Corporate Health and Safety Program
BOND Building Construction, Inc.
10 Cabot Road, Suite 300 | Medford, MA 02155

Table of Contents

Safety Mission Statement

Throughout BOND's 100+ year history, we have prided ourselves on being a company that appreciates what it takes by each and every member of our firm to successfully deliver projects for our clients. While there is a lot that goes into accomplishing this year in and year out, there is no topic more important to us than making sure ***all*** BOND projects are executed to the highest levels of safety excellence. It is imperative that safety is a part of each and every conversation we have, whether it is when we are kicking off a new project or coming in to start our day. Our safety performance is critical to our success as it not only affects our ability to bid or win work but, most importantly, it affects the health and well-being of each and every worker on our jobs and in our firm. The success of our safety program depends on the full participation of every employee, subcontractor and vendor. BOND expects each person to be diligent, to press for attention, and to ensure that all potentially unsafe conditions are addressed and that the work is preplanned to mitigate all known or anticipated job-site hazards. We must strive for excellence at all times and at no point can we let that waiver. Regardless of the budget, the situation or the client, we must hold ourselves to the highest of standards and ensure that all members of our team work safely. BOND's goal is zero accidents and we want every worker on a BOND project to return home each day, safe and unharmed. Each day think about how you administer safety in order to identify ways in which we can each elevate our awareness to help our program reach a higher level of success. Thank you all for your hard work and dedication to the firm as well as ensuring the safety of your fellow workers.

Sincerely,
Tony Bond
CEO & President

HEALTH AND SAFETY POLICY

Safety is our first concern. BBC believes that protecting every person within or near the construction site from personal injury is its foremost priority. ***No priority overrules safety at any time.***
BBC integrates safety into all planning and every activity. All personnel participate in an active safety program to create a safe and productive workplace. We expect every individual to uphold OSHA standards and BBC' safety requirements as presented in our Corporate Safety Program and the Project Health and Safety Plan.

SAFETY EXCELLENCE

BOND shall furnish all employees a place of employment that is free from recognized hazards and provide workers with the resources and training necessary to then obligate them to conduct their jobs safely and remain accident-free. Excellence is defined as "Every BOND employee and every person who steps foot on a BOND project goes home each and every day without incident or injury - without exception."

12 CARDINAL RULES

Follow these 12 simple construction site safety rules to keep yourself, and others, safe always. This is Safety in its simplest format. We are highlighting these basic rules above all others to keep yourself safe and your co-workers safe. The Cardinal Rules are the embodiment of our safety culture. These rules should be at the forefront of your thinking for all on site activities.

1. Always Wear your PPE.
2. Do not start work without a job briefing.
3. Keep a clean and organized site.
4. Do not put yourself or others at risk.
5. Follow safety signs and procedures.
6. Never work in unsafe areas.
7. Report all Events and Concerns (incidents, near misses, etc.)
8. Never tamper with equipment.
9. Use the right equipment.
10. Proper Lifting Techniques.
11. Safe Vehicle Operation.
12. If in doubt, ask!

(Stop work and ask. It takes 5 minutes to check, but it might not be so easy to put things right if things go wrong. It's better to be safe than sorry. Mistakes on construction sites can cost lives, don't let it be yours. Stop Work Authority is everyone's right on a job. Making sure everyone is on the same page will make the job safer with the bonus of higher quality and a more efficient operation. Use it!)

Health and Safety Plan
BBC aspires to an accident-free state on all projects. The Health and Safety Plan establishes the rules for working on a BOND controlled project site. The manual establishes procedures for safeguarding those in and near the construction site – preventing injury and occupational illness – protecting the public and avoiding property damage and theft.

All employees, subcontractors, subcontractor employees, and vendors must comply with the rules set forth in this manual as well as with all federal, state, local, and owner health and safety standards.

BOND Safety Approach
Everyone involved with a BOND construction project is responsible for preserving health and safety. The success of this safety program depends on the full participation of every employee and subcontractor, manager and vendor. BBC expects each person to be diligent, to press for attention, and to ensure that all potentially unsafe conditions are addressed and that the work is preplanned to contend with all known safety hazards. No one associated with a BOND project will ever be penalized for pointing out a safety issue.

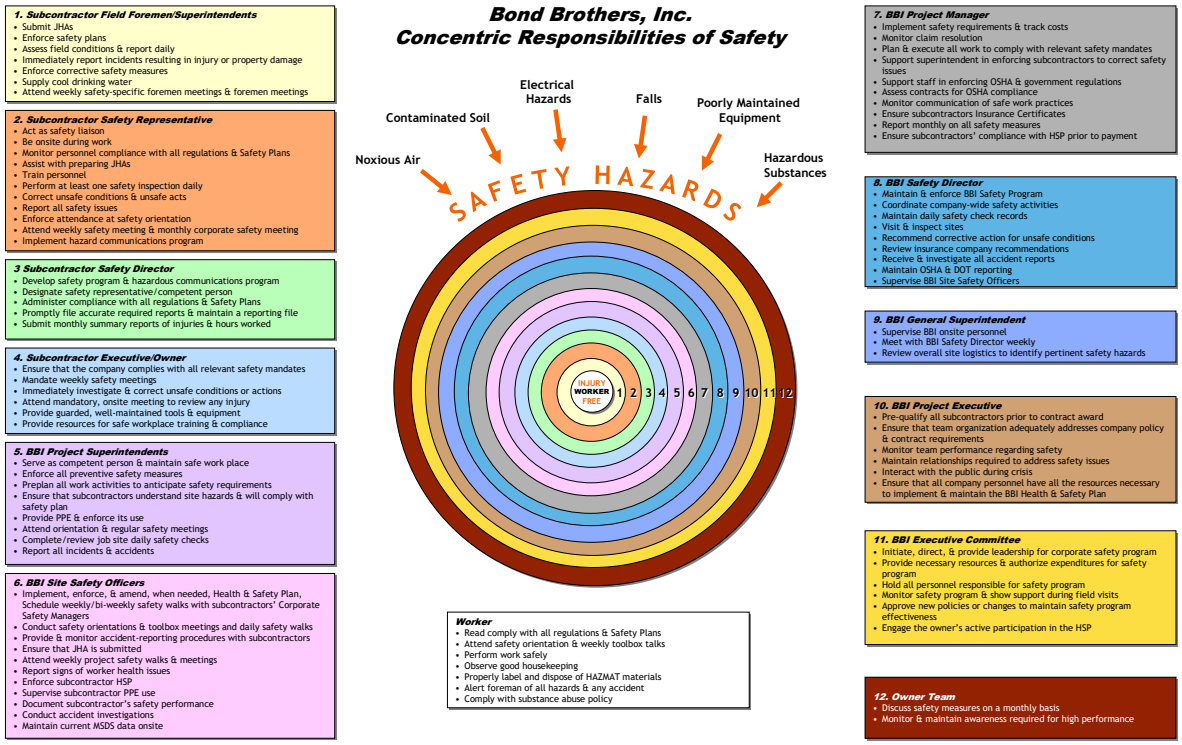
Health and safety is crucial to a construction project's success. Accidents affect job efficiency, quality, and cost. But more importantly, every unsafe circumstance risks someone's life. Each of us has family waiting for us to return safely each day. And each of us is responsible to them and to the families of everyone associated with the job.

Safety Regulations
BBC adheres to OSHA 29 CFR 1926 construction Safety Standards, applicable OSHA 29 CFR 1910 General Industry Standards, and all applicable federal, state, and local health and safety standards. We demand similar compliance from all subcontractors. In all cases, BBC demands that workers abide by the most rigorous regulation, if conflicts occur.

PROJECT SAFETY TEAM
Organization Chart
All members of a project team share safety responsibilities. Each project will have a designated project safety team that will be outlined in the Project Health and Safety Plan.

SAFETY RESPONSIBILITIES

Concentric Responsibilities of Safety



Project Employees

- Read comply with all regulations & Safety Plans
- Attend safety orientation & weekly toolbox talks
- Perform work safely
- Observe good housekeeping
- Properly label and dispose of HAZMAT materials
- Alert foreman of all hazards & any accident
- Comply with substance abuse policy

Subcontractor Field Foreman/Superintendents

- Submit JHAs
- Enforce safety plans
- Assess field conditions & report daily
- Immediately report incidents resulting in injury or property damage
- Enforce corrective safety measures
- Supply cool drinking water
- Record and Maintain records containing weekly safety meetings, first aid records, near misses, field conditions, inspections and safety walk through.
- Attend weekly safety-specific foremen meetings & foremen meetings

Subcontractor Safety Representative

- Act as safety liaison
- Be onsite during work
- Monitor personnel compliance with all regulations & Safety Plans
- Assist with preparing JHAs
- Train personnel
- Perform at least one safety inspection daily
- Correct unsafe conditions & unsafe acts
- Report all safety issues
- Enforce attendance at safety orientation
- Attend weekly safety meeting & monthly corporate safety meeting
- Implement hazard communications program

Subcontractor Safety Director

- Develop safety program & hazardous communications program
- Designate safety representative/competent person
- Administer compliance with all regulations & Safety Plans
- Promptly file accurate required reports & maintain a reporting file
- Submit monthly summary reports of injuries & hours worked

Subcontractor Executive/Owner

- Ensure that the company complies with all relevant safety mandates
- Mandate weekly safety meetings
- Immediately investigate & correct unsafe conditions or actions
- Attend mandatory, onsite meeting to review any injury
- Provide guarded, well-maintained tools & equipment
- Provide resources for safe workplace training & compliance

BOND Project Superintendents

- Serve as competent person & maintain safe work place
- Enforce all preventive safety measures
- Preplan all work activities to anticipate safety requirements
- Ensure that subcontractors understand site hazards & will comply with safety plan
- Provide PPE & enforce its use
- Attend orientation & regular safety meetings
- Complete/review job site daily safety checks
- Report all incidents & accidents

BOND Site Safety Personnel

- Implement, enforce, & amend, when needed, Health & Safety Plan, Schedule weekly/bi-weekly safety walks with subcontractors' Corporate Safety Managers
- Conduct safety orientations & toolbox meetings and daily safety walks
- Provide & monitor accident-reporting procedures with subcontractors
- Ensure that JHA is submitted
- Attend weekly project safety walks & meetings
- Report signs of worker health issues
- Enforce subcontractor HSP
- Supervise subcontractor PPE use
- Document subcontractor's safety performance
- Conduct accident investigations
- Maintain current MSDS data onsite

BOND Project Manager

- Implement safety requirements & track costs
- Monitor claim resolution
- Plan & execute all work to comply with relevant safety mandates
- Support superintendent in enforcing subcontractors to correct safety issues
- Support staff in enforcing OSHA & government regulations
- Assess contracts for OSHA compliance
- Monitor communication of safe work practices
- Ensure subcontractors Insurance Certificates
- Report monthly on all safety measures
- Ensure subcontractors' compliance with HSP prior to payment

BOND General Superintendent

- Supervise BOND onsite personnel
- Meet with BOND Safety Director weekly
- Review overall site logistics to identify pertinent safety hazards

BOND Director of Corporate Safety

- Maintain & enforce BOND Safety Program
- Coordinate company-wide safety activities
- Maintain daily safety check records
- Visit & inspect sites
- Recommend corrective action for unsafe conditions
- Review insurance company recommendations
- Receive & investigate all accident reports

- Maintain OSHA & DOT reporting
- Supervise BOND Site Safety Officers

BOND Project Executive

- Pre-qualify all subcontractors prior to contract award
- Ensure that team organization adequately addresses company policy & contract requirements
- Monitor team performance regarding safety
- Maintain relationships required to address safety issues
- Interact with the public during crisis
- Ensure that all company personnel have all the resources necessary to implement & maintain the BOND Health & Safety Plan

BOND Executive Committee

- Initiate, direct, & provide leadership for corporate safety program
- Provide necessary resources & authorize expenditures for safety program
- Hold all personnel responsible for safety program
- Monitor safety program & show support during field visits
- Approve new policies or changes to maintain safety program effectiveness
- Engage the owner's active participation in the HSP

Owner Team

- Discuss safety measures on a monthly basis.
- Monitor & maintain awareness required for high performance

SAFETY PLANNING

Subcontractor Requirements

BBC demands that all subcontractors on any BOND Project Site operate with safety as their utmost concern. Under no circumstances will unsafe practices be tolerated.

During the bid and procurement process, BBC will evaluate all subcontractors' safety records. All subcontractors must comply with the BBC Health and Safety Plan and with Federal and State requirements. Before starting work, subcontractors must submit the following to BBC':

- Enroll in Constructsecure if not already done. Constructsecure is the Subcontractor qualification program BBC will utilize to prequalify subcontractors.
- Their safety and hazardous materials communications programs specific for the project being bid
- A project risk assessment/JHA
- Project safety documentation required in the contract documents.

BBC will review the subcontractor's safety plan and may require revisions to bring the document up to the required safety performance level for the project and/or BBC' standards.

Pre-Bid Pre-Qualification

During the prequalification process, BBC evaluates the subcontractor's safety record. BBC acquires each company's Experience Modification Rate and reviews each subcontractor's intended corporate safety plan. BBC also engages in a healthy discussion of safety with key owners and executives to assess the necessary commitment and their ability to work well with the team to maintain the project.

Pre-Mobilization Meeting
BBC will conduct a safety information session for every subcontractor prior to mobilization. This session will occur at a specific Pre-Mobilization Meeting including both BOND and Subcontractor Superintendent and Project Manager. This meeting will outline the site-specific safety training requirements for each subcontractor employee and cover key components of the BBC Health and Safety Plan, project mitigation plan, and incident reporting requirements.

Each subcontractor will provide the following as part of the premobilization meeting:

- Designate their safety representative, the onsite competent person, who shall have primary responsibility for implementing the safety plan.
- Specify enforcement measures for individuals who become noncompliant with the safety plan.
- Identify the senior-level manager from the company who will monitor the implementation of all safety procedures for the duration of the work.
- Site Specific JHA
- Site Specific Safety Manual.

Premobilization Meeting Agenda guidelines shall include a review of the following.
Prior to Mobilization

- Safety Plan Submission (Including Hazcom)
- Jackie's Law Permit – Plan for protection (fencing or plates)
- Job Hazard Analysis for work activities to be performed
- Emergency Action Plan – Phone Numbers, etc.
- Corporate Safety representative(s) – name and cell phone
- On Site Safety representative – name and cell phone
- Competent person(s) – name, cell phone and training verification
- Qualified equipment operators – name and training verification (License information for operators)
- Personnel certified in first aid and CPR – name, cell phone, and training verification
- Equipment inspections (all cranes require a valid third-party annual inspection)
- If Crane is to be used - Compliance with Subpart CC for Rigging and Signal Persons
- Master Chemical and Substance Inventory sheet and Material Safety Data Sheets for all hazardous substances and materials used or stored onsite
- Fall Protection Plan – What's the plan for the deep excavation?
- Verification of all OSHA-required training (OSHA 10 required for all supervisors at a minimum)
- Permits – Fire Department, Trench and Excavation, etc. (no hot work shall take place without a permit from the Fire Department)
- Shoring information – Tabulated data for Trench boxes and/or hydraulic shores.
- Badging

Regular Submittals
Monthly Project Incident Summary Report shall be provided to Bond

  - Total man-hours worked for month
  - OSHA Lost Workday cases
  - OSHA Medical Treatment cases
  - First aid cases
  - Restricted work cases
  - Days away from work
  - Incident Investigation and Notification report – BOND notified immediately, paperwork within 24 hours of incident
  - Weekly toolbox safety meeting minutes and attendance
- Daily Pre Task Plans required to be performed

- Daily Sign in of all employees to maintain accurate headcount

Onsite Records
Subcontractors must maintain the following onsite records throughout the project:
- Worksite Safety Inspections
- Daily equipment and site inspections (for example, crane, forklift, scaffold, rigging, trench)
- All Job Hazard Analysis'
- Pre Task Planning Sheets
- Toolbox Talk documentation

Job Hazard Analysis (JHA)
Before engaging in any onsite work activities, field personnel will develop a job hazard analysis for all tasks within their scope of work. Each BBC Superintendent and subcontractor will identify existing and potential health and safety hazards implied by their tasks and will determine ways to eliminate or control those hazards.

Supervisors provide JHAs to all BBC personnel and all subcontractors within their work area. Subcontractors must provide this information to their staff and enforce the preventive measures the JHA defines.

The JHA is a living document. Supervisors and subcontractors will amend it as required. They will maintain JHAs and updates in a job-site binder for reference. A safety-specific meeting will review JHAs to determine if any conditions have changed and may require a JHA revision and will regularly discuss JHA amendments.

The JHA consists of a basic four step process.
1. Select the Job or Task
2. Break task into its individual components or activities.
3. Identify the potential hazards.
4. Develop a procedure to eliminate the hazard.

The idea of the JHA is to eliminate hazards first and control them second. As an example, wearing a safety harness should be a last resort. If the fall exposure cannot be eliminated through engineering controls, a safety harness and lanyard should be used.

Designated Subcontractor Safety Representative
Subcontractors must designate a safety representative to enforce health and safety requirements and serve as 'competent person' on the job, attend safety meetings, and communicate with BBC and other subcontractors. This person will be the primary point of contact for all safety directives and will have the authority to take enforcement action and implement all corrective actions, as required. The safety representative/competent person will also be primarily responsible to perform and document onsite risk assessment plans and JHAs as required prior to performing any work activity. The name and qualifications shall be submitted to BBC prior to the start of work.

Subcontractor safety representative's daily inspection involves verifying that all aspects of the work comply with the Project Health and Safety Plan. Each subcontractor must maintain and promptly and accurately file all reports required by the owner, BBC and all applicable government agencies.

Each subcontractor must notify the Superintendent when new employees will begin work on the site and must ensure that all new employees attend the safety orientation and familiarize themselves with the BOND Project Health and Safety Plan and understand and comply with all safety and incident reporting procedures.

Subcontractors must hold mandatory weekly Toolbox Safety Meetings, must document attendance and topics, and must report these to BBC.

Subcontractors will immediately investigate any and all unsafe work conditions detected by any party on the site. They must report any injury or safety incident to BBC within 24 hours.

BBC will direct subcontractors to correct any activity that involves unsafe acts or conditions. If a subcontractor fails to rectify an unsafe condition, including housekeeping, within a reasonable time, BBC will correct it and apply back-charges.

SAFETY TRAINING AND CONTROLS

BBC provides comprehensive safety training for employees. We provide instruction conducted by in-house personnel and outside consultants for our foremen and supervisory staff. In addition, BBC develops our own Safety Work Procedures to provide guidelines for safe activity where standard procedures may not yet exist.

Safety Orientation

When any new person arrives on site, the subcontractor's safety representative must inform the BBC' Superintendent. BBC will conduct a site-specific safety orientation for each person who enters the site.

The Safety Orientation reviews all safety issues relevant to the BOND project from the general to the specific, including:

- BOND personnel
- The Project Health and Safety Plan
- Site safety procedures
- Site-specific Job Hazards
- Hazard communication
- Emergency procedures
- Injury and incident reporting
- First aid procedures
- PPE

When the individual satisfactorily completes the orientation, he will receive a safety sticker for his hard hat stating that he has completed the safety orientation and BBC will log his name into the system. Each employee must complete the safety orientation before beginning work.

The Safety Orientation instructor will record attendance at the mandatory Site Safety Orientation including the following:

- Orientation date
- Project name and number
- Attendee's name
- Attendee's employer

Safety is everyone's responsibility. Every manager or consultant employed on this project is expected to report anyone without a safety sticker to BBC so that the proper orientation can be conducted.

Toolbox Safety Meetings

BBC Superintendents and subcontractor supervisors must conduct weekly Toolbox Safety meetings and mandate employee attendance. These meetings cover specific project topics that relate to the work undertaken during that week. Current job hazards, safety rules, JHA review, recent accidents, or incidents, identified unsafe work procedures, and safe work methods are all topics for Toolbox Safety meetings.

Each subcontractor must submit an agenda and a signed attendance log to BBC by the close of work/business each Friday. Toolbox talk documentation should include:

- Meeting date
- Project and number
- Subcontractor name
- Topics discussed

- Attendance signed by each attendee
- Name of meeting leader

Daily Safety Inspections
Superintendents (BOND and subcontractors) will perform daily work site safety inspections of their work and the work of subcontractors under their direction. These inspections are separate from any inspection performed by the safety representative.

Constructsecure Safety Inspections
Constructsecure shall be used to conduct safety inspections by the BOND Safety Department. Project Safety goals shall be set in Constructsecure prior to the start of a project and monitored throughout the course of the project. Inspection reports shall be done in real time and sent the same day as they are conducted. All safety inspections will be put into the system. Both positive and negative observations will be tracked. Data will be sortable by project, superintendent, subcontractor, and by type of deficiency. All inspection data will be made available to the owner.

Pre-Task Plans
Each BBC crew and subcontractor crew will conduct daily pre task plan meetings. All PTPs will be documented and kept in the field office. The PTP will review that shifts operation and nothing more. The purpose of the PTP is to break the work down to the immediate activity taking place. All safety procedures and equipment needed for the task will be reviewed and the names for all crew members must be listed. Blank Pre Task plans can be found in the appendix.

GENERAL SAFE WORK PRACTICES
BBC demands a clean, safe work site. Everyone involved with the project must be diligent about Health and Safety. Observe and report all unsafe conditions. Preplan all work to control potential hazards. These general safe work practices comprise a partial list of rules that apply to everyone on the project. BBC will not tolerate disregard for these rules or any applicable health or safety regulation. Health and Safety is crucial to our success. Accidents affect job efficiency, quality, and cost. More importantly, **they risk someone's life**!

Make Safety a Personal Commitment.

- Each worker must perform his duties activities in a manner that is safe for himself, his fellow workers, and the general public and that protects equipment, material, and tools.
- Every worker must report unsafe acts and conditions to his supervisor.
- Do not attempt work under conditions that seem unsafe.
- All workers must wear appropriate personal protective equipment for their activities.
- All workers will wear protective eyewear.
- Do not use damaged tools or equipment. Workers must remove damaged tools and equipment from the work site.
- All equipment, machinery, and systems used on the site must first be locked out and tagged.
- Every worker must maintain a clean and orderly work area.
- Everyone working at elevations 6' or greater must use Fall Protection.
- Before operating tools and equipment, workers must ensure that proper guards and safety devices are in place.
- Report work-related injuries or illnesses to a supervisor immediately.
- If unsure about safe performance of your work, request instruction from your supervisor.
- To enter a confined space or to operate equipment, machinery, or any specialty tool, you must be properly authorized and trained.

- Do not grind, weld, cut, chip or perform other activities with danger of flying debris without eye and face protection.
- All workers must use safe lifting techniques for lifting all loads.
- Do not remove respiratory protection when the work area requires it.
- Do not ride in pickup truck beds.
- Do not disregard barricaded or flagged areas.
- Do not remove barricades or floor covers without authorization.
- BBC does not tolerate illegal substances, alcohol, horseplay, gambling, or fighting.

EMERGENCY ACTION PROCEDURES

Each project team shall identify an Emergency Response Coordinator (ERC) to the owner prior to the start of construction. Any individual who discovers an emergency condition – actual or potential – must immediately report it to one of the ERCs.

BBC will post an Emergency Phone Numbers list in the site office. The list will contain emergency phone numbers appropriate for initial emergency support the job, including the local Fire Department.

To avoid exposing workers and abutters to health and safety hazards, the best protocol is to recognize circumstances that can develop into an emergency before they do. Then the ERCs can implement procedures to prevent the problem. Some indicators that may require emergency response are

Prior to beginning any job, a meeting will be held with our client to determine how best to comply with Client's EAP. Bond will adopt Client's EAP in most cases. Any tools, supplies and training needed for this compliance will be acquired prior to start of job. A determination will be made at this point to ascertain if any Bond employees are required as part of critical operations. [1910.38(c)(3)]

- Petroleum spills from vehicles
- Chemical spills or leaks from onsite equipment
- Contaminated soil or groundwater with an unusual color or odor
- Airborne contaminants
- Fire, explosion, or worker injury
- Extreme weather or vandalism that may cause chemical or contaminant release

At award of contract the determination will be made as to whether any employees will be needed for critical operations of plants and at that point the determination will be made as to their additional training tools and equipment.

Head counts to be performed by foremen to account for all employees onsite.
All EAP critical employees will be listed on the Emergency Contact Sheet set up at beginning of contract.
Air horns or similar apparatus will be utilized as a supplemental warning system, with full explanation of the process explained at the job orientation done for all employees starting work at the jobsite.
Roles and responsibilities for the EAP will be discussed each morning at the Pretask job briefing, assignments and responsibilities will be assigned at that point daily.

Bond will designate and train employees to assist in a safe and orderly evacuation of other employees. Bond will review the emergency action plan with each employee covered by the plan: when the plan is developed, the employee is assigned initially to a job, when the employee's responsibilities under the plan change, and when the plan is changed. [1910.38(e) through 1910.38(f)(3)]

The employee alarm system must use a distinctive signal for each purpose and comply with the requirements in 29 CFR 1910.165. If Bond relies on the EAP of the Client, all employees must be made aware of the meaning and tone of the Client's alarm system. *1910.38(d)

Medical Emergency
Workers must report all injuries and illness to the ERC. At least one person with current Red Cross training in First Aid and CPR must be onsite at all times. The ERC will also have First Aid and CPR certification. A qualified person should administer first aid while awaiting the ambulance or paramedics. Detailed Medical Emergency Procedures appear in the Crisis Management Procedures. The following summarizes those procedures:

- Call 911 or designated emergency response number and ask for medical assistance. Provide
  - Site location
  - Injured worker's name
  - Description of injuries
- Direct Emergency Personnel to specific entrance closest to the incident.
- Notify the primary ERC.
- Meet the Emergency response at specific location and direct them to the injured worker.
- The ERCs will begin the accident investigation.
- Direct all inquiries from the press or other parties to the primary ERC.

During the safety orientation, workers will be given information on how to summon medical assistance in case of a medical emergency. Workers should know the following information:

Emergency Phone Number
Project Address

When reporting a medical emergency, the worker will state their name, the nature of the emergency, the severity of the emergency and where assistance is needed. A worker may be required to meet medical personnel and guide them to where the emergency is located.
WORKERS ARE TO BE INSTRUCTED NOT TO MOVE AN INJURED WORKER BEFORE MEDICAL ASSISTANCE ARRIVES UNLESS FURTHER INJURY IS POSSIBLE.

Fire
In case of a fire, workers will evacuate their work area immediately and report to the pre-determined assembly area. Workers will not attempt to put a fire out unless they have received special instruction. After reporting the fire, workers will evacuate the work area and report to the pre-determined assembly area that was stated during the safety orientation.

Severe Weather/Natural Disaster
Should weather conditions, such as severe thunderstorms or tornadoes develop around or near any BOND project, workers will follow the direction of their immediate supervisor. Work in areas where hurricane activity is possible will have a contingency plan in place. Workers may be directed to a safe area where they will remain until weather conditions improve.

Emergency Evacuation
The Emergency Response Coordinators and the local Fire and Police departments have authority to evacuate the site and to authorize reentry. Muster locations will be determined prior to the start of work. Muster locations and procedures may change as the work progresses. Evacuation procedures will be a regular safety meeting topic to make sure all employees are aware of the procedure. Specific emergency procedures and emergency phone numbers will be posted in lunch areas, near all telephones and on the project bulletin boards. BBC Health and Safety Department will routinely assess project management, supervision, subcontractors, and workers to ensure adequate knowledge of the project emergency action plan exists.

INCIDENT RESPONSE

Incident Reporting

BBC' field personnel must immediately report all injuries to our Safety department and provide detailed information. Subcontractors must immediately report and all incidents to BOND. If an accident involves a BBC' employee, the Superintendent will immediately collect information and determine whether area conditions require action. The Superintendent will determine which accident-related items should be secured and will store them for further inspection, if possible.

The incident report must include the following information:

- Date and time of incident
- Name, address, and individual's work category
- Detailed description of accident and/or injury
- Photographs within the accident area showing area conditions and specific item(s) involved in the accident
- Statements for all witnesses

If an accident requires staff to immediately transport the victim to a doctor or hospital, the Superintendent will notify the corporate office without delay. The Safety Director will investigate any accident that involves lost time, an auto accident, property damage, or injury to the public. BBC' tracks lost time claims from our employees; subcontractors are responsible to manage their lost time injuries.

The Corporate Safety Director must notify OSHA within 8 hours of a fatality or accident that results in hospitalization of 3 or more individuals.

The Superintendent files the First Report of Injury from the site. The Corporate Safety Director files the following reports

- Property damage, auto accident, public liability reports
- Appropriate notation in the OSHA 300 Log
- Follow-up reports regarding injured party's condition

Incident Investigation

BBC will conduct an investigation to identify the causal and related factors that contributed to the accident and to determine corrective action required to eliminate its recurrence. The subcontractor must provide a copy of the Incident Report to our Safety department.

If a subcontractor employee sustains an injury, their contract will require them to report to BBC within 24 hours. The Superintendent will oversee this process onsite.

SAFETY MONITORING

As part of their regular duties, all Superintendents and Foreman (both Bond and Subcontractors) monitor site safety daily, walking the site to check for safety issues and potential hazards. They will document this activity in their daily reports. They will determine and report necessary corrective action and oversee and compel observance. BBC' project management will enforce noncompliance with the Health and Safety Plan and required corrective activities in a manner appropriate to the infraction.

ENFORCEMENT/ACCOUNTABILITY

All BBC' personnel and all subcontractors must comply with all Health and Safety regulations described in the Health and Safety Plan. Violation will provoke immediate disciplinary action, up to and including dismissal.

Every BBC site will maintain a system for prompt correction of unsafe practices and conditions. Safety requirements will be strongly enforced. Enforcement will vary based on severity of the violation. The Superintendent has the responsibility and authority to immediately suspend or remove anyone who is a threat or danger to the project's safety. Violation Notice is in the appendix.

If anyone becomes aware of a life-threatening condition, BBC will immediately move to correct it. Anyone on a BOND project site who notices a safety hazard is held responsible to notify his supervisor or a BBC Superintendent.

Subcontractors must correct any safety violation within the time prescribed by the Superintendent. Progress payments may be withheld until the violation is corrected. If BBC must correct a safety violation condition due to the subcontractor's noncompliance, BBC will charge the actual costs plus appropriate markups to the subcontractor.

The Superintendent must report all safety violations to the Project Manager and Safety Director, document them, and maintain the documentation at the corporate office. Each safety violation report should include the following information:

- Date and time of incident
- Name and company of individual in violation
- Description of violation
- Photographs if required
- Corrective activities established
- Name and signature of Superintendent

Each month, all subcontractors must provide documentation to the Project Manager describing their safety performance level. BBC will use this information to measure compliance with the Project Health and Safety Plan as a condition for payment.

COMMUNICATION

Corporate Safety Walkthrough with Subcontractors

At regular intervals, to be determined at the project level, BBC will hold safety walkthroughs with subcontractor Corporate safety representative. The purpose of this review will be to engage key members of the companies at an executive level. BBC believes that Safety starts at the level of senior management. As a component of this walkthrough, BBC and the subcontractor will review all planning and compliance issues as well as the site-specific operations that are occurring.

Corporate Walkthrough with BBC Executives

In a leadership role, BBC will engage its executive team on a walkthrough of the site in order to audit the specific performance of its safety and construction team as well as to review the current site conditions. As a result of this meeting, BBC will be able to monitor compliance with the elements of the safety program and make recommendations for improvement and corrective action, when necessary.

Safety Meeting Documentation

All safety meetings and inspection tours conducted any BOND project require minutes or adequate documentation. These should be kept onsite with copies sent to the corporate office for their files. Meetings and inspections requiring documentation include

- Weekly Safety-specific Foremen Meeting
- Monthly Subcontractor-Owner-Corporate Safety Meeting
- Corporate Site Walkthrough with BBC Executives
- Weekly One-on-One Subcontractor Executive Walkthrough, as required

Documentation for these events should include:

- Meeting date
- Project and number
- List of attendees with company they represent
- Issues discussed

- Problems or concerns determined
- Responsive actions defined with responsible person indicated

All attendees should receive copies of this documentation. A copy must be filed onsite and a duplicate sent to the corporate office for their files.

Onsite Bulletin Board
An onsite OSHA bulletin board will be maintained and will provide pertinent information including the nearest hospital and the onsite competent person as well as OSHA newsletters, required postings and helpful information. BOND will use the Bulletin Board to post notices for employees to review.

SAFETY PROCEDURES
Site Control
Fencing or barricades will be installed if feasible on all projects. Fencing along the perimeter isolates the site and allows access only to individuals (workers and visitors) who have read, understood, and signed off on the orientation. All site visitors must check in and sign the log book before entering the site.

- Workers must display identification hard hats at all times identifying their company.
- Hard hats, safety glasses, and work boots must be on before entering the site.
- Visitors must be escorted.

Clean Building Protocol
BBC requires that the construction site is clean and orderly. Cleanliness and good housekeeping are essential to a safe, constructive worksite. All workers must do their part to maintain the site and to report any concerns to their BBC' Superintendent. Sloppy housekeeping risks serious accidents!

Housekeeping requirements will be posted on jobsite bulletin board and amended as conditions change. Safety and housekeeping are also a topic of toolbox talks and weekly subcontractor foreman meetings. The subcontractor foreman meetings will allow us to reinforce safety and housekeeping requirements and encourage subcontractor feedback regarding their concerns so that we can properly address all issues.

- Workers will clean work areas daily, disposing of debris, trash, lunch waste, and other refuse in appropriate containers designated at specific work locations.
- Employee facilities – eating and toilet areas – and parking areas must be kept in clean, sanitary condition.
- Site paths and roadways must be clear of debris, trash, and construction materials.
- Access lanes and walkways must be unblocked and free of tools, ladders, scaffolds, and all items mentioned above.
- All combustible debris, including oily rags, must be disposed of properly.
- Nuts, bolts, nails, washers, and all similar material must be stored in proper, closed containers that prevent accidental scattering.
- Workers must remove all nails, screws, or other protruding metal from lumber to avoid injury.
- All extension cords, hoses, welding leads, light stringers, and similar obstructions must be kept away from construction areas where they may cause a worker to trip or may create another accident.
- To prevent slipping, all liquids – including oil, water, and grease – must be cleaned from walkways, stairways, scaffolds, ladders, or similar pathways in a timely fashion.
- All subcontractors must control any dust that their activities create, inside and outside the building, by water spraying, covering, sweeping, vacuuming or whatever additional methods are necessary. Construction material and debris may be dropped from upper levels only if an acceptable trash chute is provided. Trash chute openings must be blocked when the dumpster is out of place.

Hazard Communication Program
An essential component of any safety program, the hazard communication program – required by OSHA – specifies that BBC and all subcontractors evaluate the hazards of all chemicals and provide that information to all affected workers.

This program provides guidelines for identifying, and safely using, handling, and storing hazardous chemicals, including proper labels, placards, and other warning methods. Employing careful, proper methods for handling these chemicals will prevent them from harming worker health.

Bond will use a pre-task meeting and temporary signage to inform employees of the hazards of non-routine tasks, and the hazards associated with chemicals contained in unlabeled pipes in their work areas. [1910.1200(e)(1)(ii)]

The Superintendent and subcontractor's superintendents will monitor all aspects of the hazardous communication program and will evaluate compliance of all parties onsite.

Chemical Inventory

- All subcontractors must maintain a current list of all hazardous chemicals used on the worksite.
- Each subcontractor must submit a master chemical and substance inventory list and a copy of the Material Safety Data Sheet (MSDS) for each chemical to BBC' Superintendent, who will provide a copy to the Safety Director.
- Subcontractors must maintain an MSDS Book on location for each substance listed in its inventory.
- Subcontractors are responsible for acquiring and submitting this information for their sub-tier subcontractors.

Container Labeling

- All containers must have a label indicating the hazardous chemical contained and appropriate warnings.
- Manufacturer-applied original labels should be maintained, whenever possible. If these are removed or absent, the supervisor must properly label container.
- All onsite chemicals must be sorted in the original or an approved container with the appropriate label attached.
- Workers may dispense chemicals form original containers only in small quantities for immediate use. Any chemical remaining when work is complete must be returned to the original container or to the appropriate supervisor.
- No one may leave an unmarked container, regardless of size, anywhere on the worksite.
- All labels shall be written in English
- If non English speaking workers add warnings in another language English language must still be present and legible.

Safety Data Sheets (SDS)

- Superintendents will ensure that SDS' are onsite prior to or at the time of chemical delivery.
- Superintendents will maintain a current file of SDS' for all hazardous chemicals used in their work.
- SDS' will be available for any employee who requests them.
- SDS' must be available and accessible onsite for immediate safety information.
- Subcontractors to provide SDS' to BOND prior to bringing materials on site.

Training

Superintendents and subcontractors must train all employees exposed to hazardous chemicals prior to use or exposure. When a new hazardous substance enters the worksite, Superintendents/subcontractors will train all affected employees. Training, at minimum, includes the following:

- Specific chemicals used on the worksite and their specific health and safety hazards
- Components of this hazard communication program
- Contents of the MSDS', their location, and access
- Explanation of hazardous chemical labels, how to interpret them, and labeling requirements
- Preventive measures including PPE and safe work practices
- Emergency response
- Disciplinary action for unsafe work activity
- Methods and requirements for notifying BBC of unlabeled substances and/or suspicion of chemical release

All employees who may be exposed to hazardous substances while performing special tasks or non-routine work must receive training as described above for those substances, including the chemical's hazards, protective methods, use of containers and labels, MSDS', and response to spill or exposure.
Including special procedures related to unlabeled pipes and who to contact in the event of contact with these pipes.

Emergency Response

- All Subcontractors must report any spill or exposure of a hazardous substance to the BBC Superintendent.
- The foreman or immediate supervisor must ensure a proper emergency response in the case of a spill or exposure – entailing measures described in the relevant MSDS.

Subcontractors, Vendors, and Client Employees

The Superintendent must inform subcontractors, vendors, and client employees who enter a project site of all hazardous substances used in areas they may enter, are adjacent to, or are near. Information provided should include the chemical, its health and safety hazards, and protective measures.

Smoking Policy

BBC encourages a Smoke-Free Workplace. No worker will smoke any tobacco product within any building, structure, or excavation on any BOND project.

Designated Eating Areas

BBC will designate specific, dedicated locations on the jobsite for eating when feasible to do so. We will ensure that enough areas are available to minimize the distance to the individual work zones. All subcontractors must require personnel to use these areas only for eating. Since these eating areas may change from time to time, the General Superintendent will determine them and designate changes at the weekly foremen's meeting. This policy exists to keep the site free from rodents.

Dust Control

Minimizing the amount of dust on a BOND project is very important. For exterior site work, Water or calcium chloride shall be used to minimize dust. Excavations will be covered or cordoned off by the end of shift. For indoor dust producing activities, subcontractors are responsible for dust control and shall address in their JHA.

Drug Testing

Drug Testing will take place in accordance with Pipeline Hazardous Materials Safety Administration (PHMSA) 49 CFR part 199 and part 40. BOND is committed to providing a safe work environment and to fostering the well-being and health of its employees and the general public. That commitment is jeopardized when any covered employee uses illegal drugs or alcohol while on the job, reports to work under the influence, or possesses, distributes or sells drugs in the workplace which is a violation of federal statute 49 CFR Part 199. Therefore, as mandated by federal law, Bond is implementing a drug and alcohol program as required under the statute.

Our company will abide by the requirements as set forth in the federal statute regarding drug and alcohol testing for safety sensitive/covered employees operating on or have access to gas pipelines. Our company and its employees have the responsibility to comply with all federal, state, and local laws and regulations related to safety and health.
In addition, all projects will institute a reasonable suspicion and post-accident drug testing policy. All on site supervisors shall be trained on reasonable suspicion and if an injury occurs the injured party and other directly involved employees shall be sent for a drug test immediately. Each project will establish the location as defined in the grab and go kit as part of our Loss Control Protocol.

SAFE WORK PROCEDURES

Personal Protective Equipment (PPE)

All workers must use required PPE at all times. The following provisions describe levels of protection, equipment, and mandatory use. Project specific requirements follow general directives. Subcontractors are responsible for providing their own employees with the appropriate PPE including training on use.

Hard hats	Required at all times, unless Superintendent has determined no possibility of head injury, electrical shock or burn
Face Coverings	Face coverings shall be worn in accordance with state and local COVID-19 protocols
Eye protection	This project requires eye protection at all times. Prescription eyewear must meet ANSI standards
Hearing protection	Required when Superintendent determines that noise levels warrant it; threshold is 85dba
Respirators	As required and determined in the field.
Gloves	Required when - Handling material with sharp edges - Cutting with handheld, non-power-operated cutters - Handling wood materials - Involved in concrete operations with hands exposed - Using utility knives - Pulling wire near electrical panels - Performing energized electrical work - Using impact-type tools - Welding - Handling hazardous material - Working with glass material with exposed edges - Removing or handling trash - As directed by Superintendent
Shirts	Shirts with minimum 4-inch sleeves required
Pants	Full-length pants required
Shoes	Hard toed and bottoms required – sneakers prohibited.
Safety harness	See Fall Protection section
Vests	Reflective vests required for all workers vulnerable to traffic. This includes work on the site and on adjacent street.

PPE Reassessment

BOND shall reassess required level of protection and related PPE in the following circumstances: (Bond for its own employees, Subcontractors for their own employees)

- Beginning new work phase or task
- New contaminants identified
- Change in ambient contaminant levels
- Work scope change that affects degree of contact with contaminants

- Temperature change
- Individual's medical history limits PPE effectiveness

Each employee who needs to wear PPE will be properly trained. Proper training includes at least, when PPE is necessary, what PPE is necessary; how to properly don, doff, adjust & wear PPE; the limitations of PPE; the proper care, maintenance, useful life & disposal of PPE. Retraining of the employee is required when the workplace changes, making the earlier training obsolete; the type of PPE changes; or when the employee demonstrates lack of use, improper use, or insufficient skill or understanding. The certification must include the employee name, the dates of training, and the certification subject.

PPE shall be maintained in sanitary usable condition. This is required by reasons of hazards of processes or environment to protect body parts from inhalation, absorption or physical contact.

Employee owned PPE is acceptable as long as it meets the requirement of the program. Subcontractors will be responsible for the assurances of its adequacy, maintenance & sanitation.

The hazard assessment must indicate a determination if hazards are present or are likely to be present, which necessitate the use of PPE. Certifier's name, signature, date(s) & identification of assessment documents.

Fitting, including proper donning, doffing, cleaning, and maintenance. Shall be performed and part of the regular PPE training.

Defective or damaged PPE shall NOT be used.

Housekeeping and Orderliness

The BOND policy on housekeeping is that all equipment, tools, materials, or apparatuses will be stored, stacked, located, placed, temporarily spotted, or set up for manipulation in such a manner as to render it highly improbable that an incident or injury could occur in the work area. The area will give the direct and obvious impression of a clean and orderly work place.

Project management, supervision, workers, vendors and third party persons will maintain all work locations in an orderly and clean manner at all times. Mud and dirt tracked onto public streets or alleyways will be removed continuously during the workday.

The following are the minimum housekeeping and orderliness requirements for this project:

- Access walkways, roadways, and fire lanes will not be blocked with material, tools, ladders, scaffolds, welding leads, air hoses or electrical cords
- Electrical extension cords, light stringers, air hoses, and welding leads will be elevated above walkways seven feet or the area marked with a sign stating: "TRIP HAZARD"
- Welding rod, nuts, bolts, and washers will be kept in proper containers
- Shackles, slings, chokers, ladders, and safety equipment will be removed from the work area when not needed and properly stored
- Trash containers will be placed at appropriate locations
- All nails will be removed from scrap and form lumbers and swept up daily
- Rubbish, trash, and debris will be removed from the work area daily
- At all locations where drinking water is dispensed, an adequate trash container will be located for disposal of used drinking cups
- Storage cabinets shall be used for fuel storage (Permit required from local fire department.
- Cylinders shall be stored in Cages. (permit required from local fire department)

Respiratory Protection

- Conditions may exist which require the utilization of respiratory equipment to protect employees against exposure to the inhalation of toxic or harmful gasses, vapors, mists, fumes, and dust.
- A hazard assessment shall be performed for all work that may require the use of a respirator to determine if other methods and/or materials can be used to eliminate the hazard.
- Only respirators that are applicable and suitable for the purpose intended will be used. They will be selected on the basis of the hazards to which the employee is exposed.
- Respiratory protective equipment will be inspected regularly and maintained in good condition.
- Workers who are required to wear respiratory protection equipment shall have been medically evaluated and approved to wear such devices.
- All employees required to use Respiratory protection shall be given individual instruction regarding its use and limitations. This training shall be documented. All employees must be clean shaven to ensure the proper fitting respirator. Fit testing must be performed on each employee to ensure the proper fit of the respirator. The results of the fit test shall be documented and a record kept on site.
- Any subcontractor of BOND whose employees will be required to use respirators must submit a Respiratory Protection Program and identify the name of the individual who will be designated as the competent person.
- The program must address employee knowledge of respirators, fit, use, limitations, emergency situations, wearing, fit checks, maintenance & storage, medical signs & symptoms of effective use, and general requirements of the OSHA standard. The training must be provided before requiring the employee to use the respirator. The program must address retraining.
- Respiratory Protection shall only be used when engineering control measures are not feasible or during emergency situations with high exposure. Respirators shall be provided which are applicable and suitable for purpose intended.
- Program Administrator shall be knowledgeable of the complexity of the program, conduct evaluations, and be properly trained.
- Medical, respirators, and training are required to be provided free to the employee.
- Program is updated and reviewed regularly.
- The employer is required to identify hazards, select and provide respirators based on those hazards and factors affecting performance. Brands and models must be listed. The employer is required to estimate exposures and contaminant information. If this is not done, then exposures must be addressed as Immediately Dangerous to Life & Health (IDLH).
- Medical Testing must be confidential, during normal working hours, convenient, understandable, employee given chance to discuss results with PLHCP.
- Employer is required to ensure employees pass qualitative fit test (QLFT) or quantitative fit test (QNFT) before initial use, if a different respirator is used, and annually. SARs are required to be fit tested as well.
- Things that can affect the seal must be prohibited and include facial hair, glasses, etc. The program must address checking of the seal each time the unit is put on.
- The program administrator must address appropriate surveillance, and ensure employees leave the area to wash, change cartridges, or if they detect break-through or resistance.
- Working in IDLH atmospheres is not allowed.
- Employees shall participate in program evaluation to verify written program effectiveness, employees must be asked about fit, selection, use, maintenance, etc.
- BOND to establish and retain written information regarding medical evaluations fit testing, and the respirator program. Records of medical evaluations required by this section must be retained and made available in accordance with 29 CFR 1910.1020.
- All records shall be kept by The BOND Safety Director.

Fall Prevention and Protection

BBC considers fall prevention critical to a successful project. Anyone performing a work function 6 feet or higher above ground will be protected in accordance with subpart M 1926.500.

The appropriate Superintendent and Project Manager and the subcontractor will determine all fall hazards before work begins. The subcontractor must develop a plan to protect workers from the hazards and submit it to the Site Superintendent for approval. The Superintendent, Project Manager, and all workers will be vigilant for additional fall hazards that may develop. When additional hazards are discovered, protection will be implemented immediately.

Fall hazard resolution is prioritized below:

- Eliminate the hazard: use available techniques such as backfill excavations, assemble components at ground level, use field radios to warn, etc.
- Prevent falls: provide reasonable prevention including correctly install ladders, scaffolds, etc., properly install and use guardrails, isolate work areas below elevated work areas
- Protect against or control falls: provide all possible fall protection as detailed below

Controlling a fall is the last line of defense. Use it only when the fall hazard cannot be eliminated or prevented.

'Controlled access zones' will not be utilized on our sites, fall protection is required at 6 feet.

Fall Arrest System

- Three basic components
  - Anchorage
  - Body support device
  - Connecting lifelines, lanyards, retractable devices, rope grabs, and their hardware – snap hooks, D rings, shackles
- Anchorage points
  - Must be positioned on an independent structure
  - Must be designed by a competent person
  - Should be above worker to prevent unnecessary swing
  - Capable of supporting 5400-pound minimum strength for falls up to 6 feet
  - Retracting lifelines permitting falls of 2 feet or less require points able to support 3000 pounds
- Body support devices
  - Have D rings to connect lanyards, lifelines, and retractable devices
  - Full body harness rather than belts are required because they distribute impact over a larger area, restricting breathing less, and providing less discomfort over a longer rescue time
- Connecting lines
  - Use only double locking snap hooks to avoid roll out
  - Lifelines: synthetic 5/8-inch nylon, polyester, or equivalent are preferable; wire rope should be minimum 1/2 – inch diameter, extra improved plow-steel with minimum breaking strength of 5400 pounds used with 3 cable clamps per connection
  - Lanyards: at least ½-inch diameter synthetic rope and may not be tied back to themselves unless so designed
  - Rope grabs connect the lanyard on the lifeline and allow vertical movement
- The subcontractor must provide full body harnesses, double lanyards with shock absorbers and double locking hooks for all personnel working 6 feet or more above the ground.
- The subcontractor must inspect the harnesses, lanyards, hooks, and lifelines daily
- The subcontractor must submit a JHA for all work above 6 feet.

The employer shall provide a training program for each employee who might be exposed to fall hazards. Training shall enable each employee to recognize the hazards of falling & shall train each employee in the procedures to follow to minimize these hazards. Employers are to have written certification records showing the following:

1) Who was trained, when, dates of training
2) Signature of person providing training & date employer determined training was deemed adequate.

Employer shall provide re-training when the following are noted:
1) Deficiencies in training.
2) Work place changes.
3) Fall protection systems or equipment changes that render previous training obsolete.

The fall protection plan shall be prepared by a qualified person for the specified work site.

When conventional fall protection is not used these locations must be identified and classified as controlled access zones.

Where no other alternate methods have been implemented, a safety monitoring system shall be implemented (1926.502(h)).

A competent person will be assigned to: 1. Recognize fall hazards. 2. Warn employees if they are unaware of a fall hazard or are acting in an unsafe manner. 3. Be on same working surface and in visual sight. 4. Stay close enough for verbal communication. 5. Not have other assignments that would take monitor's attention from the monitoring function.
All accidents and serious incidents (near accidents) must be investigated, implementing changes to the fall protection plan as necessary.
When purchasing equipment and raw materials for use in fall protection systems applicable ANSI & ASTM requirements should be met.
The employer shall provide for prompt rescue of employees in the event of a fall or shall assure the employees are able to rescue themselves.
In the event an employee falls, or some other related, serious incident occurs, (e.g., a near miss) the employer shall investigate the circumstances of the fall or other incident to determine if the fall protection plan needs to be changed (e.g. new practices, procedures, or training) and shall implement those changes to prevent similar types of falls or incidents. [1926.502(k) (10)]

Guarding Floor and Wall Openings

- Floor openings 2-inches or larger in diameter must be covered to prevent equipment and tools from falling to a lower level
- Guardrails must rise 42 inches, + or – 3 inches, above the working surface
- Covers must contain the following warning: DANGER – HOLE
- Standard guardrails and toe boards or covers secured against displacement must guard floor openings
- OSHA standard guardrails must protect open manholes
- OSHA standard guardrails must protect wall openings with a drop of more than 6 feet
- Standard guardrails and toe boards must protect open-side floors, walkways, platforms, or runways above or adjacent to dangerous equipment of similar hazards
- Standard guardrails must protect runways on all open sides 4 feet or move above floor or ground level
- Guardrails around holes used as access points (for example, for ladders) must have a gate or an offset so that personnel cannot enter inadvertently

Leading Edge Work

No person, regardless of position, craft, or job assignment may work in any location that could expose him/her to a fall of more than 6 feet unless fall protection procedures are in place. See Fall Protection section.

H2S

Characteristics

Hydrogen Sulfide is the chemical compound with the formula H2S. This colorless, toxic and flammable gas is partially responsible for the foul odor of rotten eggs and flatulence.

If often results from the bacterial break down of sulfites in nonorganic matter in the absence of oxygen such as in sewers. It also occurs in volcanic gases, natural gas and some well waters. The odor of H2S is commonly misattributed to elemental sulfur, which is in fact odorless.

Safety
Hydrogen Sulfide is a highly toxic and flammable gas. Being heavier than air it tends to accumulate at the bottom of poorly ventilated spaces. Although very pungent at first, it quickly deadens the sense of smell, so potential victims may be aware of its presence until it's too late.

Toxicity
Hydrogen sulfide is considered a broad-spectrum poison, meaning that it can poison several different systems in the body, although the nervous system is most affected. The toxicity of H_2S is comparable with that of hydrogen cyanide. It forms a complex bond with iron in the mitochondrial cytochrome enzymes, thereby blocking oxygen from binding and stopping cellular respiration. Since hydrogen sulfide occurs naturally in the environment and the gut, enzymes exist in the body capable of detoxifying it by oxidation to (harmless) sulfate. Hence, low levels of sulfide may be tolerated indefinitely.

At some threshold level, the oxidative enzymes will be overwhelmed. This threshold level is believed to average around 300-350 ppm. Many personal safety gas detectors, such as those used by utility, sewage and petrochemical workers, are set to alarm at as low as 5 to 10 ppm and to go into high alarm at 15 ppm.
An interesting diagnostic clue of extreme poisoning by H_2S is the discoloration of copper coins in the pockets of the victim. Treatment involves immediate inhalation of amyl nitrite, injections of sodium nitrite, inhalation of pure oxygen, administration of bronchodilators to overcome eventual bronchospasm, and in some cases hyperbaric oxygen therapy (HBO). HBO therapy has anecdotal support and remains controversial.
Exposure to lower concentrations can result in eye irritation, a sore throat and cough, nausea, shortness of breath, and fluid in the lungs. These symptoms usually go away in a few weeks. Long-term, low-level exposure may result in fatigue, loss of appetite, headaches, irritability, poor memory, and dizziness.

Possible locations where H2S can be found.
1. Drilling Operations.
A. Recycled Drilling Mud.
B. Water from sour crude wells.
C. Blowouts
2. Tank Gauging (tanks at producing, pipeline & refining operations).
3. Field Maintenance.
A. Tank batteries and wells, etc.

Air Monitoring
Where potential exposure exists, Personal or area monitors that alarm when PEL exceeds the preset level of 20 PPM for 1910 or 10 PPM for 1926 shall be used.

Respiratory Protection
If exposure levels cannot be contained, work will cease or an Approved self-contained breathing apparatus or airline respirator with escape SCBA shall be used.

Ladders and Stairways
Ladders, stairs, or ramps must be provided for a 19-inch or greater change in elevation.
Stairways

- Stairways with 4 or more risers or rising 30 or more inches must have a 36-inch high stair rail system on each unprotected side
- Metal pan stairs must have pans filled to prevent a tripping hazard

Ladders
- Workers must face ladders when ascending or descending
- Workers may not carry material in one hand while ascending or descending ladders
- Ladders must be heavy-duty type with minimum capacity rating of 250 pounds
- Ladders with broken steps, split side rails, or other defective components must be removed from service and repaired or destroyed if not reparable
- Daily inspection is required
- Wood ladders must not be painted to mask defect or deterioration
- Side rails must extend 36 inches above the landing
- An area with 25 or more employees requires a double cleat ladder
- A double cleat ladder may not exceed 30 feet in length
- A single cleat ladder may not exceed 24 feet in length
- Ladders must be properly secured at base and top
- Metal ladders must not be used for electrical work
- Areas around the top and bottom of the ladder must remain unobstructed
- Side rails, cleats, and rungs must be clean and free of lines, hoses, cables, wires, oil, grease, and debris

Step Ladders
- Must be used only with spreaders fully extended and spreader bar locked
- Workers must not stand on top or top step and must not work with knees above ladder top

Straight/Extension Ladders
- Must be placed with horizontal distance at ladder bottom is no less than ¼ of vertical distance to top support
- Straight ladders must be no longer than 24 feet; extension ladders no longer than 60 feet; greater heights require intermediate landing platforms and separate ladders
- Must have nonskid feet at base
- Workers must not stand on the top three rungs and must not work with knees above ladder top

Ladder rungs, cleats, and steps shall be parallel, level, and uniformly spaced, when the ladder is in position for use.

Ladders shall be inspected by a competent person for visible defects on a periodic basis and after any occurrence that could affect their safe use.

Ladders shall not be loaded beyond the maximum intended load for which they were built, nor beyond the manufacturer's rated capacity.

Ladders shall be used only for the purpose for which they were designed.

Hand and Power Tools
All power and hand tools and similar equipment must be kept in safe condition. No worker may use defective or unsafe tools. Workers must not use tools if safety equipment such as shields, tool rests, hoods, and/or guards are removed or inoperable.

Hand Tools
- No impact tools (chisels, wedges, etc.) with mushroomed heads

- No splintered or cracked wooden handles
- Cannot use pocketknives for stripping wire

Electric Tools
- Use power operated tools designed to accommodate guards
- Must be double insulated or properly grounded and have a three-wire cord
- Never lift a tool by the chord

Portable Abrasive Wheel Tools
- Never remove guards
- Verify that disks and wheels are correct for the grinder and rpm and have no sign of fracture
- Portable grinders must have hood-type guards with side enclosures that cover the spindle and at least 50% of the wheel
- Bench grinders must have deflector shields and side cover guards; tool rests must have maximum clearance of 1/8 inch from the wheel

Pneumatic Tools
- Air hoses ½ inch or greater in diameter must have a safety excess valve installed at the air source
- All require clips, whips, or retainers at each air hose coupling and to prevent attachments ejecting
- Hose coupling must be secure
- Air supply lines must be protected from damage, regularly inspected, and maintained
- May fire pneumatic nail guns ONLY when muzzle presses against work surface
- Must disconnect pneumatic nail guns from air supply when unattended

Whether furnished by the employer or the employee, the tools shall be maintained in a safe condition.

Guards shall be in place and operable at all times while the tool is in use. The guard may not be manipulated in such way that will compromise its integrity or compromise the protection in which intended. Guarding shall meet the requirements set forth in ANSI B15.1.

Employees using hand and power tools and exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dust, fumes, mists vapors, or gases shall be provided with particular PPE necessary to protect them from the hazard.

Such tool shall either be identified as unsafe by tagging or locking the controls to render them inoperable or shall be physically removed from its place of operation.

Powder-Actuated Tools
Only personnel thoroughly trained operating, maintaining, and selecting fasteners for powder-actuated tools may use them.

- Before loading, test the device to ensure safe condition
- Do not load until immediately before intended firing
- Never leave loaded tools and powder cartridges unattended
- Never point at anyone
- Keep hands clear of open barrel end
- Use safety glassed and hearing protection
- Use fasteners and cartridges only with intended tool and vice versa
- Use with correct shield, guard, and attachments
- Do not use to drive fasteners into hard surfaces like steel, cast iron, glazed brick, marble, or similar material

- Operators should know what is on the other side of the material being fastened and, if prudent, post warning signs there
- Store tool and cartridges in locked, labeled, metal container, away from flame or heat, accessible only to authorized personnel
- Keep cartridges with different powder levels in separate compartments or containers
- Place used powder strips in containers for proper disposal.

Scaffolding

Anyone, BOND or Subcontractor, using scaffolds must designate a competent person to direct and supervise erection and dismantling of all scaffolds and to perform and document daily scaffold inspections. S/he must also inspect scaffolds before erection and remove damaged components.

- Fall protection required at 6' for all aspects of erection and dismantling.
- Footing or anchorage must be sound, rigid, capable of carrying the maximum load; unstable objects are forbidden
- All scaffolds must be able to support 4 times the maximum intended load
- Platforms higher than 6 feet from the ground require guardrails and toe boards
- Scaffold must be tied to the building at intervals of less than 30 horizontal feet and 26 vertical feet
- A registered professional engineer must design all fabricated frame scaffolds over 125 feet high
- Ladders or stairs must access any scaffold platform more that 2 feet above the point of access
- Legs, poles, posts, frames, and uprights must be pinned or locked to prevent uplift
- No space may occur between platform components
- Space between platform components and uprights may not exceed 1 inch
- In special circumstances like building around a pipe, space between the scaffold and the object cannot exceed 9 ½ inches
- Working level platforms must be tightly planked
- Scaffold planks
  - Must extend past the horizontal support at least 6 inches and no more than 12 inches, unless cleated or restrained by hooks
  - Should extend the entire width of the scaffold and be secured at both ends
  - Must not overlap unless minimum overlap is 12 inches and overlap occurs at a horizontal support
- Mobile scaffolding wheels must be locked in place when personnel are working on the scaffold
- No worker may use cross-bracing to climb down a scaffold
- If people will pass under the scaffold, a #18-gauge US standard wire ½ inch mesh or equivalent screen must extend along the opening between the toe board and guardrail
- Damaged scaffolds or components must be immediately removed until repaired and re-inspected
- Slippery conditions must immediately be corrected

Steel Erection

The subcontractor must designate a competent person and qualified rigger and notify BBC before commencing erection. BBC must submit the steel erection plan. Steel erection Plan must identify competent person as well as the qualified rigger.

- Workers engaged in steel erection activities at 6' feet or greater are required to use fall protection.
- All temporary decked floors require perimeter safety cables installed 42-inches high with a 21 inch midrail around the periphery and angle iron stanchions installed every 8 feet
- Entry of any trade besides the steel erector requires a thorough inspection by the BOND team to determine all safeguards are in place before allowing other trades to work in the area.
- All unused floor openings must be completely planked over or guarded
- Workers must have received steel erection training and the contractor must maintain records of their training and make them available to BOND
- Rigging must be inspected before each shift.
- Workers must secure all bolts against displacement

- Burning holes in steel drum sides to use for lifting is strictly prohibited
- Climbing/descending steel columns is forbidden
- Workers hoisting any load during steel erection must use a tag line
- Workers must neatly stack all dunnage from steel deliveries
- Design criteria for any multi-lift device must be available for BOND inspection

Confined Space Entry

In conjunction with OSHA subpart AA 1926.1200, Confined Spaces in Construction.
Contractors are prohibited from working in confined spaces without compliance of the following criteria:
All Contractors whom may have work to perform in confined spaces must have their confined space crew trained in accordance with OSHA standards 29 CFR 1926.1207. All spaces are deemed Permit Required Confined Spaces unless otherwise characterized and accepted by BOND Safety. Contractors are required to either contract a qualified rescued service or provide training for employees to be qualified rescuers. The Local Municipal Fire Department is not an acceptable rescue service for this purpose unless they agree to this responsibility. Bond will require documentation that all necessary employees' training has been completed. Contractors will also be required to provide their job specific permit required confined space procedures. If suspect spaces exist, contractor will perform written assessments of confined spaces in which construction will be required to be performed. Prior to any workers entering a confined space a meeting will be held with Bond and Contractors Safety representative/competent person to ensure that all requirements are met and controls are in place.
The '**controlling contractor**' must debrief each entity that entered a permit space regarding the permit space program followed and any hazards confronted or created in the permit space(s) during entry operations. [1926.1203(h)(5)]

A confined space is an area enclosed by nature or design with all of the following characteristics:

- Is large enough and so configured that an employee can bodily enter it;
- Has limited or restricted means for entry and exit; and
- Is not designed for continuous employee occupancy.

A permit-required confined space has one or more of the following characteristics:

- Known potential to contain a hazardous atmosphere
- Potential to engulf or entrap personnel
- An internal configuration that could trap or asphyxiate an entrant
- Other recognized serious safety and health hazards

Confined spaces include (but not limited to)

- Pits and trenches over four-feet deep
- Sewers
- Pipelines
- Culverts
- Underground utility vaults
- Storage tanks
- Tunnels

General Requirements
(a) Before work begins at a worksite, each employer must ensure that a competent person identifies all confined spaces in which one or more of the employees it directs may work, and identifies each space that is a permit space, through consideration and evaluation of the elements of that space, including testing as necessary.
(b) If the workplace contains one or more permit spaces, the employer who identifies, or who receives notice of, a permit space must:

- Inform exposed employees by posting danger signs or by any other equally effective means, of the existence and location of, and the danger posed by, each permit space (A sign reading "DANGER – PERMIT REQUIRED CONFINED SPACE, DO NOT ENTER" or using other similar language would satisfy the requirement for a sign); and

- Inform, in a timely manner and in a manner other than posting, its employees' authorized representatives and the controlling contractor of the existence and location of, and the danger posed by, each permit space.

(c) Each employer who identifies, or receives notice of, a permit space and has not authorized employees it directs to work in that space must take effective measures to prevent those employees from entering that permit space, in addition to complying with all other applicable requirements of this standard.

Alternate Procedures

An employer may use the alternate procedures specified in paragraph §1926.1203(e)(2) for entering a permit space only under the conditions set forth in paragraph §1926.1203(e)(1).

(1) An employer whose employees enter a permit space need not comply with the permit process provided that all of the following conditions are met:

- The employer can demonstrate that all physical hazards in the space are eliminated or isolated through engineering controls so that the only hazard posed by the permit space is an actual or potential hazardous atmosphere;
- The employer can demonstrate that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry, and that, in the event the ventilation system stops working, entrants can exit the space safely;
- The employer develops monitoring and inspection data that supports the demonstrations required use alternate procedures.
- If an initial entry of the permit space is necessary to obtain the data required by the entry is performed in compliance with the permit process.

(2) The following requirements apply to entry into permit spaces that meet the conditions set forth under alternate procedures.

- Any conditions making it unsafe to remove an entrance cover must be eliminated before the cover is removed.
- When entrance covers are removed, the opening must be immediately guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and that will protect each employee working in the space from foreign objects entering the space.
- Before an employee enters the space, the internal atmosphere must be tested, with a calibrated direct-reading instrument, for oxygen content, for flammable gases and vapors, and for potential toxic air contaminants, in that order. Any employee who enters the space, or that employee's authorized representative, must be provided an opportunity to observe the pre-entry testing required by this paragraph.
- No hazardous atmosphere is permitted within the space whenever any employee is inside the space.
- Continuous forced air ventilation must be used, as follows:

o An employee must not enter the space until the forced air ventilation has eliminated any hazardous atmosphere;

o The forced air ventilation must be so directed as to ventilate the immediate areas where an employee is or will be present within the space and must continue until all employees have left the space;

o The air supply for the forced air ventilation must be from a clean source and must not increase the hazards in the space.

- The atmosphere within the space must be continuously monitored unless the entry employer can demonstrate that equipment for continuous monitoring is not commercially available or periodic monitoring is sufficient. If continuous monitoring is used, the employer must ensure that the monitoring equipment has an alarm that will notify all entrants if a specified atmospheric threshold is achieved, or that an employee will check the monitor with sufficient frequency to ensure that entrants have adequate time to escape. If continuous monitoring is not used, periodic monitoring is required. All monitoring must ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere. Any employee, who enters the space or that employee's authorized representative, must be provided with an opportunity to observe the testing required by this paragraph.
- If a hazard is detected during entry:

o Each employee must leave the space immediately;

- The space must be evaluated to determine how the hazard developed; and
- The employer must implement measures to protect employees from the hazard before any subsequent entry takes place.

• When there are changes in the use or configuration of a non-permit confined space that might increase the hazards to entrants, or some indication that the initial evaluation of the space may not have been adequate, each entry employer must have a competent person reevaluate that space and, if necessary, reclassify it as a permit required confined space

Permit Procedure

Before personnel may enter a confined space, you must complete a confined space entry permit. The following plan provides a method of ensuring that safe entry conditions exist. Entrants can confirm safe entry conditions by observing that the procedure is complete. The procedure includes all the following steps:

1. Ensure that each step described here for confined space entry is completed as described
2. Ensure that each step was completed and signed off by the person(s) performing the task before the Entry Supervisor signs the permit
3. Post the permit at the entrance to the confined space
4. Require periodic recording of air-monitor readings (continuous monitoring required)
5. Require that Entry supervisor cancel the permit when work is complete or if conditions within the confined space change

The permit process will include evaluating and determining all the following.

Hazard Identification

- Identify physical characteristics, location, and configuration of the space
- Determine and evaluate all potential hazards
- Perform the following testing for atmospheric hazards in the following sequence
  - Oxygen
  - Combustible gasses or vapors
  - Toxic gasses or vapors
- Test conditions before entry and monitor during entry
- Establish past and current uses of the space

Hazard Control

- Provide, maintain, and require all appropriate equipment necessary for safe entry including
  - PPE
  - Testing equipment
  - Monitoring equipment
  - Ventilating equipment
  - Communications equipment
  - Lighting
  - Barriers
  - Shields
  - Ladders
- Establish and implement safety procedures including
  - Specifying and verifying acceptable entry conditions
  - Isolating the permit space
  - Providing barriers
  - Disconnecting, blocking, or effectively isolating all lines which may convey dangerous substances into the space and ensure that inadvertent reconnection is prevented
  - Emptying, flushing, ventilating, or otherwise purging dangerous substances, to the extent possible, or making them inert
  - Preventing obstruction of the opening or passage during work procedures

- Lock out or block out and tag all energy sources, mechanical equipment, and piping systems
- Oxygen testing must determine a deficiency of no less than 19.5% and an enriched atmosphere of no more than 23.5% before entrants are allowed in the space
- When oxygen-consuming equipment, such as propane heaters or plumber's torches, are used, ensure an adequate source of combustion air and sufficient exhaust venting to prevent oxygen depletion and toxic gas accumulation
- No ignition source may be introduced until monitoring and safety procedures have determined that the confined space atmosphere is free of flammable and/or explosive substance contamination
- Frequent air monitoring to ensure safe oxygen and contaminate conditions must continue throughout the duration of the work and a record of testing results must be maintained at the work site

Authorized Personnel

Authorized Entry Supervisor – This individual must possess comprehensive training, education, and experience so that s/he understands the operation to be performed and is competent to evaluate hazards and to authorize and supervise entry. Training must prepare the individual for all the following responsibilities:

- Recognize confined space hazards
- Know what constitutes acceptable entry conditions
- Use the entry permit system
- Identify the necessary procedures and practices for safe entry
- Use and select relevant personal protective equipment
- Calibrate and use test equipment
- Determine when and how to terminate the entry operation
- Implement rescue procedures
- Deal with unauthorized personnel
- How to cancel a permit on completion of work

The Authorized Entry Supervisor may also serve as Authorized Attendant or Entrant.

Authorized Attendant – This individual is stationed outside the confined space to monitor the entrants while inside and to restrict unauthorized entry. The Authorized Attendant must receive appropriate training, including simulated rescues, prior to assignment that prepares him/her for all the following responsibilities:

- Maintain an accurate record of the number of entrants and means of entry
- Recognize hazards in and around the space, including behavioral changes
- Order evacuations, if necessary
- Maintain communications with entrants
- Summon rescue and other emergency services when required
- Restrict unauthorized entry
- Perform assigned emergency and rescue duties without entering the confined space
- Understand that his/her primary duty is to monitor the confined space activities

Authorized Entrant – This individual must be trained to safely enter and work in the confined space. Training must include the following:

- Hazard nature and recognition, including behavioral changes
- Entry procedures
- Communication procedures
- Use of mechanical ventilation
- Protective equipment
- Use of emergency equipment
- Self rescue and emergency procedures

Written Permit

The written permit must include all the following items:

- Location(s) of confined space
- Reason for entry

- Date and time entry will begin
- Date and time permit expires
- List of Authorized Entrants
- List of Authorized Attendants
- Name of Authorized Entry Supervisor
- List of hazards specific to this confined space
- Method(s) that will be used to remove or control potential hazards (see Hazard Control above)
- Acceptable entry conditions
- Person who will respond in an emergency
- Method entrant(s) and attendant(s) will use to communicate
- Testing and monitoring equipment
  - Make
  - Model number
  - Serial number
  - Direct reading instruments are required for testing and monitoring the confined space environment
  - Instruments with remote probes are required to test confined space before entry
- PPE required to enter the space
- Rescue equipment required
- Verification of hot work permit, if required
- Provisions for canceling permit
- Signature(s) of Authorized Entry Supervisor(s) verifying completion of all steps required in confined entry permit procedure

Employee Notification

Adequate means of notifying employees

- Warning signs at entrance state hazards and notify that entry is restricted to Authorized Entrants
- Supervisors must notify employees of restricted entry through training or signs and barricades
- Management must provide properly maintained PPE and ensure that employees are using it correctly

Rescue

Authorized Attendants must understand the emergency plan and know how to sound the alarm and summon help if someone is in distress in the confined space.

Only workers trained in confined space rescue procedures may attempt rescue. In an emergency within the confined space, the Authorized Attendant must summon help and not attempt rescue unless it is possible without entering the permit space (e.g., non-entry rescue using tripod and winch). The Authorized Attendant must remain outside to provide the rescue team with information about the space, number of entrants, and possible hazards.

Rescue Team – Individuals who serve as members of a rescue team require the following:

- Information about the hazards they may encounter in the confined space
- Equipment necessary to safely enter the space under adverse conditions
- Rescue training and requirement to practice rescue at least annually
- First-aid and CPR training

Rescue teams are not required if rescue is possible without entering the confined space.

Rescue Equipment – Appropriate rescue equipment must be available at the confined space site to avoid delaying a rescue. The job site must have adequate communication to outside emergency help. Appropriate rescue equipment may include:

- Hoist
- Life line
- Harnesses

- Fall protection
- Ladders
- Lights
- Self-contained breathing apparatus (SCBA)
- First-aid equipment
- Stokes stretcher

Rescue Procedure – The following steps describe the rescue procedure under the defined conditions:
In Case of Injury

1. De-energize the object that caused injury
2. Call for help
3. Put on safety gear (i.e. harness, safety belt)
4. Wait outside for assistance
5. Enter confined space
6. Render first-aid/CPR
7. Remove injured person
8. Transport to medical facility, if necessary
9. Gather tools/equipment

If Entrant is Overcome

1. Call for help
2. Turn off all equipment that may affect the atmospheric environment
3. Remove person from space with hoist and life line
4. Render first-aid/CPR, as needed
5. Transport to medical facility

If Entrant is Overcome and Entry is required

1. Put on safety gear (harness, life line, respirator or self-contained breathing apparatus
2. Be sure top side help is in place
3. Be sure backup equipment is in place
4. Provide increased ventilation to the space
5. Remove overcome person and provide 'breathing air'
6. Leave confined space as soon as possible
7. Render first-aid/CPR, as needed
8. Transport to medical facility, if necessary

The employer shall provide training for all employees whose work is regulated by this section.

Each affected employee must be trained prior to initial assignment, prior to a change in assigned duties, if a new hazard has been created or special deviations have occurred.

The employer must certify that the required training has been accomplished. The certification shall include employee name, trainer signature/initials, dates of training. Certification must be made available to employees & their authorized representative.

Program must include provisions & procedures for pedestrian, vehicle & other barriers as necessary to protect entrants from external hazards & a method for verifying that conditions in the permit space are acceptable for entry during its duration.

An attendant must be on duty outside the confined space for the duration of entry operations.

If more than one confined space is to be monitored by a single attendant, the program must include the means & procedures that will be used in order to enable the attendant to respond to emergencies in one or more permit spaces that he/she is monitoring without distraction from all responsibilities.

Monitoring of the space must inform the entrants of the potential hazards and results; they must participate in the permit review and signing. Ventilation must be used & testing must be conducted before entry & during work.

IDLH Conditions: require trained rescue on site while work is being performed.

Reevaluation of Confined Space
Reevaluation of a confined space shall be conducted whenever a change that occurs that may increase the hazard for the entrants. Reevaluate the permit space in the presence of any authorized entrant or that employee's authorized representative who requests that Bond conduct such reevaluation because the entrant or representative has reason to believe that the evaluation of that space may not have been adequate. Employees or their representatives (such as business agents or business managers) are entitled to request any additional monitoring at any time.
(a) When the measures taken under the permit space program may not protect employees, and revise the program to correct deficiencies found to exist before subsequent entries are authorized. {Examples of circumstances requiring the review of the permit space program include, but are not limited to: Any unauthorized entry of a permit space, the detection of a permit space hazard not covered by the permit, the detection of a condition prohibited by the permit, the occurrence of an injury or near miss during entry, a change in the use or configuration of a permit space, and employee complaints about the effectiveness of the program}; b) and to review the permit space program, using the canceled permits within 1 year after each entry. {Employers may perform a single annual review covering all entries performed during a 12-month period. If no entry is performed during a 12-month period, no review is necessary}) [1926.1204(m)(n)]

Exceptions
This standard does not apply to: (1) Construction work regulated by
§1926 subpart P—Excavations. (2) Construction work regulated by §1926 subpart
S—Underground Construction, Caissons, Cofferdams and Compressed Air. (3)
Construction work regulated by §1926 subpart Y—Diving.

Utility Locating Procedures/811
BOND will locate all utilities by contacting the relevant utility company or engaging a recognized underground service locator. 811 is the national call-before-you-dig phone number. Anyone who plans to dig should call 811 or go to their state 811 center's website before digging to request that the approximate location of buried utilities be marked with paint or flags so that you don't unintentionally dig into an underground utility line.
BBC shall notify all utility companies and anyone with property structures, or improvements near the work area at least 2 working days before breaking ground or performing other work that may affect utilities and not more than 30 days before excavation starts. Prepare the following information before you call:

- Municipality
- Address/location
- Intersecting street
- Type of work
- Depth of work
- Start date & time
- Phone/fax number
- Company
- Excavator
- Name of caller & title
- Area premarked? Y or N

In Massachusetts, Maine, New Hampshire, Rhode Island, and Vermont the DIGSAFE number is 1-888-344-7233.
In Connecticut, the CBYD (call before you dig) number is 1-800-922-4455.
When utilities are located, BOND or subcontractor must protect them from damage:

- Use hand or controlled mechanical excavation procedures for underground utilities
- Shore, brace, reinforce, and/or support any utility
- Provide signs that clearly identify and warn of any exposed utilities
- Respect the utility marks (paint or flags). The marks provided by utility operators are your guide for the duration of your project.
- If you are unable to maintain the marks during your project, or the project will continue past your request's expiration date (varies by state), please contact your 811 center to ask for a re-mark.

Overhead Utility Protection

Three levels of protection will be used when feasible to protect equipment from overhead power lines. Protection shall be in the form of signage, physical barriers, Spotters, Proximity Alarms, or Utility Controls. No work will commence until the JHA specifically addresses the overhead power line protection that will in place for the locations that need it. Protection will be identified prior to commencing work. A pre-construction walk will take place at each location to determine overhead power line exposures.

Jackie's Law

All trench and Excavation work performed in MA will be done in accordance with G.L. c. 82A and 520CMR 7.00. A Trench and Excavation Permit will be obtained from the city or town being worked in prior to the start of work. Below are highlights of G.L. c. 82A and 520 CMR 14.00.

- This new PUBLIC SAFETY regulation is required by statute and is designed to prevent the general public from falling into an unattended trench and suffering an injury or fatality.
- Under the new regulation, a **trench** is defined as a subsurface excavation greater than 3' in depth, and is 15 feet or less between soil walls as measured from the bottom.
- All regulated trenches must be **attended, covered, barricaded, or backfilled**. Covers must be road plates at least ¾" thick or equivalent, barricades must be fences at least 6' high with no openings greater than 4" between vertical supports and all horizontal supports required to be located on the trench-side of the fencing.
- This applies to all construction-related trenches on public ways, public property, or private property.
- To ensure that all excavators are aware of and follow these new public safety regulations, a **permit** will be required prior to excavation of all regulated trenches.
- **All excavators** must obtain a trench permit for each trench site. The new trench permit will require information such as the name of excavator, the location of trench, a certificate of insurance, and the Dig Safe number.

This new regulation in no way modifies or supersedes existing trench **worker safety** regulations. Workers in trenches must comply with the existing OSHA Excavation Standard, 29 CFR 1926, Subpart P. This new public safety regulation is entirely separate from and has no relationship to the existing trench worker safety standard.

Abrasive Blasting

Whenever hazardous substances such as dusts, fumes, mists, vapors, or gases exist or are produced in the course of construction work, their concentrations shall not exceed the limits specified in 1926.55(a). When ventilation is used as an engineering control method, the system shall be installed and operated according to the requirements of this section.

Abrasives and the surface coatings on the materials blasted are shattered and pulverized during blasting operations and the dust formed will contain particles of respirable size. The composition and toxicity of the dust from these sources shall be considered in making an evaluation of the potential health hazards

Organic abrasives which are combustible shall be used only in automatic systems. Where flammable or explosive dust mixtures may be present, the construction of the equipment, including the exhaust system and all electrical wiring, shall conform to the requirements of American National Standard Installation of Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying, Z33.1-1961 (NFPA 91-1961), and Subpart S of this part. The blast nozzle shall be bonded and grounded to prevent the buildup of static charges. Where flammable or explosive dust mixtures may be present, the abrasive blasting enclosure, the ducts, and the dust collector shall be constructed with loose panels or explosion venting areas, located on sides away from any occupied area, to provide for pressure relief in case of explosion, following the principles set forth in the National Fire Protection Association Explosion Venting Guide. NFPA 68-1954.

A respiratory protection program as defined and described in 1926.103, shall be established wherever it is necessary to use respiratory protective equipment.

Equipment for protection of the eyes and face shall be supplied to the operator when the respirator design does not provide such protection and to any other personnel working in the vicinity of abrasive blasting operations. This equipment shall conform to the requirements of 1926.102.

Air supply and air compressors. Air for abrasive-blasting respirators must be free of harmful quantities of dusts, mists, or noxious gases, and must meet the requirements for supplied-air quality and use specified in 29 CFR 1910.134(i).

"Operational procedures and general safety." Dust shall not be permitted to accumulate on the floor or on ledges outside of an abrasive-blasting enclosure, and dust spills shall be cleaned up promptly. Aisles and walkways shall be kept clear of steel shot or similar abrasive which may create a slipping hazard.

Abrasive blast cleaning nozzles. The blast cleaning nozzles shall be equipped with an operating valve which must be held open manually. A support shall be provided on which the nozzle may be mounted when it is not in use.

Compressed air used for cleaning. Compressed air shall not be used for cleaning purposes except where reduced to less than 30 p.s.i. and then only with effective chip guarding and personal protective equipment.

Excavation and Trenching

Before all excavation, trenching, or drilling operations can begin the following must take place.

- Subcontractor must designate a competent person and notify the Site Safety Officer.
- Competent person must develop a JHA and provide a daily excavation activity plan.
- Subcontractor must contact the utilities (Dig Safe or CBYD) to locate piping and electrical lines.
- Competent person must analyze the soil to determine condition, type, and sloping or shoring requirements.

Excavation design and safety requirements include the following.

- Controlled access zones and swing areas must be designated and clearly marked.
- Adequate entry and egress must exist at all times.
- Excavations 4 feet deep or deeper must have a ladder requiring no more than 25 feet lateral travel and extending 36 inches above excavation top
- Excavation 6 feet or deeper will have, at minimum, solid barricades and signs posted, and appropriate fall protection.
- A competent person must design structural platforms or ramps for employees.
- A competent person qualified in structural design must design structural platforms or ramps for equipment and they must be constructed according to that design.
- A registered professional engineer must design all excavations deeper than 20 feet and their protective systems.

- Materials and equipment must be at least 2 feet back from excavation edge.
- Mobile equipment operating adjacent to an excavation or must approach the excavation edge requires a warning system such as barricades, hand or mechanical signals, or stop logs.
- Workers exposed to vehicular must wear reflector vests.

Support Systems

- All excavations deeper than 5 feet or in unstable soil require sloping, shoring, benching, bracing, or other support.
- Any trench box used
  - Must provide protection equal to or greater than the appropriate shoring system.
  - Must be certified before it is used with the certification documentation provided
- All materials must be in good condition, free of defects, and appropriate size. Timbers with large or loose knots are not permitted.
- Workers will install the support system starting from the top and working down.
- Cross beams or trench jack must be placed in true horizontal position and spaced vertically at appropriate intervals.
- Braces must be secured to prevent sliding, falling, or kickouts.
- Shoring installation must closely follow excavation to avoid cave in.

Inspections

Prior to each entry and anytime conditions change, the competent person must inspect the excavation for

- Hazardous atmosphere
- Water accumulation
- Evidence of soil or groundwater contamination
- Failure of sloping or shoring

If any of the above is found, it must be resolved before workers enter. For contaminated soil, geotech fabric will cover the soil surface or workers will limit activities to the interior of a trench box or will wear modified level D PPE.

If hazardous atmosphere is suspected or confirmed, emergency rescue equipment must be onsite and attended when in use.

Inspection is required after any rainstorm or other change in condition that may increase possibility of cave in or soil slide. If dangerous ground movements are apparent, work will cease until the problem is resolved. The following checklist will act as a guide for excavation work.

All employees involved in any trenching or excavation operation on BOND Project, Bond employee or subcontractor will be trained on excavations.

Awareness Training shall be conducted for all employees.
The location of underground installations shall be determined before excavation. When utility companies or owners cannot respond to a request to locate underground utility installations within 24 hours, or cannot establish exact location of these installations, the employer may proceed, provided the employer does so with caution and provided detection equipment or other acceptable means to locate utility installations are used.

For exposure to public traffic, the employees shall be provided reflective vests, etc.

Employees should not work under loads of digging equipment where loads may fall.

Tests should be conducted for air contaminants (oxygen, flammable gases, etc. and provide ventilation where necessary.

Employees must be protected from water accumulation, including the use of shields, and must be inspected by a competent person before work begins.

Daily Inspections of the excavation shall take place to inspect for the possibility of cave-ins.

The competent Person shall be specified with the duties described.

A fall protection plan shall be established for all trench and excavations.

The determination of soil types & special considerations must be done in specific measures. Shoring, sloping, shield & excavation as needed. Timber shoring, aluminum hydraulic shoring must determine according to the appendixes A & C of the standard. The devices should be used while in good repair & maintenance; if damaged, they must be inspected. The employees should be protected from hazards of falling, rolling, or sliding materials or equipment. They should not be subjected to excessive forces and be installed to protect employees from lateral loads, employees must be restricted from being in the shield when installing or removing; the shield must be designed to resist calculated trench forces.

Uncovering Hazardous Substances

If a suspected hazardous substance is found during construction, demolition or trenching, the following procedures should be followed.

- All work will be stopped immediately in the area of the suspected hazardous material and BOND Management must be notified immediately.
- Cordon off the entire area and post “Keep – Out”
- BOND to report the situation to the owner and develop a plan for further action.

Maintenance of Traffic and Pedestrian Protection

All subcontractors must comply with BBC’ traffic control plan and mitigation plan.

- All traffic signs must comply with American Nations Standards Institute requirements
- Instructional or warning signs must be posted for traffic pattern alteration or closure
- Low voltage (12 volt) lights must mark fences, barricades, and other such encroachments onto sidewalks and public streets
- Permanent lights with cage-protection must provide sufficient illumination for the public to safely use covered sidewalks day or night
- Public roadways and walkways must remain clean, unobstructed, and free of hazards
- Public walkways must have abrasive nonskid surfaces
- Steel plates, wood planking, or similar excavation covers must be secured to prevent movement resulting from traffic and, if subject to pedestrian traffic, eliminate tripping hazards and have nonskid surfaces
- Blocked pedestrian pathways must be replaced by safe pathways around the blocked area
- When work is performed near roadways or pathways, workers will provide protection from falling objects
- Trash chutes and dumpsters must be located away from public pathways and roadways
- Construction materials must be effectively restrained from blowing or sweeping off floors or roofs onto pathways or roadways
- Subcontractor must comply with any other permit requirements associated with the traffic management plan.

Temporary Barricades

The following hazards or activities require temporary barricades to protect workers:

- Floor or wall openings
- Work above other workers
- Open excavation or trenches
- Unguarded equipment

- Vehicular traffic in area
- Low light work areas
- Startup operations and equipment or systems testing
- Hazards in the activity such as discharges, open systems
- Confined Spaces

Caution and Danger Tape
Employ the following guidelines.

Yellow Caution tape – used to limit workers access to the area only when hazards do present major risk of severe injury or death.

Red Danger tape – used to prohibit entry from unauthorized personnel protecting them from hazards that can cause severe injury or death and cannot be removed or eliminated during a single work shift.

Radiation Danger tape – identifies x-ray operations and radiation hazard

- Install tape 42 inch above the surface on rigid supports located every 6 feet
- Install at least 6 feet from excavations, trenches, holes, leading edges, and floor or wall openings, and at least 5 feet from all other hazards
- Avoid impeding walkways, driveways, or aisles; identify alternate passages
- Employ for temporary protection only; replace with rigid barriers after 48 hours

Rigid Barricades
Use rigid barricades to protect workers from unguarded, moving machinery/equipment, vehicle, or heavy equipment traffic, and low light when the hazard extends more than a work shift.

- Use standard guardrail, temporary chain-linked fencing, concrete barriers, and/or tube and couple scaffold members with attached blue construction fencing
- Must support and withstand a 200-lb force in any direction
- Concrete barriers must meet all local requirements
- Install barricade to prevent tipping or sagging
- Support construction fencing every 8 feet
- Install pins in concrete barriers wherever vehicles or heavy equipment may strike them
- Provide sufficient access to the work area
- When hazard no longer exists, immediately remove barricades

Materials Handling and Storage
- Materials and supplies must be neatly and securely stacked, blocked, interlocked
- Stacks must be low enough to be stable and without danger of sliding, collapsing, or falling over
- Stacks must be located over 10 feet from exterior walls that do not extend above the material
- Materials stored inside structures must be located over 6 feet from hoist ways or floor openings
- Incompatible materials must be stored separately
- Flammable and hazardous materials must be properly stored.
- Storage areas and passageways must be kept clean and free of debris
- Access to storage areas must be adequate and unblocked
- Signage must post maximum safe load limits for floors with structures

No area may exceed maximum safe load limits

Concrete and Masonry Construction
Buckets:

- No employee may ride a concrete bucket.
- No employee may work under concrete buckets being elevated or lowered into position
- When handling concrete buckets, employees must follow safe rigging practices. See the Rigging section. Employees controlling the bucket must use tag lines.
- All buckets require a discharge device that an employee can operate without being exposed to the load.
- All buckets require safety devices with a self-closing release to prevent accidental dumping.

Rotating powered concrete trowels require dead-man controls that automatically turn off the equipment when the operator removes his/her hands from those controls.

Compresses air hoses used on a concrete pumping system require positive fail-safe joint connectors to prevent separation of sections when pressurized.

When using bull floats ensure that the area contains no power lines or energized equipment that the handle could touch.

Concrete buggy handles must not extend beyond the wheels.

All formwork must be designed, fabricated, erected, supported, braced, and maintained so that it is capable of supporting – without failure – all loads that project management can reasonably anticipate may be applied to the form.

Prefabricated forms and form-making material must be stacked neatly at all times, including immediately after stripping.

Walkways along form walls must be constructed according to OSHA scaffold and fall protection standards. See Scaffolds and Work Platforms section.

To protect against injury, all rebar, form stakes, metal and/or plastic conduit, and/or small stub-ups require approved caps or wood troughs.

Shoring Equipment

- Shoring equipment must be inspected before erecting to ensure that it meets the requirements specified in the formwork drawings.
- Erected shoring equipment must be inspected immediately before, during, and immediately after concrete placement.
- Ensure that reinforcing steel for walls, piers, columns, etc is adequately supported to prevent overturn and collapse.
- Ensure that uncoiled wire mesh is secured to prevent recoiling.

See Fall Protection Section for description of six-foot fall protection rules required for workers engaged in vertical rebar assembly. Positioning devices are not adequate but may be use along with appropriate fall protection.

PPE

- Workers operating vibrators pump nozzles, and concrete buckets must wear appropriate eye and foot protection.
- Long sleeve shirts are recommended to protect concrete from burning or irritating bare skin.

Form material or debris must not block walkways and aisles.
The subcontractor must remove rebar, tie wire, and any other debris daily.

Masonry

- A limited access zone equal to the wall's height plus 4 feet must be established along the wall's entire length before constructing a masonry wall.
- Only employees engaged in constructing the wall may enter this zone.
- Any masonry walls over 8 feet tall must be braced to prevent collapse until permanent support is in place.

Electrical

Only qualified electricians will install all electrical work according to the National Electric Code and all state and local requirements.

- All job sites must have ground fault circuit interrupters (GFCI)
- All 120 volt electrical items must be connected to a GFCI.
- Sources of electricity from two-wire, single-phase portable or vehicle-mounted generators that are not more than 5kW and are insulated from the frame and other grounded surfaces do not require GFCI. This project intends to limit use of 2-wire conductors whenever possible. All personnel should try to use GFCI at all locations.
- Guards must protect all lamps provided for general illumination.
- Worn or frayed electric cords must be replaced.
- All temporary cords will be three-wire types S, ST, SO, or STO with a 26 or greater wire gauge.
- Double-insulated tools bearing a readable Underwriter Laboratories label are permitted
- Live parts of electrical equipment must be guarded against contact with cabinets or other enclosures.
- Locations of live parts of electrical equipment may be accessible only to qualified personnel.
- Entrances to locations of exposed live parts must be conspicuously marked with warning signs forbidding unqualified entry.
- Electrical installations open to unqualified personnel must be
  - Made with metal enclosed equipment or
  - Enclosed in a vault or
  - With access controlled by a lock
- All cords and trailing cables must be covered and elevated at least 7 feet above the work area or otherwise protected from damage that could create a hazard to personnel.
- All temporary power panels must have covers installed and locked at all times.
- All open or exposed breaker areas must be covered and labeled

Extension Cords

- Must not be fastened with stables, hung from nails, or suspended by wire
- Must be three-wire type designed for hard or extra hard usage
- Must be three-wire, grounded, at least 14 gauge, heavy duty type
- Must have all ground pins; cords or tools missing a ground pin must be removed from the site
- When plugged into permanent power sources, must be protected by ground fault circuit interrupters at the source of power.

Inspection

All electrical equipment, tools, appliances, and cord sets must be inspected before work begins and at the beginning of each work shift. Any damaged items must be taken out of service until repaired and re-inspected. The inspection includes

- Damaged or missing ground pin
- Damaged insulation
- Frayed or exposed wires
- Signs of internal damage

Temporary Lighting

- Must be UL approved and have pre-molded, manufacturer-fixed lights
- Must be securely hung overhead
- Must have bulbs equipped with protective cages; if broken, these must be immediately replaced
- Wiring must be in good condition

The employer shall designate one or more competent persons (as defined in 1926.32(f) to implement the program.

A daily visual inspection shall be made of the following to determine any external defects or indications of internal damage prior to use: Cord sets, attachment cap, plug & receptacle of cord sets & any other equipment connected by cord & plug (with the exception of cord sets & receptacles which are fixed & not exposed to damage) such as deformed or missing plug, insulation damage. Damaged items shall not be used until repaired.

All equipment grounding conductors shall be tested for continuity & shall be electrically continuous.

The employer shall not make available or permit the use by employees of any equipment which has not met the requirements of this program.

Who needs training?
1. Employees who face a risk of electric shock but who are not qualified persons shall be trained & familiar with electrically related safety practices.
2. Employees shall be trained in safety related work practices that pertain to their respective job assignments.
3. Clearance distances.

Safe work practices shall be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts when work is performed near or on equipment or circuits which are or may be energized.

Conductors and parts of electrical equipment that have been de-energized but not been locked or tagged out shall be treated as live parts.

Clearance Distances

UNQUALIFIED: 1) For voltages to ground 50kV or below: 10 feet. 2) For voltages to ground over 50 kV: 10 feet plus 4 inches for every 10kV over 50kV. QUALIFIED: See Table S-5 (29 CFR 1910.333(c)(3)(ii)(C)) for more information. [1910.333(c)(3)(i)(A) through 1910.333(c)(3)(i)(A)(2), 1910.333(c)(3)(ii) & 1910.333(c)(3)(ii)(C)]

Vehicle Clearance distances

A) Any vehicle or equipment capable of having parts of its structure elevated near energized overhead lines shall be operated so that a clearance of 10 ft. If the voltage is higher than 50kV, the clearance shall be increased 4 inches for every 10kV over that voltage. B) If the vehicle is in transit with its structure lowered, the clearance may be reduced to 4 ft. If the voltage is higher than 50kV, the clearance shall be increased 4 inches for every 10 kV over that voltage. [1910.333(c)(3)(iii)(A) & 1910.333(c)(3)(iii)(A)(1)]

Lockout/Tagout Procedures

BOND Management will establish a lockout/tagout procedure to protect workers from hazards posed by energizes equipment and/or sources. Workers must apply safety locks and tags to all circuits, switches, valves, isolating devices, and other energy sources required to render the equipment or process non-operational. No one may remove another person's safety lock and/or tag.

- The Superintendent will identify all circuits and energy sources that require locking/tagging
- First-line supervisor will sign out sufficient locks
- Personnel will shut down mechanism by normal procedure
- Supervisor will apply his/her safety lock and tag to the energy isolating devices
- All affected workers apply locks and tags to the energy isolating devices

- Stored energy (springs, elevated machine members, rotating flywheels, hydraulic systems, air, gas, steam, or water pressure) must be dissipated by appropriate means (repositioning, blocking, bleeding down, etc.)
- Capacitors must be discharged and high capacitance elements short-circuited or grounded by a qualified electrician
- Supervisor must inspect and verify that mechanism is not operable by attempting to start it
- When servicing, maintenance, or other appropriate activity is complete, the supervisor will inspect the surrounding area to ensure that no one is exposed
- Each worker will remove his/her lock and tag
- The supervisor will remove his/her lock and tag
- Workers may then operate the energy isolating devices to restore energy to the mechanism

Applies to work performed on exposed live parts (involving either direct contact or by means of tools or materials) or near enough to them for employees to be exposed to any hazard they present.

Only qualified persons may work on electric circuit parts or equipment that has not been de-energized. The provisions outlined in NFPA 70e shall be strictly adhered to if a shutdown is not possible. Such persons shall be made familiar with the use of special precautionary techniques, PPE, insulating & shielding materials and insulated tools.

The lines shall be de-energized and grounded or other protective measures shall be provided before work is started.

Clearance distances should be listed along with other protective measures utilized.

Employees may not enter spaces containing exposed energized parts unless illumination is provided that enables the employees to work safely.

Protective shields, protective barriers or insulating materials as necessary shall be provided.

Portable ladders shall have non-conductive side rails.

Conductive items of jewelry or clothing shall not be worn unless they are rendered non-conductive by covering, wrapping or other insulating means.

Training
The training shall include the recognition of hazardous energy source, type & magnitude of energy available, methods & means necessary for energy isolation & control. Each authorized employee shall receive adequate training. The training should address that all affected employees are instructed in the purpose & use of the energy control procedure. There should be training provisions included for any other employee whose work operations are or may be in an area where energy control procedures may be utilized. The employee training should also address when tagout systems are used including the limitations of a tag (tags are warning devices & do not provide physical restraint). The training should also include that a tag is not to be removed without authorization. The tag is never to be ignored or defeated in any way. Retraining is required when there is a change in job assignments, in machines, a change in the energy control procedures, or a new hazard is introduced. All training and/or retraining must be documented, signed & certified.

Program must address: 1) who controls it. 2) How is program enforced? 3) Specific procedures that outline the scope, purpose, authorization, rules and techniques to be utilized. 4) Training. 5) Inspections, etc. where unexpected energizing starts up or release of stored energy could occur & cause injury. 6) Equipment listings & surveys should be provided.

If an energy source can be locked out this method shall be utilized. LOCKOUT DEVICE: A device that utilizes a lock, either key or combination to hold an energy isolating device in a safe position. If an energy source cannot be locked out a tagout system shall be utilized. TAGOUT DEVICE: A warning tag (weather & chemical resistant) standardized in size, color, with wording warning of hazardous energy (Do Not Start) (Do Not Open) (Do Not Close) (Do Not Energize) (Do Not Operate).

LOTO Devices shall indicate the identity of the employee applying the device.

The program should address who performs the inspection (it must be someone other than those actually using the lockout/tagout in progress). A certified review of the inspection including date, equipment, employees & the inspector should be documented.

The established procedures for the application of energy control shall cover the following elements (Refer to Item # 7 -12 below) & shall be done in sequence.

Before an authorized or affected employee turns off a machine or equipment, the authorized employee shall have knowledge of the type & magnitude of the energy, the hazards of the energy to be controlled, & the methods or means to control the energy.

The machine or equipment shall be turned off or shutdown using the procedures established for the machine or equipment. An orderly shutdown must be utilized to avoid any additional or increased hazard(s) to employees as a result of the equipment stoppage.

All energy isolating devices that are needed to control the energy to the machine or equipment shall be physically located & operated in such a manner as to isolate the machine or equipment from the energy source.

1) Lockout or tagout devices shall be affixed to each energy source isolating device by authorized employees. 2) Lockout devices, where used, shall be affixed in a manner that will hold the energy isolating devices in a safe or off position. 3) Tagout devices, where used, shall be affixed in such a manner as will clearly indicate that the operation or movement of energy isolating devices from the safe or off position. 4) Where tagout devices are used with energy isolating devices designed with the capability of being locked, the tag attachment shall be fastened at the same point at which the lock would have been attached. 5) Where a tag cannot be affixed directly to the energy isolating device, the tag shall be located as close as safely as possible to the device in a position that will be immediately obvious to anyone attempting to operate the device.

1)Following the application of lockout or tagout devices to energy isolating devices, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained & otherwise rendered safe. 2) If there is a possibility of re-accumulation of stored energy level, verification of isolation shall be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.

Prior to starting work on machines or equipment that have been locked or tagged out; the authorized employee shall verify that isolation & de-energization of the machine or equipment have been accomplished.

Safety testing of machines upon LOTO removal must be in this order: Clear away tools; remove employees; remove the LOTO device; energize & proceed with testing; de-energize & reapply control measures. This procedure should be documented (i.e., who performs & verifies).

The procedures should address different crafts, departments, etc. The procedures should afford the group of employees a level of protection equal to that provided by a personal lockout or tagout device.

The authorized employee should ascertain the exposure status of individual group members. Each employee shall attach a personal lockout or tagout device to the group's device while he/she is working & then removes it when finished. During shift change or personnel changes, there should be specific procedures to ensure the continuity of lockout or tagout procedures. Documentation should be specific.

Whenever outside servicing personnel are to be engaged in activities requiring LOTO, Bond and the subcontractor shall inform each other of their respective lockout or tagout procedures. Bond shall ensure that his/her employees understand and comply with the restrictions and prohibitions of the subcontractor's energy. This understanding will be achieved at a pre-task meeting attended by all parties involved.

When servicing and/or maintenance is performed by a crew, craft, department or other group, they shall utilize a procedure which affords the employees a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device. (If the Supplier does not use a group LOTO process, they shall state so in their written program). [1910.147(f)(3)(i)]

Equipment and Vehicles

Pedestrians always have the right of way. All vehicles must comply with designated traffic speeds, park in specified areas, be operated by licensed drivers using seat belts, and obey all traffic regulations. Personnel operating hydraulic equipment must hold a Hoisting License specific to that equipment per state and local codes.

No vehicle, including pickup truck beds, may transport personnel unless designed specifically to do so.

All operators must check their equipment daily to verify that all components are functioning correctly, at minimum checking the following:

- Brakes
- Lights
- Backup alarm
- Hydraulic systems
- Steering mechanism
- Operating controls
- Mirrors
- Fire extinguisher
- Limit switches
- Absence of leaks

- All cab glass must be safety glass.
- Windshields must be free of cracks or other visible damage.
- All multi-directional equipment, such as rollers, compactors, front-end loaders, bulldozers, etc, must be equipped with a motion alarm that is distinguishable from surrounding noise and over noise level.
- Bulldozer, dump bodies, and similar equipment must be either fully lowered or blocked when not in use or being repaired
- Applicable equipment must contain rollover protection specified in OSHA 29 CFR 1926.602
- The subcontractor must assure the stability of any material being hauled.

Cranes

Before bringing any crane onto the job site, the subcontractor must provide a current copy of an inspection conducted by a certified, independent, third-party to BBC. A competent person must inspect all equipment daily before and during use to ensure that it is in safe operating condition. Subcontractors must document inspections and remove defective equipment from service.

- All cranes must be equipped with anti-two block devices on both the load and whip lines.
- Accessible areas within the crane's swing must be roped off.

- Loads may not pass or be suspended over persons or vehicles.
- Tag lines or guide ropes must control all loads.
- Riggers must stand clear of all beams that will be lifted.
- Anyone working from an aerial lift must wear a body belt and a lanyard attached to the boom or basket.

All employees who will be signaling a crane on site shall be qualified in accordance with Subpart CC, Cranes and Derricks in Construction. Employers must use one of the following options to ensure that a signal person is qualified (see1926.1428).

1. Third party qualified evaluator. The signal person has documentation from a third party qualified evaluator showing that he or she meets the qualification requirements.
2. Employer's qualified evaluator (not a third party). The employer's qualified evaluator assesses the individual, determines the individual meets the qualification requirements, and provides documentation of that determination. This assessment may not be relied on by other employers.

Mobile Cranes

The crane manufacturer's operating manual, instructions, and load charts for a specific crane will determine safe operation for that crane. Field conditions should not approach the ideal conditions defined in manufacturer load charts.

The following guidelines apply:

- The ground beneath the crane must be solid and able to support its weight when loaded.
- Determine if utilities exist near the crane site and handle any resulting concerns
- Ensure that the crane is level 360° and remains level during operation.
- Extend outriggers fully or set them per the manufacturer's recommendation for the lift configuration. Weight must be off the tires.
- To ensure adequate soil bearing, cribbing or mats under outrigger pads must be properly places and of sufficient size.
- Before a lift, determine the load weight and the crane's load capacity.
  - Crane capacity charts list the ideal gross capacity at specific boom lengths, boom angles, and load radius from the crane center pin.
  - For attachments to determine the safe load, deduct from the net capacity according to the manufacturer's load chart or operating manual.
  - Deduct additional amounts equal to the weight of the crane's load block, the rigging, and the amount of load line required for the lift.
- A designated, qualified person must determine the load weight. OEM listings and systems that determine load weight as it is lifted are often inaccurate.
  - Refer to the shipping weight or have equipment weighed.
  - Calculate all structural loads and determine the center of gravity.
- For capacity and near-capacity lifts, determine the radius from the center pin to the load using a steel ruler.
- To establish the correct load chart, determine the boom length, counterweight, and crane configuration.
- Before starting the lift, position the hook over the center of gravity of the load.
- Position the crane for minimum swing and with a load path clearance of 2 feet.
- Distance from overhead electrical lines must be a minimum of 10 feet.
- When near electrical sources, the crane must be grounded and a safety spotter is required.
- The crane operator must know the weight of the load s/he is lifting.
- A lift with any of the following conditions required a written lift or rigging plan submitted to BOND for approval:
  - The load is greater than 85% of the crane capacity as configured.
  - The lift uses 2 cranes.
  - The lift uses nonroutine or critical equipment, according to the PM, Superintendent, or Safety Officer.

Tower Cranes

- A substantial and durable load chart will be visible at all times both in the operator cab and on the remote control console of all tower cranes.
- A qualified third party must inspect all structural components to ensure compliance with manufacturer recommendations.
- No one may work or travel on any part of the crane boom with out proper fall protection equipment.
- No one may climb the tower or get on the boom when the crane is operating.
- After every 3 months of crane use, subcontractor must shorten hoisting ropes by removing 10 feet from the dead end.
- No load may swing over a public street occupied by the general public.
- Before the crane swings over workers, the supervisor must provide a lookout, clothed in fluorescent orange vest or similar garment, who will sound an alarm as the load is moved over the work area.
- Before dismantling any crane, the subcontractor must submit a crane-dismantling plan.

Operator Qualifications

Only the following may operate cranes:

- Designated operators licensed by a State or local authority having jurisdiction regardless of residency
- Inspectors certified for crane inspection
- Test and maintenance personnel, when required

No one else may be in or on a crane when it is operating, with exception of supervisors or oilers who are performing necessary duties.

Operator Responsibilities and Procedures

Each crane operator is responsible for safe operation.

- Verify annual third-party inspection
- Verify that required information is visibly posted on the crane or visible from the operator's station
  - Manufacturer's rated load capacities
  - Manufacturer's recommended operating speeds
  - Special warnings or instructions
- Inspect the following daily
  - Condition of brakes with no load
  - Function of safety devices and limiting devices fitted to hoisting apparatus
  - Electric power installation
  - Overload controls
  - Condition of structural members [cracks, misalignment, bends, breaks]
  - Fire extinguisher in cab
- Ensure routine maintenance and necessary repairs according to manufacturer recommendations
- Assure adequate signal and radio communications
- Review weights and determine radius to assure that all lifts are within limits specific to that equipment
- Refuse to lift inadequately rigged loads
- Ensure adequate clearance between operating areas and nearby structures, especially power lines
- Ensure good housekeeping
- If requested, demonstrate his/her ability to determine total load weight and relationship to crane load chart
- Never leave the controls while a load is on the hook
- Stop crane operations if s/he detects any problem; notify the Safety Officer
- Immediately shut down if any part of the crane, rigging, or load strikes any object.
- If a collision occurs
  - A qualified person must re-inspect the crane
  - If damage occurred, all repairs must comply with manufacturer guidelines

- Certified third-party must re-inspect the crane before restarting operations

Subcontractor Requirements

- Ensure that rigging equipment is in good condition
- Provide applicable safety devices, such as
  - Safety latched on hoisting hooks
  - Chains, wire rope, slings, etc are free from defects and conform to required load ratings
  - Eye splices conform to safety standards
- Maintain an up-to-date crane maintenance record at their site office
- Ensure that crane operators receive comprehensive training in all aspects of crane operations
- Ensure that crane operators have comprehensive knowledge of their equipment, its care, and all safety requirements and procedures
- Have final responsibility and authority over crane operations including authority to stop work or refuse to handle unsafe loads

General Requirements

The employer shall comply with the manufacturer's specifications and limitations applicable to the operation of any and all cranes and derricks. Where manufacturer's specifications are not available, the limitations assigned to the equipment shall be based on the determinations of a qualified engineer competent in this field and such determinations will be appropriately documented and recorded. Attachments used with cranes shall not exceed the capacity, rating, or scope recommended by the manufacturer.

The employer shall comply with the manufacturer's specifications and limitations applicable to the operation of any and all cranes and derricks. Where manufacturer's specifications are not available, the limitations assigned to the equipment shall be based on the determinations of a qualified engineer competent in this field and such determinations will be appropriately documented and recorded. Attachments used with cranes shall not exceed the capacity, rating, or scope recommended by the manufacturer

Rated load capacities, and recommended operating speeds, special hazard warnings, or instruction, shall be conspicuously posted on all equipment. Instructions or warnings shall be visible to the operator while he/she is at his control station.

Hand signals to crane and derrick operators shall be those prescribed by the applicable ANSI standard for the type of crane in use.

The employer shall designate a competent person who shall inspect all machinery and equipment prior to each use, and during use, to make sure it is in safe operating condition. Any deficiencies shall be repaired, or defective parts replaced, before continued use.

A thorough, annual inspection of the hoisting machinery shall be made by a competent person, or by a government or private agency recognized by the U.S. Department of Labor. The employer shall maintain a record of the dates and results of inspections for each hoisting machine and piece of equipment.

Whenever internal combustion engine powered equipment exhausts in enclosed spaces, tests shall be made and recorded to see that employees are not exposed to unsafe concentrations of toxic gases or oxygen deficient atmospheres.

An accessible fire extinguisher of 5BC rating, or higher, shall be available at all operator stations or cabs of equipment.

For lines rated 50 kV. or below, minimum clearance between the lines and any part of the crane or load shall be 10 feet.

Modifications or additions which affect the safe operation of the equipment may only be made with the manufacturer's written approval.

All crawler, truck, or locomotive cranes in use shall meet the applicable requirements for design, inspection, construction, testing, maintenance and operation as prescribed in the ANSI B30.5-1968, Safety Code for Crawler, Locomotive and Truck Cranes. However, the written, dated, and signed inspection reports and records of the monthly inspection of critical items prescribed in section 5-2.1.5 of the ANSI B30.5-1968 standard are not required. Instead, the employer shall prepare a certification record which includes the date the crane items were inspected; the signature of the person who inspected the crane items; and a serial number, or other identifier, for the crane inspected.

BOND shall permit only those employees qualified by training or experience to operate equipment and machinery.

Rigging

Anyone involved in work requiring rigging must designate a competent person responsible for safe rigging practices and notify the BOND Safety Manager and Superintendent.

In accordance with Subpart C, Crane and Derricks in Construction, *qualified riggers shall be used* during hoisting activities for assembly and disassembly work (1926.1404(r)(1)). Additionally, *qualified riggers* are required whenever workers are within the fall zone and hooking, unhooking, or guiding a load, or doing the initial connection of a load to a component or structure (1926.1425(c)). Verification of training must be provided to BOND prior to the start of work.

All rigging equipment must be inspected prior to each shift and as necessary to ensure safe operation. Defective equipment must be removed. No rigging may exceed its recommended safe working load.

All rigging equipment must be inspected prior to each shift and as necessary to ensure safe operation. Defective equipment must be removed. No rigging may exceed its recommended safe working load.

If anyone sees a defect in rigging, ***immediately*** alert a competent person and initiate an inspection.

- Never stand under close to or under a load
- Never hoist loads over workers
- Never ride a load
- Attach hardware above the center of gravity
- Never exceed safe load weight
- Attach tag lines to control movement
- Remove rigging when not in use

Wire Rope

- Store in a well-ventilated, dry building or shed; do not store on ground to avoid corrosion and rust
- Discard a wire rope sling if it shows the following
  - Severe corrosion
  - Localized outside wear (shiny worn areas)
  - 1/3 reduction in wire diameter
  - Damage or displacement of end-fittings-hooks, rings, links, collars
- Using several times a week, even with light loads, increases service

Chains

- Must be cleaned prior to each inspection to reveal all damage

- Inspect entire length for stretching, binding, wear, nicks, gouges
- If stretched beyond 3% more than new length, it is unsafe and must be discarded

Synthetic Web
Comply with manufacturer's instructions since each synthetic material has unique properties. Remove from service if the web contains any of the following defects:

- Acid or caustic burns
- Melting or charring of any surface
- Snags, punctures, tears, cuts
- Broken or worn stitches
- Distortion of fittings
- Wear or elongation exceeding manufacturer recommendations

Rigging equipment shall be inspected to ensure it is safe. Rigging equipment for material handling shall be inspected prior to use on each shift and as necessary during its use to ensure that it is safe.

Defective equipment shall not be used and removed from service immediately.

Rigging equipment shall not be loaded beyond its recommended safe working load and load identification shall be attached to the rigging.

Rigging equipment not in use shall be removed from the immediate work area so as not to present a hazard to employees.

Tag lines shall be used unless their use creates an unsafe condition.

Hooks on overhaul ball assemblies, lower load blocks, or other attachment assemblies shall be of a type that can be closed and locked, eliminating the hook throat opening. Alternatively, an alloy anchor type shackle with a bolt, nut and retaining pin may be used.

All employees shall be kept clear of loads about to be lifted and of suspended loads.

Demolition
Before starting any demolition work, the subcontractor must designate their competent person in writing and ensure that s/he will be onsite during any demolition operation. The competent person must be

- Experienced and knowledgeable regarding demolition operations
- Understand OSHA 29 CFR 1926 subpart T requirements
- Able to identify and predict unsanitary or hazardous conditions
- Authorized to enact prompt corrective measures for unsanitary or hazardous conditions

The subcontractor must ensure that a competent person has conducted an engineering study to define the scope and safe method for the demolition. This study should include

- Sequencing
- Equipment location, preventing exhaust discharge adjacent to air intake
- Hazardous, flammable, or dangerous substance assessment and response
- Glass fragment hazard control
- Hazards to non-project personnel and/or the general public and safeguards
- Utility location and control
- Measures to remove debris safely
- Dust control
- Safety equipment requirements [respirators, lifelines, harnesses, warning signs, nets, etc.]

PPE for demolition workers includes, at minimum, hard hats, safety glasses, and gloves. Workers must use additional equipment, including respirators, face protection, hearing protection, and any appropriate fall protection, when required.

Debris

- When debris is dropped through holes in the floor without using chutes, the area below must be completely enclosed with barricades 42 inches high and 6 feet back from the protected edge of the opening above.
- A chute is required for debris dropped more than 20 feet outside the building.
- Debris chutes must have a substantial gate at all elevated openings.
- Debris chutes shall conform to local codes for material construction
- Debris handling must cease above before removal may begin in the lower area.

Protection

- Wall openings where a worker could fall must be protected to 42 inches high.
- Walk sheds, canopies, or both must protect employee entrances to multi-storied structures and provide protection for a minimum of 8 feet from the building face.
- All canopies must be at least 2 feet wider than the building opening and must be able to sustain a 150-pound per square foot load.

Workers can use only stairways, passageways, and ladders designated as access to the building structure. Other access ways will be closed.

Aerial Lifts

The employer must ensure that a qualified person has trained the operator on the model of aerial platform s/he will be operating. Only properly trained and authorized employees are permitted to operate an aerial platform. Employees must be tied off inside the lift in accordance with the manufacturer's instructions.

Aerial lifts acquired for use on or after January 22, 1973 shall be designed and constructed in conformance with the applicable requirements of the American National Standards for "Vehicle Mounted Elevating and Rotating Work Platforms," ANSI A92.2-1969, including appendix. Aerial lifts acquired before January 22, 1973 which do not meet the requirements of ANSI A92.2-1969, may not be used after January 1, 1976, unless they shall have been modified so as to conform with the applicable design and construction requirements of ANSI A92.2-1969.

Aerial lifts may be "field modified" for uses other than those intended by the manufacturer provided the modification has been certified in writing by the manufacturer or by any equivalent entity.

Lift controls shall be tested each day prior to use to determine that such controls are in safe working condition. Tests shall be made at the beginning of each shift during which the equipment is to be used to determine that the brakes and operating systems are in proper working condition.

Only authorized persons shall operate an aerial lift.
Boom and basket load limits specified by the manufacturer shall not be exceeded.

The vehicle has a reverse signal alarm audible above the surrounding noise level or the vehicle is backed up only when an observer signals that it is safe to do so.

For lines rated 50 kV. or below, minimum clearance between the lines and any part of the equipment or load shall be 10 feet.

Employees shall always stand firmly on the floor of the basket and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position.

Approved fall protection shall be worn and a lanyard attached to the boom or basket when working from an aerial lift.

Forklift

Employer is required to certify all authorized employees regarding competency on all types of equipment.

Operators must possess a hoisting/hydraulic license as required by state and local codes

Formal instruction includes lecture, discussion, interactive computer learning, videos, and written materials. Practical training involves instructor demonstrations and trainee exercises. Operator evaluation - critiques required

All trainers must have the knowledge and ability to teach and evaluate operators.

Listing includes operating instructions, controls, capacity/stability, refueling, load stability, etc.

Mandatory refresher training following unsafe operations, accident, different vehicle type, changes in conditions

Recertification required every three years.

Employer certification must include operator name, training date, evaluation date, and trainer/evaluator name. (To be provided to BOND)

Operators must ensure vehicle is safe prior to operating.

Operator must verify Trailers must be chocked and secured

Bloodborne Pathogens

BOND will provide the different labels & signs that serve as warnings of infectious materials. Employer shall ensure that all employees with occupational exposure participate in a training program. Employees shall be provided training at the time of initial assignment & annual training for all employees should be provided within 1 year of their previous training.

OSHA requires that all employers that can "reasonably anticipate exposure" of employees to infectious material to prepare and implement a written exposure control plan.

Each employer who has employees with occupational exposure as defined in 1910.1030(b) shall prepare an exposure determination.

Employers who have personnel trained in First Aid and are expected to provide emergency care.

The exposure determination shall be made without regards to the use of personal protective equipment.

Under circumstances in which differential between body fluids is difficult or impossible, all body fluids will be considered potentially infectious.

Each employer shall ensure that a copy of the Exposure Control Plan is accessible to employees in accordance with 29 CFR 1910.1020(e).

Work practice controls shall be used to eliminate or minimize employee exposure. Procedures should detail steps to take in the event of an exposure incident. PPE should be addressed.

If provisions of hand washing facilities are not feasible, the employer shall provide either an appropriate antiseptic hand cleanser in conjunction with cloth/paper towels or antiseptic towelettes.

Specimens of blood or other potentially infectious materials must be put in leak proof bags for handling, storage and transport.

When the possibility of occupational exposure is present, PPE is to be provided at no cost to the employee such as gloves, gowns, etc. PPE shall be used unless the employer shows that employees temporarily declined to use PPE under rare circumstances. The employer shall ensure that appropriate PPE in the appropriate sizes is readily accessible. PPE should be cleaned, laundered & properly disposed. The employer shall repair & replace PPE as needed to maintain its effectiveness.

All equipment or environmental surfaces shall be cleaned & decontaminated after contact with blood or other infectious materials.

The employer shall establish and maintain an accurate record for each employee with occupational exposure in accordance with CFR 1910.1020. Training records will include the following: Dates and Contents of Training, Names and Job Titles of persons attending. Training records shall be maintained for 3 years from the date of training and medical records shall be maintained for at least the duration of employment plus 30 years.

The employer shall ensure that all records required by this section shall be made available upon request of employees, Assistant Secretary & the Director for examination & copying. Medical records must have written consent of employee before released. The employer shall comply with the requirements involving transfer of records set forth in 29 CFR 1910.1020(h).

Fire Protection and Prevention
All BBC and subcontractor personnel must abide by the BOND fire prevention and protection policy and all state and local regulations.

Fire Protection
Subcontractors must provide temporary fire protection measures including fire extinguishers, temporary hose lines, and temporary standpipes near hazardous locations.

- Fire extinguishers must be
  - Readily available throughout the construction area.
  - Properly maintained and inspected monthly
  - Equipped with an Inspection Data Tag indicating its last inspection date and the inspection firm's MA Fire Marshal's certificate of registration number
  - Readily visible within 75 feet
  - Placed in immediate area of any welding/cutting operation or flammable liquid storage
  - Within 5 feet when gasoline fueled equipment is operating
  - Within all buildings and trailers
- Fire hydrants must be clear and accessible with no parking permitted within a 20-foot diameter

Fire Prevention
Housekeeping – all areas must be kept free of accumulating wood scraps, paper and other combustible debris.

Smoking – limited to specified areas and prohibited in fire hazard areas. NO SMOKING and/or NO OPEN FLAME signs must be posted in these areas.

Open burning – is not permitted.

Welding and Burning – must be authorized by BOND Super and controlled by Subcontractor and conducted according to all applicable regulations.

- Temporary buildings located in another structure must be constructed of noncombustible material or have a 1-hour fires resistance rating.
- Plastic tarps or covers used inside a building where welding, cutting, or open flame is present must be fire retardant material.
- Only approved flash point solvents may be used for cleaning.
- Workers must store oily rags and waste separately in metal containers fitted with self-closing lids.

Fire Response

Assess the situation:	Do not overestimate the capabilities of onsite equipment which has limited capacity and range.
Notify occupants and workers:	Life safety is priority. Help evacuate the premises.
Summon help:	give the fire department the exact location of the fire and other relevant information.
Fire control:	if safe, use onsite equipment until help arrives.

Outside services must be given an opportunity to examine the entry site, practice rescue, and decline as appropriate. If there is reliance on the client Host rescue services for use, this MUST be stated and agreed to in contract language. Employees must have PPE at no cost, training, practice rescues at least every 12 months. IDLH Conditions: require trained rescue on site while work is being performed.

The employer shall assure that portable fire extinguishers are subjected to monthly visual checks and an annual maintenance check.

Subcontractors are responsible for their own employees training and their own inspections of equipment.

Benzene Awareness
Locations where employers may be exposed to Benzene include;
Petroleum refining sites
Tank Gauging (tanks at producing, pipeline & refining operations)
Field maintenance

Benzene is toxic, colorless, has an aromatic odor, is not soluble in water and is flammable.

Eye and skin irritations, short term: breathless, irritable, euphoric, etc.

PPE used to prevent Benzene Exposure
Boots, gloves, sleeves, aprons, etc. Eye and face protection.

Benzene liquid is highly flammable and vapors may form explosive mixtures in air. Fire extinguishers must be readily available. Smoking is prohibited in areas where Benzene is used or stored.

Employer should be aware of Owners contingency plan provisions. Employees must be informed where benzene is used in host facility and aware of additional plant safety rules.

Hot Work
Hot work is defined as using open flames, other heat sources, and/or sparks producing devices in areas where combustible materials and or explosion may or do exist. Hot work activities include burning, welding, cutting, grinding, and any operation that produces a flame or spark.

Precautionary Measures

- Gratings and all openings must be covered to prevent sparks and slag from falling below
- Fire extinguisher in immediate area
- No flammable or combustible material within 35 feet
- Combustible/flammable materials that cannot move must be covered with a fire blanket or flame-retardant material
- A fire watch must be posted during work and up to 30 minutes after work has ceased
- Equipment inspected and verified not defective Daily confirmation required to BOND.

When hot work uses compressed gases, oxygen and gas hoses require flame arrestors installed on both the torch and regulator sides.

Weld screens should be used to protect workers from welding flash.

Training

First-line supervisors must train workers prior to performing any hot work and document training:

- Review work to be performed
- Precautions
- Correct fire extinguisher use
- Emergency response techniques
- Duties of fire watch

Compressed Gas Cylinders

Before all combustible gases enter the site, the subcontractor must present the required fire department permits to BBC for review.

Gas Cylinder Requirements:

Clearly marked with contents and subcontractor name.

- Stored and used in an upright position, secured at all times.
- Storage areas clearly, conspicuously marked and located as BBC designates.
- Provided with safety caps.
- Acetylene and fuel gas cylinders
  - Require a flash arrestor installed at the gauge
  - Must be separated from oxygen cylinders during storage by
    - Minimum of 20 feet or
    - Noncombustible barrier of at least 5 feet with at least a half-hour fire-resistance rating
- During use, acetylene and oxygen cylinders
  - Must firmly secured on a special carrier intended for that purpose
  - Must have a fully charged fire extinguisher attached to the carrier

Flammable Gasses and Liquids

Flammable gases and liquids must be properly stored at all times:

- Away from open flame, heat, direct sun, or other ignition sources
- In approved metal safety cans marked with contents for 1 gallon or more; the original container may suffice for less than 1 gallon
- Containers must be in good condition and regularly inspected
- No more than 25 gallons may be stored in a room outside of an approved storage cabinet.
- Not permitted inside tool trailers or similar closed structures
- Located indoors: requires at least one portable fire extinguisher with a rating at least 20-B located outside the room's door but within 10 feet

- Located outdoors: requires at least one portable fire extinguisher with a rating at least 20-B located at least 25 feet and not more than 75 feet from the storage area
- More than 5 gallons of flammable liquid or 5 pounds of flammable gas: requires at least one portable fire extinguisher with a rating at least 10-B located within 50 feet
- Outside storage areas must be free of weeds and combustible material
- Storage is not permitted in or near public areas
- Portable fuel tanks must be located away from open flames
- Compressed gas cylinders must comply with OSHA and other applicable safety practices and
  - Stored on solid base with valve caps in place
  - Secured to rigid support to prevent tipping
  - Separated by 20 feet or ½ hour rated wall when stored
  - Empty cylinders stored apart from full cylinders and conspicuously marked
- Funnels must be used to transfer fuel from portable containers
- All gasoline or diesel storage tanks/drums must be placed in a berm or other secondary containment with minimum 6-mil fuel-resistant plastic sheeting
- Engines must be turned off during fueling.
- LP gas storage tanks must be protected from vehicle traffic
- Fuel dispensing points require:
  - Portable 20 B-C fire extinguisher within 25-75 feet
  - NO SMOKING signs including a second language if needed
  - Self-locking fuel nozzle is prohibited
  - Spill kit stored nearby

Welding Cutting and Burning Procedures

- Cutting and welding equipment must be well maintained and operated by qualified personnel
- Noncombustible or flameproof screens should shield all arc welding and cutting operations
- Work must be enclosed to protect the public from spreading sparks or slap
- All welding, cutting, brazing, and related operations require adequate ventilation
- The work area must contain a fire extinguisher
- Valve protection caps must be secured in place when equipment is not in use
- Hoses
  - Frequently inspect for leaks, worn sections, loose connections and remove damaged ones
  - Require flash arresters at the regulator connection for oxygen and acetylene hoses
- The welding circuit ground must be mechanically strong and electrically adequate
- When in use, all cylinders must be properly secured in a upright position
- Hoses, electrode and ground cables must be elevated at least 8 feet above the work area to allow safe passage.
- Insulated cable connectors must be used on both the ground and electrode holder lines when several lengths of cable are coupled or uncoupled to use as a welding circuit
- All connection lugs on welding machines must be insulated
- The electrode holder must have adequately rated current capacity and be insulated to protect the operator and prevent short or flash if laid on grounded material
- Stored Cylinders
  - Must be located away from elevators, stairs, and gangways
  - Must be kept from heat sources and protected from direct sun
  - Must be separated from flammable and combustible liquids and easily ignited materials by at least 20 feet or a noncombustible, 5-foot high, ½ hour fire resistant barrier
- Oxygen cylinders must be separated from fuel gas cylinders by at least 20 feet or a noncombustible, 5-foot high, ½ hour fire resistant barrier
- Oxygen cylinders, cylinder valves, couplings, regulators, hoses, and apparatus must be kept free of oil and grease, which is a significant hazard

- A crane, derrick, cradle, boat, or suitable platform must be used to move cylinders.
- At the end of each work shift
  - Gas cylinders must be removed from the site
  - Regulators and hoses will be removed

Assigned fire watchers must be trained in the use of fire extinguishing equipment and familiar with the facilities for sounding an alarm in the event of a fire. Fire Details will be provided based as required by the permit.

Cutters, welders and their supervisors must be suitably trained in the safe operations of their equipment and the safe use of the process.

If the object to be welded or cut cannot readily be moved, all moveable fire hazards should be removed.

If the object to be welded or cut cannot be moved and if all the fire hazards cannot be removed, then guards shall be used to confine the heat sparks and slag and to protect the immovable fire hazards.
Examples of unsafe conditions that need to be addressed before work can commence are:
1) Locations where other than a minor fire might develop. 2) Combustible materials closer than 35 ft. (10.7M) to point of operation. 3) Combustibles that are 35 ft. (10.7M) or more away but are easily ignited. 4) Wall or floor openings within 35 feet (10.7M) radius expose combustible materials. 5) Combustible materials are adjacent to the opposite side of metal partitions, ceilings or roofs.

Fire watchers shall have fire extinguishers readily available. A fire watch shall be maintained at least a half an hour after the welding or cutting operation was completed.

Before cutting or welding is permitted the area shall be inspected by subcontractor performing work and approved by Bond project superintendent and granting authorized welding and cutting operations. Precautions that are to be taken shall be in the form of a written permit. BOND hot work permit shall be used. In situations where the client also requires a permit, the client form shall be used.

Ventilation, securing cylinders, lifelines, electrode removal, gas cylinders' shutoff and warning signs must be addressed.
Any welding, cutting or burning of lead base metals, zinc, cadmium, mercury, beryllium or exotic metals or paints not listed here shall have proper ventilation or respiratory protection.

First aid equipment shall be available at all times.

Workers in charge of oxygen or fuel-gas supply equipment (including distribution piping systems and generators) must be instructed and judged competent for such work.

Oxygen cylinders shall be stored in an upright secured position 20 feet from any flammable gases or petroleum products.

Workman assigned to operate arc welding equipment must be properly instructed and qualified to operate such equipment. Documentation to be provided to BOND prior to the commencement of work. (provide certification to BBI)

Workmen assigned must be familiar with this section (1910.254) and with 1910.252(a)(b) & (c).

Operators of equipment should report any equipment defect or safety hazards and discontinue use of equipment until its safety has been assured. Repairs shall be made only by qualified personnel.

Slurry Wall Construction

Installing slurry walls creates hazards similar to those during excavation. In addition, workers may encounter the following:

- Contact with contaminated soil, soil/slurry mixture, wet or concrete
- Fall into slurry trench and drown
- Inhale dust
- Contact with corrosive or irritating slurry or concrete
- Slip and /or fall on surfaces wet with slurry mix
- Work under loads (tying rebar panels together)

Contractor must take the following safety measures:

- Manage water, mud, and slurry onsite
- Screen the site perimeter to prevent sprayed slurry from reaching adjacent structures
- Operators must clean the wheels of trucks hauling excavated soil at the wheel wash stations before leaving the site
- Workers must cover the top of any open slurry trench at the end of the day
- Barriers or barricades must isolate the slurry wall installation site from all inessential personnel
- Install railings and signs (DANGER: Deep Excavation) around the trench
- All slurry workers must know the location of emergency shut-off valves on slick lines and the valves must be highly visible
- PPE for workers at the slurry trench or preparing slurry or concrete:
  - Tyvek suits
  - Face shields
  - Gloves
  - Boots

Underground Construction (Tunnels and Shafts)

- Safe access and egress to all work areas must be maintained at all times.
- Whenever an employee is working underground, at least 1 designated person must be on duty above ground
- A competent person must test the atmosphere at normal atmospheric pressure to ensure that it acceptable for work.
- The competent person must test for hazardous atmosphere
- Fresh air must be supplied to all underground areas in sufficient quantities to prevent harmful accumulation of dust, fumes, mists, vapors, or gases
- A minimum of 200 cf of fresh air per minute is required for each employee underground
- A competent person must inspect the roof, face, and walls of each work area at the start of each shift, at minimum
- A steel casing, concrete pipe, timber, solid rock, or other suitable material must support all shafts and wells over 5 feet deep that workers will enter
- Casing or bracing must support the full depth of the shaft except where it penetrates into solid rock with characteristics that remain unchanged by exposure
- Jobsites with 25 or more workers underground require at least 2 5-person rescue teams: 1 on the jobsite and one within 2 hours travel time (provided by sub)
- Jobsites with fewer than 25 workers underground require at least 1 5-person rescue teams on the jobsite (provided by sub)

Cut and Cover Excavation

- A comprehensive JHA must be performed prior to start of excavation.
- Ensure that all utilities are relocated from the construction path.
- Place and secure covers over all holes and install guardrails around hole locations.
- Before mass excavation begins, install guardrails along top: angle iron stanchions every 8 feet with ½ inch wire rope at top and mid-rail.

- Provide fall protection for roof construction to avoid exposing workers to falls over 6 feet.
- Ensure that rebar does not create a trip hazard inside the tunnel box.
- Clean off whalers and struts to eliminate material from falling off after excavation.
- Walking on struts is prohibited.
- Perform air sampling according to applicable regulations and provide reports to the Safety Officer
- When necessary, have licensed site professional conduct air and soil sampling and provide reports to BOND

Lasers and x ray

- Only qualified, comprehensively trained workers (proof of) may install, adjust, or operate a laser or x ray equipment. Documentation provided to BOND
- Laser equipment must contain a label indicating make, maximum output, and beam spread.
- Internal alignment must be guided by mechanical or electronic means.
- Lasers must never be directed at any person.
- The perimeter of the work area must display standard Laser Warning signs.
- When the laser in not operating shudders or caps must be used and the laser turned off.
- When a laser is unattended for significant time (lunch hour, over night, change of shifts), it must be turned off.
- In rain, fog, snow, or extremely dusty conditions, laser operation should cease; employees must be kept out of range of the source and target during such weather conditions
- Workers exposed to direct or reflected laser light greater than 5 milliwatts must wear laser safety glasses designed to protect against appropriate laser frequencies.
- Workers must not be exposed to light intensities in excess of
  - Direct staring 1 microwatt per sq. cm.
  - Incidental observing 1 milliwatt per sq. cm.
  - Diffused reflected light 2 ½ watts per sq. cm
- Workers must not be exposed to microwave power densities in excess of10 milliwatts per sq.cm.

First Aid and CPR

A person(s) who has a valid certificate in first aid training, the American Red Cross or equivalent shall be available at work sites to render emergency first aid. This applies to both BOND and Subcontractors.

Provisions shall be made prior to commencement of a project for prompt medical attention in case of serious injury.

First aid supplies shall be easily accessible when required.

First aid kits shall consist of appropriate items which will be adequate for the environment in which they are used. For construction operations, items shall be stored in a weather proof container with individual sealed packages of each type of item.

Employers should ensure the availability of adequate first-aid supplies, and periodically reassess the demand for supplies and adjust their inventories. For construction operations, first aid kits kids shall be checked before being sent out to each job and at least weekly. Subcontractors are responsible for supplying their own first aid kits for their employees.

Proper equipment for prompt transportation of the injured person to a physician or hospital or a communication system for contacting necessary ambulance service shall be provided.

The telephone numbers of the physicians, hospitals or ambulances shall be conspicuously posted.

Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities shall be provided within the work area.

Grab and Go Kit to be located with First Aid kit if additional treatment is needed.

Noise Exposure/Hearing Conservation

BOND shall institute a training program for all employees who are exposed to action level noise. The training shall be repeated annually for each employee. Training shall be updated consistent to changes in PPE and work processes. The employer shall make available to affected employees copies of the noise exposure procedures and shall also post a copy in the workplace.

BOND shall administer a continuing effective hearing conservation program when employees are exposed to sound levels greater than 85 dba on an 8 hour time-weighted average basis.

When information indicates that employee exposure may equal/exceed the 8 hr time-weighted avg. of 85 decibels, the employer shall implement a monitoring program to identify employees to be included in the hearing conservation program.

BOND shall establish & maintain an audiometric testing program by making audiometric testing available to all employees whose exposures equal or exceed an 8-hr. time-weighted avg. 85 decibels.

Within 6 months of an employee's first exposure at or above the action level, the employer shall establish a valid baseline audiogram against which future audiograms can be compared. When a mobile van is used, the baseline shall be established within 1 yr.

Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise. Hearing protection may be used to meet the requirement. Employees shall also be notified to avoid high levels of noise.

At least annually after obtaining the baseline audiogram, the employer shall obtain a new audiogram for each employee exposed at or above an 8-hour time-weighted average of 85 decibels. Each employee's annual audiogram shall be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift, the employee shall be informed of this fact in writing, within 21 days of the determination.

If a threshold shift has occurred, use of hearing protection shall be re-evaluated and/or refitted and if necessary a medical evaluation may be required.

Hearing protection is provided to all employees. This is done at no cost to employee(s). Hearing protection shall be replaced as necessary. Employers shall ensure that hearing protectors are worn. Employees shall be properly trained in the use, care & fitting of protectors.

BOND shall evaluate hearing protection for the specific noise environments in which the protector will be used.

BOND shall maintain accurate record of all employee exposure measurements and that all records are maintained as required by the regulation.

Heat Illness Prevention

Heat Emergencies
Many people do not consider heat-related emergencies to be serious. Heat cramp and heat exhaustion victims should be treated and discouraged from returning to their previous activities until fully recovered. Otherwise the conditions will likely worsen.

Heat Cramps
Heat cramps are typically the first symptoms of injury from excessive heat. They can result from simple overexertion on a warm day, or they can be the first signs of a more perilous inability to cope with environmental heat. Signs and symptoms include severe muscle cramps (generally leg and/or abdominal cramps) exhaustion, and occasionally dizziness and/or fainting.

EMERGENCY CARE PROCEDURES:
When treating heat cramps one must realize that symptoms can be the first signs of a more serious problem and treat accordingly.

- Move victim to a cool place.
- Give fluids, preferably with electrolytes.
- Massage affected muscles (firm pressure massage).
- Apply moist towels to forehead and cramped muscles.
- Call for transportation to medical care if symptoms persist.

Heat Exhaustion
Heat exhaustion is a more serious result of heat exposure. Signs and symptoms include rapid, shallow breathing, cold, clammy skin, heavy perspiration, general weakness, and possible loss of consciousness. Heat exhaustion can rapidly progress to heat stroke if the victim remains exposed and does not replenish lost fluids.

EMERGENCY CARE PROCEDURES:

- Call Paramedics Immediately.
- Move victim to a cool place.
- Rest victim.
- Remove enough clothing to cool but don't chill.
- Give fluids with electrolytes (to conscious victims only).
- Treat for shock.
- Victim needs high concentration of oxygen.

Heat Stroke
Heat stroke is a serious life threatening emergency wherein the victim's cooling system has failed and prolonged high body temperature will likely result in brain damage or death. Signs and symptoms include deep breaths followed by shallow breathing, a rapid strong pulse followed by rapid, weak pulse, dry hot skin, dilated pupils, loss of consciousness / possible coma, and possibly seizures or muscular twitching.

EMERGENCY CARE PROCEDURES

- Call Paramedics Immediately.
- Rapidly cool the victim in any manner possible.
- Get victim out of the sun into a cooler area.
- Remove clothing and wrap with wet towels or sheets if possible.
- If cold packs or ice bags are available, pack one under each armpit, behind each knee, one on the groin, one on each wrist and one on each side of the neck.
- Treat for shock.
- Provide victim high concentration of oxygen.
- Victim must be transported to definitive care as soon as possible.

- Should transport be delayed, immerse victim up to his or her face in a stream, pool, tub, trough, etc. Ensure that the weakened victim does not drown.

Prevention
You can take some steps to avoid experiencing these kinds of emergencies.

- Condition yourself adequately before engaging in heavy exercise in the heat.
- Drink plenty of liquids before the activity and stay adequately hydrated.
- Consume electrolyte rich beverages prior to the activity. Like adding oil to your car engine, it's better to start out with the "crankcase full", rather than play catch-up after the machinery is stressed.
- Pace yourself.
- Cool off as frequently as possible, particularly when high temperatures and high humidity combine.
- If you start to feel weak; stop, rest and rehydrate.

Cold Stress
During emergency response activities or recovery operations, workers may be required to work in cold environments, and sometimes for extended periods. Cold stress is a common problem encountered in these types of situations. The following frequently asked questions will help workers understand what cold stress is, how it may affect their health and safety, and how it can be prevented.

How cold is too cold?
When the body is unable to warm itself, cold related stress may result. This may include tissue damage and possibly death. Four factors contribute to cold stress: cold air temperatures, high velocity air movement, dampness of the air, and contact with cold water or surfaces. A cold environment forces the body to work harder to maintain its temperature. Cold air, water, and snow all draw heat from the body. Wind chill is the combination of air temperature and wind speed. For example, when the air temperature is 40°F, and the wind speed is 35 mph, your exposed skin receives conditions equivalent to the air temperature being 11° F. While it is obvious that below freezing conditions combined with inadequate clothing could bring about cold stress, it is also important to understand that it can also be brought about by temperatures in the 50's coupled with some rain and wind.

How does the body react to cold conditions?
When in a cold environment, most of your body's energy is used to keep your internal temperature warm. Over time, your body will begin to shift blood flow from your extremities (hands, feet, arms, and legs) and outer skin to the core (chest and abdomen). This allows exposed skin and the extremities to cool rapidly and increases the risk of frostbite and hypothermia. Combine this with cold water, and trench foot may also be a problem.

What are the most common cold induced problems?
Hypothermia, Frostbite, and Trench Foot.

Hypothermia
Hypothermia which means "*low heat*", is a potentially serious health condition. This occurs when body heat is lost faster than it can be replaced. When the core body temperature drops below the normal 98.6° F to around 95° F, the onset of symptoms normally begins. The person may begin to shiver and stomp their feet in order to generate heat. Workers may lose coordination, have slurred speech, and fumble with items in the hand. The skin will likely be pale and cold. As the body temperature continues to fall these symptoms will worsen and shivering will stop. Workers may be unable to walk or stand. Once the body temperature falls to around 85° F severe hypothermia will develop and the person may become unconscious, and at 78°, the person could die.

Anyone working in a cold environment may be at risk for cold stress. However, older people may be at more risk than younger adults, since older people are not able to generate heat as quickly. Certain medications may prevent the body from generating heat normally. These include *anti-depressants, sedatives, tranquilizers* and *others.*

Treatment depends on the severity of the hypothermia. For cases **of mild hypothermia** move to warm area and stay active. Remove wet clothes and replace with dry clothes or blankets, cover the head. To promote metabolism and assist in raising internal core temperature drink a warm (not hot) sugary drink. Avoid drinks with caffeine. For **more severe cases** do all the above, plus contact emergency medical personnel (Call 911 for an ambulance), cover all extremities completely, place very warm objects, such as hot packs or water bottles on the victim's head, neck, chest and groin. Arms and legs should be warmed last. In cases of **severe hypothermia** treat the worker very gently and do not apply external heat to re-warm. Hospital treatment is required.

If worker is in the water and unable to exit, secure collars, belts, hoods, etc. in an attempt to maintain warmer water against the body. Move all extremities as close to the torso as possible to conserve body heat.

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

Do not rub the area to warm it. Wrap the area in a soft cloth, move the worker to a warm area, and contact medical personnel. Do not leave the worker alone. If help is delayed, immerse in warm (maximum 105 °F), not hot, water. Do not pour water on affected part. If there is a chance that the affected part will get cold again do not warm. Warming and re-cooling will cause severe tissue damage.

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

Soak feet in warm water, then wrap with dry cloth bandages. Drink a warm, sugary drink.

Preventive measures
Plan for work in cold weather. Wearing appropriate clothing and being aware of how your body is reacting to the cold are important to preventing cold stress. Avoiding alcohol, certain medications and smoking can also help to minimize the risk.

Protective Clothing is the most important way to avoid cold stress. The type of fabric also makes a difference. Cotton loses its insulation value when it becomes wet. Wool, silk and most synthetics, on the other hand, retain their insulation even when wet. The following are recommendations for working in cold environments:

- Wear at least three layers of clothing. An inner layer of wool, silk or synthetic to wick moisture away from the body. A middle layer of wool or synthetic to provide insulation even when wet. An outer wind and rain protection layer that allows some ventilation to prevent overheating.
- Wear a hat or hood. Up to 40% of body heat can be lost when the head is left exposed.
- Wear insulated boots or other footwear.
- Keep a change of dry clothing available in case work clothes become wet.
- With the exception of the wicking layer do not wear tight clothing. Loose clothing allows better ventilation of heat away from the body.
- Do not underestimate the wetting effects of perspiration. Oftentimes wicking and venting of the body’s sweat and heat are more important than protecting from rain or snow.

Work Practices and planning are important preventative measures. Drink plenty of liquids, avoiding caffeine and alcohol. It is easy to become dehydrated in cold weather. If possible, heavy work should be scheduled during the warmer parts of the day. Take breaks out of the cold. Try to work in pairs to keep an eye on each other and watch for signs of cold stress. Avoid fatigue since energy is needed to keep muscles warm. Take frequent breaks and consume warm, high calorie food such as pasta to maintain energy reserves.

Engineering controls can be effective in reducing the risk of cold stress. Radiant heaters may be used to warm workers. Shielding work areas from drafts or wind will reduce wind chill. Use insulating material on equipment handles, especially metal handles, when temperatures drop below 30° F.

Training in recognition and treatment is important. Supervisors, workers and coworkers should watch for signs of cold stress and allow workers to interrupt their work if they are extremely uncomfortable. Supervisors should also ensure that work schedules allow appropriate rest periods and ensure liquids are available. They should use appropriate engineering controls, personal protective equipment and work practices to reduce the risk of cold stress. All of these measures should be incorporated into the relevant health and safety plans.

HAZARDOUS MATERIALS/ENVIRONMENTAL

Lead

When welding, cutting, burning, grinding, chipping, abrasive blasting or rivet busting on painted or coated surfaces, a pre-assessment will be required to determine if the surface(s) contain lead-based paint. If sampling results indicate lead-based paint 0.02% lead by weight, OSHA Standard 29 CFR 1926.62 will be followed.
An initial hazard assessment is required and will be performed by the subcontractor and provided to BOND to determine worker exposure levels. The assessment will involve personal sampling of a representative group of workers performing different tasks. During the initial exposure assessment, workers will wear protective clothing and the proper respiratory protection until the results of the assessment are known.

Copies of sampling results will be made available to BOND. Area sampling of a work area will not to be used for determining worker exposure levels.

If sampling results indicate the exposure limits are above 30 $\mu g/m^3$ but below 50 $\mu g/m^3$, the following are required:

- Written compliance plan
- Medical surveillance (Blood Lead and ZPP)
- Personal monitoring
- Hazard communication training for lead

If sampling results are above 50 $\mu g/m^3$, the following are required:

- Written compliance plan
- Engineering controls
- Respiratory protection
- Protective clothing
- Medical surveillance
- Clean change rooms and showers
- Clean lunchrooms
- Warning signs
- Training

Each worker is to be notified in writing of their blood and/or personal monitoring results within five working days after the results are known.

All affected employees are required to attend initial and annual training programs. The employees should be informed of the specific nature of the operations which could result in exposure to lead above the action level, the purpose, proper selection, fitting, use, and limitation of respirators, engineering controls, purpose & a description of the medical surveillance program & the medical removal program.

No employee should be exposed to lead at concentrations greater than fifty micrograms per cubic meter of air averaged over an 8-hour period.

Full shift personal samples shall be representative of the employees regular, daily exposure to lead.

If the initial determination or subsequent air monitoring reveals employee exposure to be at or above the action level but below the permissible exposure limit the employer shall repeat air monitoring in accordance with this paragraph at least every 6 months. The employer shall continue air monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level at which time the employer may discontinue monitoring for that employee.

The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to affected employees. Whenever the results indicate that the representative employee exposure, without regard to respirators, exceeds the permissible exposure limit, the employer shall include in the written notice a statement that the permissible exposure limit was exceeded, and a description of the corrective action taken or to be taken to reduce exposure to or below the permissible exposure limit.

Subcontractor's site-specific compliance program shall address means of engineering & work practice controls, air monitoring, a description of each operation in which lead is emitted, The written program must be revised & updated annually.

The respirator shall be used 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.
Gloves, hats, vented goggles, shoes or disposable shoe covers shall be provided. Protective clothing shall be in clean & dry condition at least weekly. Protective clothing shall be cleaned, laundered, properly disposed and repaired or replaced as necessary.

Medical examinations & procedures shall be performed by or under the supervision of a licensed physician. The medical surveillance is provided without cost to the employees.

The blood sampling & monitoring should 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.

The employer must provide lunchroom, hygiene, shower, and changing facilities.

If the PEL is exceeded Warning signs should be posted in the work area where the PEL is exceeded

Silica
1926.1153 Respirable crystalline silica.
(a) Scope and application. This section applies to all occupational exposures to respirable crystalline silica in construction work, except where employee exposure will remain below 25

micrograms per cubic meter of air (25 µg/m3) as an 8-hour time-weighted average (TWA) under any foreseeable conditions.

Prior to any potential Silica producing activity, the BOND Silica Exposure Control Form shall be filled out and provided to the Safety department (See Appendix S)

Workers that perform any of the following work tasks will be protected from exposure to silica dust in accordance with §1926.1153 Respirable crystalline silica.

- Chipping, hammering, or mixing of refractory;
- Abrasive blasting using silica sand as a blasting medium;
- Abrasive blasting of concrete regardless of the type of medium;
- Sawing, hammering, drilling, grinding, or chipping of concrete or masonry products;
- Chipping, hammering, or mixing of concrete grout;
- Demolition of concrete or masonry structures;
- Dry sweeping or compressed air blowing of concrete, masonry, rock or sand dust.

Workers performing any of the above tasks, or that could be exposed to silica dust, will receive hazard communication training on silica. This section applies to all occupational exposures to respirable crystalline silica in construction work, except where employee exposure will remain below 25 micrograms per cubic meter of air (25 µg/m3) as an 8-hour time-weighted average (TWA) under any foreseeable conditions.:

Acceptable engineering controls will be used when exposure to silica is likely. Examples of acceptable engineering controls are:

- Maintain an effective dust control program;
- Use internal blast-cleaning machines;
- Wet sawing;
- Use of water through the drill stem;

Use of HEPA vacuum assisted tools/equipment.
When acceptable engineering controls cannot be used, workers will wear respiratory protection, protective coveralls and gloves.

Workers will follow these safe work rules when exposed to silica:

- Do not eat, drink or use tobacco products in areas where silica dust is present;
- Always wash hands and face before eating, drinking or using tobacco products.

First-line supervisors should consult the BOND Safety Department for further assistance.

Prior to any Silica Producing activities, the Bond Silica Exposure Plan form shall be completed. This plan will outline the specific controls being used for that specific activity.

Presumed Asbestos Containing Material (PACM)
If presumed asbestos-containing material (PACM) is found during performance of the work, the following procedure will be followed:

- Workers observing PACM should immediately stop work
- Warn other workers nearby of the disturbed or damaged material
- Contact your immediate supervisor
- Barricade the immediate area around the disturbed or damaged material
- Do not enter the barricaded area until the area is deemed safe by BOND

BOND project management will investigate and develop an action plan that may include testing PACM and/or abating suspected material. Only a licensed contractor will repair and cleanup disturbed or damaged material.

Mold Control
Necessary steps will be taken to control the formation of mold from occurring in the work and storage areas. Mold will form when there is water and a source of food (i.e. wall board, wood and/or other building material).

Work will be planned to:

Prevent moisture accumulation.

- Double check points where moisture may enter.
- Doors
- Windows
- Flashings and caulking
- Waterproof membranes (proper lapping at joints and corners
- Roofing systems and penetrations

Properly store material

- Dry location
- Off the ground
- Loose tarps or sheets to allow air flow

Have drying equipment readily available

- Fans
- Dehumidifiers
- Wet-dry vacuum

If mold is observed, work will not continue in the area until BOND supervision has made an evaluation of the exposure and developed an abatement plan.

Air Emissions
All motor vehicle and construction equipment shall comply with all pertinent local, state and federal regulations covering exhaust emissions controls and safety.

Ground Water Management
BOND shall maintain groundwater levels within allowable ranges as per contract documents and permits. The discharge of groundwater shall be performed in accordance with all local, federal and state permits and approval. It shall be done in a manner that does not impact the environment, cause nuisances, or create safety concerns to the neighborhood.

Appendices
(Subcontractors shall use all BOND forms unless otherwise approved by BOND team to use their own)

Appendix A	Orientation Program
Appendix B	Confined Space Entry Permit
Appendix C	Incident Report
Appendix D	Utility Hit Incident Report
Appendix E	7 Step Review
Appendix F	JHA Template
Appendix G	Common SDS Index
Appendix H	Monthly Subcontractor Summary Form
Appendix I	Pre Task Analysis
Appendix J	Emergency Call Sheet
Appendix K	Drug Testing Placeholder
Appendix L	Hot Work Permit
Appendix M	Heavy Equipment Inspection Checklist
Appendix N	Crane Use Permit/Critical Lift Form
Appendix O	Violation Notice
Appendix P	Visitor Form
Appendix Q	Sling Inspection Checklist
Appendix R	Fire Extinguisher Log
Appendix S	Silica Exposure Control Form