapter 2.2 (Lifting Equipment) of Mechanical Engineering Design Safety Standards (latest edition).
- All crane and hoist hooks shall have safety latches.
- Hooks shall not be painted (or re-painted) if the paint previously applied by the manufacturer is worn.




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- Crane pendants shall have an electrical disconnect switch or button to open the main-line control circuit.
- Cranes and hoists shall have a main electrical disconnect switch. This switch shall be in a separate box that is labeled with lockout capability.
- Crane bridges and hoist monorails shall be labeled on both sides with the maximum capacity.
- Each hoist-hook block shall be labeled with the maximum hook capacity.
- Directional signs indicating N-W-S-E shall be displayed on the bridge underside, and a corresponding directional label shall be placed on the pendant.
- A device such as an upper-limit switch or slip clutch shall be installed on all building cranes and hoists. A lower-limit switch may be required when there is insufficient hoist rope on the drum to reach the lowest point.
- All cab and remotely operated bridge cranes shall have a motion alarm to signal bridge movement.
- All newly installed cranes and hoists, or those that have been extensively repaired or rebuilt structurally, shall be load tested at 125% capacity prior to being placed into service.
- If an overload device is installed, a load test to the adjusted setting is required.
- Personnel baskets and platforms suspended from any crane shall be designed in accordance with the specifications in 29 CFR 1926.550(g).
- No modifications or additions which affect the capacity or safe operation of the equipment may be made without manufacture's approval.

## 12.0 Training

- All Mathers Construction Team employees shall be trained in basic rigging and crane and hoist safety awareness. All Mathers

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Construction Team Employees assigned as operators shall be trained and certified for the specific type of equipment being operated. This training shall be provided by licensed, qualified crane and hoist operator instructors.

- Only licensed or certified individuals will be permitted to operated cranes or hoists. Training and certification will be provided by licensed, qualified crane and hoist operator instructors.
- Crane and hoist safety awareness training will be provided to all employees through weekly safety meetings, quarterly safety meeting and/or Toolbox Safety Meetings.

## 13.0 Reporting & Recordkeeping

13.1 **Training** - All training shall be documented.


13.2 **Reports** – All crane, hoist and rigging incidents shall be reported.

13.2.1 **Incident/Accident Report** - All incidents resulting in injury or loss of consciousness of an employee or significant property damage shall be recorded as Incidents on an Mathers Construction Team Incident/Accident Report.

13.2.2 **Near Miss Reports** - All incidents not resulting in employee injury or significant property damage but with the potential for serious injury or significant damage shall be recorded as near miss events on an Mathers Construction Team Near Miss Report.

## 14.0 Attachments

14.1 (none)

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## Purpose

This written subcontractor safety management program establishes guidelines to be followed for subcontractors working for Mathers Construction. The effectiveness of the subcontractor safety management program depends upon the active support and involvement of all employees. These uniform requirements are intended to implement a program to ensure that all subcontractor work practices are carried out safely to minimize the possibility of injury or harm to subcontractors' employees or Mathers employees. It is intended to serve as an additional tool in safeguarding the health and safety of employees.


## Subcontractor Selection

Mathers EHS Department requires the following information be provided for review prior to the selection of a subcontractor:

- Subcontractor safety program
- Training documentation for all subcontractor employees working on a Mathers project
- OSHA 300 & 300A for the past 3 years
- Subcontractor EMR

## Policy

1. Subcontractor shall comply with all current applicable laws and changes as they occur (including but not limited to legally binding codes, standards, and regulations, regarding environmental, safety and/or health matters, whether at the federal, state, and/or local level). Subcontractor shall comply with these Safety Responsibilities and all safety-related provisions of the Subcontract, even if they are more stringent than the applicable laws. In the event of conflict between provisions of applicable laws and/or other provisions of these Safety Responsibilities, the more stringent requirement, as determined by the Contractor, shall govern.
2. Subcontractor shall perform and execute the work of the subcontract while complying with these Safety Responsibilities and any special or additional requirements communicated by the Contractor. Subcontractor will be directly responsible for assuring communication, compliance and accountability by all lower-tier subcontractors, suppliers, vendors, delivery personnel and their employees.
3. A defined "flow down" strategy will be developed by subcontractor to ensure program adherence and consistency by all lower tier subcontractors.

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4. A formal incident review will be required in response to all serious or potentially serious incidents. Subcontractor will participate during any scheduled incident review sessions. The injured party and any applicable witnesses to the incident may also be required to attend.

5. Subcontractor foreman, supervisors and superintendents assigned to Mathers sites will have OSHA 30-hour certification.

6. All subcontractors will confirm and record headcount and hours worked each day and by each tier subcontractor. This report will be provided to the contractor at the end of each week. The report will contain a section to formally report any incident, near miss or injury.

7. All subcontractor delivery drivers, vendors, trucking or concrete drivers will adhere to all site PPE requirements.

8. Subcontractor will also adhere to the Mathers’s cold/heat stress program and any requirements established therein.


9. Subcontractor shall submit to Mathers and appropriately post emergency contact information, including work, mobile telephone numbers and email addresses for all applicable Operations and Safety Management personnel.

10. Subcontractor shall appoint and submit in writing to Mathers the name of all “competent or qualified persons” (via OSHA standard) who are authorized and able to recognize and anticipate hazards. The qualifications of all competent and qualified individuals shall be made available to Mathers upon request. Such persons shall have authority to take prompt corrective action to abate hazards. Such persons will also have the authority to alter, modify or stop work plans in the process of hazard review or abatement.

11. In accordance with Mathers’ program, all Subcontractor employees will be actively engaged in the Stop Work Authority (SWA) program. This program will be highlighted during orientation and each employee will be granted the authority to pause or stop work to ask questions or to verify that conditions are safe.

12. At the discretion of Mathers management, serious or imminent danger violations may warrant immediate action, up to and including termination and/or removal from the project. Any supervisor or manager who knowingly exposes employees to imminent danger situations is also subject to immediate termination. Imminent danger situations include, but are not limited to, the following:

- Violation of the Stored Energy and Lockout/Tagout Procedure, including removing another lockout sign or tag without authorization and working on equipment or circuits that could be

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accidentally or unintentionally energized. In all cases, failure to develop, submit or follow a pipe/vessel pressure test plan will be considered an imminent danger violation and grounds for termination or removal from site.

- Violation of the Fall Protection Program, including standing on the top or first rung of a step ladder of any height.
- Violation of the Cranes and Rigging Procedure, including operating a crane (lifting, swinging or loading) adjacent to energized power lines less than 20 feet away and using rigging equipment in excess of the recommended safe workload capacity.
- Violation of the Confined Space Procedure, including unauthorized entry to a confined space.
- Violation of the Excavation/Trenching Procedure, including working in or authorizing work in un-sloped, un-shored or unprotected trenches or excavations.
- Violation of procedures related to mobile equipment, including operating mobile equipment, forklifts and skid steers without appropriate certification, training authorization or inspection.
- Violation of procedures related to caught-in/struck-by hazards, including entering the line of fire (i.e. walking under a suspended load).
- Violation of the Drug and Alcohol Policy, including distribution or working under the influence of mind-altering substances.
- Accessing exclusion zones/red barricaded areas without authorization.
- Conscious disregard of a “DO NOT OPERATE”, “DANGER”, or “WARNING” sign.
- Intentionally removing a guard or safety mechanism designed for employee safety.

Additional items that may warrant immediate removal or termination include: fighting and verbal abuse, exhibiting open disregard for contractor safety or the project safety program, theft, sabotage, firearms, smoking in non-designated areas and falsifying a company document (i.e. accident investigation, testimony, equipment inspection, certifications, etc.)

13. Subcontractor shall plan and execute all work operations to comply with its written SSSP, these contract Terms and Conditions, and Mathers Safety Program.

14. Subcontractor shall utilize personal fall restraint systems and attach to manufacturer’s approved anchorage points. All Subcontractor employees will be tied off while operating/working in scissor lifts and from aerial work platforms. Subcontractors will ensure that any scissor lifts delivered on site are equipped with manufacturer approved anchor points. Standing on mid-rails and hand-rails of aerial/scissor lifts is strictly prohibited and considered an imminent danger violation. Blocks or steps are not permitted in lifts to gain access to a higher elevation or stepping.

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15. Subcontractor will utilize a 100% 6-foot fall protection policy and program. Each person on a walking or working surface with an unprotected side or edge which is 6 feet or more above the next lower level shall be protected from falls using the Hierarchy of Controls (elimination, substitution, engineering, administrative, and personal protective equipment). As such, personal fall arrest systems (PFAS) should be considered as the last option. All personnel and all tiers will comply with this requirement, including Roofers, Ironworkers, Erectors, and Connectors, regardless of any exemptions that might otherwise be available under OSHA, trade agreement or other applicable law.

16. Where work could result in a fall of equipment, materials or tool, measures will be taken to prevent the fall, reduce the distance, and/or ensure no one can struck by accidental release. Measures may include;

- Exclusion Zones with signage established below or around work areas to prevent struck by hazards.
- Tethers used to tie-off tools or equipment to prevent fall of material hazards.

17. Subcontractor shall ensure that any lifting attachment used on mobile equipment has a positive locking mechanism that prevents accidental displacement or release.


18. Subcontractor shall provide an initial safety training to each new employee, including all sub-tier employees prior to the start of work at the site. At a minimum, training on general safety hazards, site-specific safety policies and procedures, personal protective equipment, fall protection, flagger/spotter, injury reporting and protocols, and emergency action. All trainings shall be documented by the Subcontractor.

19. Subcontractor's employees and all sub-tier Subcontractors shall participate in daily sunrise huddles and job-wide safety stand-downs.

20. Subcontractor shall adhere to and comply with all Mathers and Client/Owner, post incident and reasonable suspicion drug testing practices, programs and policies. These practices and programs may include pre-employment screening on a project/owner specific basis.

21. Subcontractor shall notify Mathers within one (1) hour of any incident involving injury (or near miss of injury/damage) to any person or property. In addition, each Subcontractor shall investigate and document all such incidents. Findings shall be documented in an incident report and submitted to Contractor within 24 hours of the incident. All such incident reports will contain, but not be limited to;

- Date of event
- Chain of events leading to incident

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- Impacted or injured parties (i.e., name, craft, position)
- Impacted property and estimated damage costs
- Primary and contributing causes of incident
- Immediate corrective measures taken
- Lessons learned for wider application by Subcontractor or Contractor
- Other items as requested by the Contractor
- Witness Statements

22. Subcontractor shall provide adequate safety measures and controls to address potential occupational exposures such as gases, fumes, silica, dusts, chemicals, noise, and confined spaces.

23. Per OSHA 1926.1153, each subcontractor covered by the silica standard shall establish and implement a written silica exposure control program that identifies tasks that involve potential exposure and methods the company will use to protect employees. Procedures and protocols may include restricting access to work areas where high exposures may occur, designation of a competent person to implement the plan, restricting housekeeping practices that expose employees to silica where feasible alternatives are available, and use of appropriate tools and work practices to minimize the potential for exposure. The plan must be reviewed prior to the start of work. If subcontractors have no silica exposure control program all employees will adhere to the Mathers silica control program.


24. Subcontractor shall provide Personal Protective Equipment (PPE) to all employees as needed and required per Mathers' policy/procedure or regulatory requirements.

25. Subcontractor and all tiers shall take immediate corrective action for non-compliance up to and including removal from the work site. Furthermore, in accordance with the terms and conditions of the Subcontract, Mathers reserves the right to take appropriate actions to remedy any Subcontractor non-compliance at the Subcontractor's expense. Mathers also reserves the right to withhold payment/s pending correction and abatement of all noted or discussed hazards.

26. Mathers reserves the right to remove any party or employee from the job site at any time and for any reason.

27. Subcontractor will inspect all hand tools and extension cords prior to their use. Tools and extension cords found to be defective will to be taken out of service immediately by subcontractor. Other equipment, such as scaffolding and ladders, shall be inspected for defects by Subcontractor's competent person prior to use. Any equipment found to be defective or unserviceable will be immediately taken out of service and removed from site.

28. All equipment and tools shall be used per the manufacturer's recommendations.

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29. Only licensed, certified, competent and properly trained persons are allowed to operate any mobile equipment, i.e., scissor lifts, lulls, forklifts and skid steers. Documentation confirming competency must be maintained on-site and verified for each user prior to operation. (See exception and approval policy for emergency circumstances). A documented inspection shall be completed for all mobile equipment prior to use.

30. Subcontractor shall ensure that all power tools and cords are protected by an operable Ground Fault Circuit Interrupter (GFCI) plugged in at the power source or GFCI circuit breaker or GFCI “pigtail”. Above 110 V, all cord sets and plug sets shall be protected via GFCI or Assured Equipment Grounding Conductor Program (AEGCP).

31. Subcontractor shall ensure that all work on live electrical components is performed only when all other alternatives have been deemed infeasible. Such work by Subcontractor requires written approval and consent from the Mathers Superintendent, Mathers EHS, Mathers Senior Management, and the client/owner (if required) – no exceptions.

32. All electrical tasks will be carried out in compliance with NFPA 70E, OSHA and Mathers Stored Energy program. Additionally, Subcontractor will only handle or engage de-energized wiring or circuits after appropriate Lock and Tag and a secondary confirmation of source isolation via a working voltage detector or like instrument. All work on live/energized sources requires advance notice and approval by Mathers’ site management team.


33. Subcontractor shall ensure that all permanent and temporary electrical panels are locked and labeled with controlled access. All de-energized electrical and power systems will be locked out in accordance with appropriate lock and tagging guidelines.

34. Subcontractor shall maintain all required and appropriate OSHA documentation related to injuries and illnesses on site. Such documents will be made available to Mathers upon request.

35. Each Subcontractor shall maintain all appropriate documentation under the Hazard Communications standard and the Globally Harmonized System (GHS). The Subcontractor shall submit all SDSs used in the performance of work to Mathers. The Subcontractor shall maintain a copy of a hazardous communications program and a library of SDSs for materials provided/used in the performance of its scope of work with SSSP. Subcontractor will ensure that all employees are trained to address any potential chemical exposures/interfaces.

36. Subcontractor shall conduct daily inspections of all work areas. Subcontractor shall conduct a formal and documented weekly safety inspection and take corrective actions for recognized hazards. A copy of all formal inspections completed by the subcontractor will be provided to Mathers.



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37. Subcontractor shall conduct periodic safety meetings with employees, foremen, and Subcontractors, at all tiers, to address safety, lessons learned, high-hazard activities and related.

38. Subcontractor shall develop and submit a Pressure Testing Safety Plan to the Mathers Superintendent and EHS prior to performing any pneumatic, hydrostatic, or other pressure testing of pipes or vessels. Subcontractor shall not use pneumatic testing as a testing medium unless required by the design and approved well in advance by the project team/superintendent and EHS.

39. Subcontractor will provide competent flaggers/ spotters for the safe access and egress of all heavy loads, trucks, and equipment. Proof of training must be made available upon request.


40. Subcontractor shall ensure that all scaffolds are built and tagged in accordance with OSHA guidelines.

41. Subcontractor shall provide Mathers with a copy of their documented respiratory protection program where applicable. This program shall cover the requirements for Appendix D, Voluntary Respirator Use. The Subcontractor shall retain all signed copies of Appendix D that were performed on the project. The signed Appendix D shall be made available upon request.

42. Subcontractor will ensure that all open flame and spark producing activities are performed in accordance with Mathers's hot work procedure. Hot work procedures include the completion and approval of a Hot Work Permit before activities begin and, in some cases, may require a dedicated fire watch while work is taking place and for a minimum of 30 minutes past the completion of the work. A subcontractor supplied fire extinguisher must be present at the work area where the hot work is being performed and employees must be trained in the use of such extinguisher. Subcontractor shall supply fire extinguishers for all related work activities.


43. The following work rules are important to the safety of all personnel on Mathers sites and shall be always adhered to:

- a. Possession of or working under the influence of alcohol or drugs is prohibited and subject to immediate dismissal.
- b. Hazard Communication and Lockout/Tag out Programs shall be observed.
- c. Unsafe conditions or acts, along with any accidents or near misses shall be reported to your immediate supervisor and a member of the Mathers management team.
- d. Appropriate work attire shall be always worn. Hard hats, in construction areas, safety glasses, High-Visibility vests and durable boots covering the feet and ankle are minimum requirements. Appropriate work gloves are required for all employees while on the job site.

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- e. Work wear shall not be offensive or inappropriate.
- f. "Horseplay", harassment, fighting, workplace violence, and other inappropriate behaviors are strictly prohibited.
- g. Maintaining good housekeeping is always mandatory. Subcontractor is responsible for daily clean up.
- h. Photos, pictures or video may not be allowed on some site.
- i. Fire protection equipment is not to be tampered with or removed from its assigned location.
- j. Vehicles are to be always operated and driven in a safe manner.
- k. Firearms are always prohibited on site or in parking lots.
- l. Barricaded areas will not be entered without proper authorization.
- m. Modification or alteration of any piece of personal protective equipment is strictly prohibited.
- n. "No Smoking" rules shall be adhered to. Smoking/tobacco shall be allowed in designated areas only.
- o. All gasoline engines shall be shut off and allowed to cool before refueling.
- p. The use of plastic gas cans for storing combustible/flammable liquids on the site is prohibited. Use only approved metal containers.
- q. Tampering with firefighting or life safety equipment is prohibited and grounds for immediate termination/removal.
- r. Cell phones are strictly prohibited while performing trade/craft work or constructing the project.

44. Mathers supervisors and managers will verify subcontractor performance throughout the duration of work and will periodically evaluate their compliance with safety procedures and regulatory and work specific requirements. Mathers management will also conduct post-job performance reviews.

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## Policy Brief & Purpose

The MCT cyber security policy outlines company guidelines and provisions for preserving the security of data and technology infrastructure. The more we rely on technology to collect, store, and manage information, the more vulnerable we become to severe security breaches. Human errors, hacker attacks and system malfunctions could cause great financial damage and may jeopardize our company's reputation. For this reason, we have implemented several security measures. We have also prepared instructions that may help mitigate security risks. We have outlined both provisions in this policy.

## Scope

This policy applies to all MCT employees, contractors, volunteers, and anyone who has permanent or temporary access to MCT systems and hardware.

## Policy

### Confidential data

Confidential data is secret and valuable. Common examples are:


- Unpublished financial information
- Data of customers/partners/vendors
- Patents, formulas, or new technologies
- Customer lists (existing and prospective)

All employees are obliged to protect this data. In this policy, we will give our employees instructions on how to avoid security breaches.

### Protect personal and company devices

When employees use their digital devices to access company emails or accounts, they introduce security risk to our data. We advise our employees to keep both their personal and company-issued computer, tablet, and cell phone secure. They can do this if they:

- Keep all devices password protected.
- Choose and upgrade a complete antivirus software.
- Ensure they do not leave their devices exposed or unattended.
- Install security updates of browsers and systems monthly or as soon as updates are available.
- Log into company accounts and systems through secure and private networks only.

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We also advise our employees to avoid accessing internal systems and accounts from other people’s devices or lending their own devices to others.

Every MCT employee must have their own username and password to log in to the company network. A unique identifier helps show who is using the network and what they have done.

New hires will receive company-issued equipment that is protected with password management and antivirus/ anti-malware software. These protections will be implemented by security specialists/ network engineers contracted with MCT.

Keep emails safe

Emails often host scams and malicious software (e.g. worms.) To avoid virus infection or data theft, we instruct employees to:


- Avoid opening attachments and clicking on links when the content is not adequately explained (e.g. “watch this video, it’s amazing.”)
- Be suspicious of clickbait titles (e.g. offering prizes, advice.)
- Check email and names of people they received a message from to ensure they are legitimate.
- Look for inconsistencies or giveaways (e.g. grammar mistakes, capital letters, excessive number of exclamation marks.)

If an employee is not sure that an email, they received is safe, the issue can be referred to the security specialist.

Manage passwords properly

Password leaks are dangerous since they can compromise our entire infrastructure. Not only should passwords be secure so they won’t be easily hacked, but they should also remain secret. For this reason, employees are advised to:

- Choose passwords with at least eight characters (including capital and lower-case letters, numbers and symbols) and avoid information that can be easily guessed (e.g. birthdays.)
- Remember passwords instead of writing them down. If employees need to write their passwords, they are obliged to keep the paper or digital document confidential and destroy it when their work is done.
- Exchange credentials only when necessary. When exchanging them in-person isn’t possible, employees should prefer the phone instead of email, and only if they personally recognize the person they are talking to.
- Change their passwords every two months.

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Employees are obliged to create a secure password for the tool itself, following the abovementioned advice.

#### Transfer data securely

Transferring data introduces security risk. Employees must:

- Avoid transferring sensitive data (e.g. customer information, employee records) to other devices or accounts unless absolutely necessary. When mass transfer of such data is needed, we request employees to ask our security specialists for help.
- Share confidential data over the company network/ system and not over public Wi-Fi or private connection.
- Ensure that the recipients of the data are properly authorized people or organizations and have adequate security policies.
- Report scams, privacy breaches and hacking attempts.

The IT specialists/ network engineers need to know about scams, breaches, and malware so they can better protect our infrastructure. For this reason, we advise our employees to report perceived attacks, suspicious emails, or phishing attempts as soon as possible to the HR department. HR will notify the specialists. The IT specialists/ network engineers must investigate promptly, resolve the issue, and notify HR of the findings. HR will send a companywide alert when necessary.


#### Additional measures

To reduce the likelihood of security breaches, MCT also instruct our employees to:

- Turn off their screens and lock their devices when leaving their desks.
- Report stolen or damaged equipment as soon as possible to HR department.
- Change all account passwords at once when a device is stolen.
- Report a perceived threat or possible security weakness in company systems.
- Refrain from downloading suspicious, unauthorized, or illegal software on their company equipment.
- Avoid accessing suspicious websites.

The security specialists/ network administrators should:

- Install firewalls, anti-malware software and access authentication systems.
- Notify HR to inform employees regularly about new scam emails or viruses and ways to combat them.
- Investigate security breaches thoroughly.

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- Follow this policies provisions as other employees do.

MCT will have all physical and digital shields to protect information.

#### Remote employees

Remote employees must follow this policy’s instructions too. Since they will be accessing our company’s accounts and systems from a distance, they are obliged to follow all data encryption, protection standards and settings, and ensure their private network is secure.

#### **Awareness, Communication and Training**

New employees: To mitigate the risk of unintentional disclosure of confidential information by employees, Human Resources will refer newly onboarded employees to this policy and will require formal acknowledgement that it has been read, is understood, and will be applied.

New and existing employees: To mitigate the risk of unintentional disclosure of confidential information by employees, cyber security training and awareness sessions will be provided as an integral part of employee onboarding and ongoing employee development. Cyber security refresher training will be conducted whenever there are changes to this policy. In addition, acknowledgement of this policy, that it is understood, and that the employee agrees to apply it will be included in MCT orientation and refresher training.

Departures and/or changes in employment status: Upon a change in status, including promotion, transfer, or termination of employment the applicable HR department is accountable for ensuring that the security specialist/ network administrator is advised so that the employee’s network and physical access privileges are modified as appropriate in a timely manner.


Third parties: Third parties, vendors, suppliers, partners, contractors, service providers, or customers with connectivity to MCT’s internal network or access to MCT’s data must comply with this Policy.

Cyber security training will cover common ways that cyber security attacks occur and how to defend against them. Some examples of these include social engineering, phishing, malware attacks, and impersonation.

#### **Disciplinary Action**

MCT expect all our employees to always follow this policy and those who cause security breaches may face disciplinary action:

- First-time, unintentional, small-scale security breach: We may issue a verbal warning and retrain the employee on cyber security.

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- Intentional, repeated, or large-scale breaches (which cause severe financial or other damage): We will invoke more severe disciplinary action up to and including termination. We will examine each incident on a case-by-case basis.

Additionally, employees who are observed to disregard our cyber security instructions will face progressive discipline, even if their behavior hasn't resulted in a security breach.

Take cyber security seriously

Everyone, from MCT customers and partners to MCT employees and contractors, should feel that their data is safe. The only way to gain their trust is to proactively protect our systems and databases. We can all contribute to this by being vigilant and keeping cyber security top of mind.

***Disclaimer: This policy template is meant to provide general guidelines and should be used as a reference. It may not consider all relevant local, state, or federal laws and is not a legal document. Neither the author nor MCT will assume any legal liability that may arise from the use of this policy.***