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Module 1 – General Program Information

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The employees and subcontractors of CG Schmidt are the company's most valuable resource and personal concern. Each employee and subcontractor is regarded as an integral part of the CG Schmidt team, therefore, it is the company's goal to ensure that each employee and subcontractor is in good health, remain alert, informed, trained, and is continually motivated to assume responsibility for his/her own safety.

It is the policy of CG Schmidt to provide a safe and healthy workplace for all employees and subcontractors through the establishment of safety rules, procedures, and programs that are strictly and uniformly enforced at all locations and worksites. It is also the intent of CG Schmidt to comply with all federal, state, and local safety standards, codes, and regulations.

CG Schmidt is committed to a Just Culture and learning-based safety system. Employees are encouraged to report hazards, near misses, and concerns without fear of retaliation. Our goal is to identify error-likely situations and system contributors so we can improve work planning, communication, and safety controls.

Eric Schmidt
President and CEO
CG Schmidt, Inc.

1.0 Zero Incident Mission Statement

- CG Schmidt, Inc. is committed to the safety of its employees, subcontractors and the general public. This commitment is demonstrated through investment in, and maintenance of, equipment, processes, and ongoing employee safety training. Whenever and wherever employees work, there is always the possibility of error; this is why the observation and strict enforcement of safety rules and regulations is required. The purpose of this Safety and Health Program is to communicate these basic safety rules and programs to all CG Schmidt employees and subcontractors. Your particular job may be covered by more specific requirements and procedures that are not necessarily detailed in this manual. If you are not familiar with these specific requirements, ask your supervisor.

- Every employee and subcontractor have the responsibility to stop work in the event of an unsafe condition or the potential of an unsafe condition becoming present. When a situation arises notification shall be made to the Project Leadership and CGS Safety Director so that corrective actions can be immediately implemented.

- This Safety and Health Program document along with any other safety related documentation should be kept electronically on every project and made available to all who should ask for it.

- The management of CG Schmidt values your personal safety and your contribution to the overall safety program. In order for this safety program to be successful, you must become an active participant. Use the information contained in this manual and apply the training that you receive in your everyday activities. Thank you for helping to make CG Schmidt a safer place to work.

- CG Schmidt recognizes that even well-trained and dedicated employees may experience human error. For this reason, our safety program emphasizes pre-task planning, strong communication, situational awareness, and system-level controls designed to reduce error likelihood and improve reliability across all operations.

2.0 Safety and Health Program Goals

- CG Schmidt has established very clear goals and objectives for our Safety and Health Program, they are:

- Create a Safety and Health conscious culture.

- Establish and maintain incident and hazard-free work sites.

- Establish and maintain a workplace free from substance abuse.

- Create a culture that meets or exceeds the safety standards in our industry.

- Maintain a Zero Injuries commitment in all aspects of our operations.

- Identify and track leading indicators, such as near misses, good catches, and safety observations, to improve planning and reduce risk.

- Strengthen human performance by improving communication, reduce error-likely situations, and supporting continuous learning.

3.0 CG Schmidt Responsibilities

- Safety Director

  - Overall responsibility for implementing and coordinating the Safety and Health Program lies with the CG Schmidt Safety Director with support by Senior Management.

  - Implement and maintain safety programs that comply with governmental safety and health standards.

  - Assist project managers, superintendents, foreman, and other employees in proper execution of the Safety and Health Program.

  - Any severe injury resulting in an amputation, hospitalization, or loss of an eye must be reported to OSHA within 24 hours. Any fatality must be reported to OSHA within 8 hours.

- Project Managers and Superintendents

  - Day-to-day implementation and enforcement of the Safety and Health Program.

  - Knowledgeable of laws, regulations, and company policy regarding job site safety.

  - Creating and implementing site specific Project Safety Plan.

  - Verify safety and health documentation is completed.

  - Verify toolbox talks are being conducted.

  - Conducting pre-task and pre-installation planning meetings.

  - Enforce safety requirements with all employees and subcontractors.

  - Project Managers and Superintendents are to work with the safety department to conduct and document job site incident and injury investigations including near misses and implementing corrective actions. Send report to the safety department within 24 hours of the incident.

  - Safety Director must immediately be notified of any injury or illness.

  - Assist foremen, employees, and subcontractors in the proper execution of the Safety and Health Program.

- Post required OSHA documentation and notices, including copies of any citations issued at the jobsite.
- Post location of nearby medical facilities and phone numbers of Fire, Rescue, Medical, and Police in a conspicuous place.
- Post required emergency notification system and evacuation procedures.
- Require company personnel and all subcontractors to adhere to the requirements in this Safety and Health Program.
- Conduct project wide Stand Down on the first Wednesday of every month.

- Foremen
  - Ensure the safe condition of each job site to the extent that is under their control.
  - Inspect work areas and all equipment for compliance.
  - Conduct daily visual checks for defects on all tools, ladders, hoists, protective equipment, etc. Tag and remove defective equipment and return for repair or replacement.
  - Ensure prompt reporting of all accidents and near-miss events.
  - Conduct and document weekly toolbox talks.
  - Conduct and document pre-task planning meetings.
  - Verify safety and health documentation is completed.
  - Keep unauthorized persons out of areas where work is being performed or where company materials are stored.
  - Ensure that all employees know the hazards of the type of work to be performed and the safety procedures and controls required to prevent an accident.
  - Verify that employees are qualified and competent for the tasks assigned.
  - Prevent any employee from working when their ability or alertness is impaired by fatigue, alcohol, illegal or prescription drugs, or any other physical cause that might expose the employee or others to injury. Immediately report the employee to the project manager or superintendent responsible for the job.
  - Understanding the Hazard Communication Program and reviewing Safety Data Sheets (SDS) as appropriate.

- Confirm the whereabouts of each person under his/her supervision prior to leaving the job site.
- Never allow company equipment to be loaned to or used by anyone other than company personnel unless authorized by the project manager or superintendent.
- Ensuring employees have and are properly using the required personal protective equipment for the task performed or mandated by company policy and first aid kit.
- Assist employees in the proper execution of the Health & Safety Program.

- Employees
  - Every CG Schmidt employee is responsible for following the rules set forth in this manual for reporting any unsafe conditions or unsafe acts of which they may be aware.
  - Only perform jobs they have been trained to do.
  - Follow prescribed safety rules and regulations.
  - Use required personal protective equipment.
  - Maintain strong situational awareness and speak up when conditions change.
  - Report unsafe conditions, practices, and near-misses to a foreman or other supervisor.
  - Report all injuries, no matter how small.
  - Cooperate during the investigation of accidents and near-misses.

4.0 Subcontractor's Responsibilities

- It is the practice of CGS to delegate work to specialty subcontractors who are knowledgeable about the safety considerations of their respective trades.
- Each contractor as named in the contract language agrees that CGS has retained the subcontractor for reasons, which include, but are not limited to, subcontractor's expertise with regard to safety and health hazards associated with the work to be performed by the subcontractor.
- It is our intention that each specialty subcontractor (employer) is directly responsible for monitoring their employee's compliance with the established safety standards. Each subcontractor agrees that it has and will have sole responsibility for the health, safety and welfare of its employees, subcontractors, and agents performing work at the construction site.

- At all times while performing work on the construction site, the subcontractor, its employees, subcontractors, and agents will also comply with all applicable health, safety and environmental procedures, policies and guidelines.

- CGS requires that subcontractors follow our Safety and Health Program along with their own safety program ensuring compliance.

- CGS will monitor the general safety conditions of the premises.

- The subcontractor has the authority and responsibility to control, and/or correct all hazards associated with their work to be performed.

- If the subcontractor becomes aware of a hazard which the subcontractor believes was created or caused by another contractor, the subcontractor must notify CGS immediately. If the subcontractor fails to do so, the subcontractor agrees to assume all responsibility to the known hazard.

- The subcontractor will provide only properly trained and qualified people to perform work at the construction site. Subcontractor employees must be trained in both general safe work practices and all applicable specific hazards of the work to be performed. The subcontractor has the responsibility to train their employees with regard to safe work practices and work-specific hazards.

- The CGS Safety Director meets with the CGS Project Management Team at the completion of the project to review subcontractor performance.

5.0 Safety Accountability, Corrective Action, and Enforcement

- CG Schmidt is committed to providing safe and healthy jobsites. Safety requirements must be followed by CG Schmidt employees, subcontractors, suppliers, vendors, and others performing work on CG Schmidt projects.

- Safety concerns will be addressed promptly. Corrective action will be based on the seriousness of the condition or behavior, potential consequences, repeated violations, failure or supervision, and other relevant circumstances. Corrective action is intended to eliminate hazards, improve supervision, reinforce accountability, and prevent recurrence.

- Nothing in this policy requires CGS to follow a progressive sequence when circumstances warrant more immediate action. CGS May stop work, remove an individual from a project, require additional supervision, or take other appropriate action when a condition or behavior creates a serious risk to workers or others.

- Corrective or disciplinary action will not be based upon an employee reporting an injury, illness, near miss, hazard, safety concern, or other protected activity. Actions under this policy will be based upon the underlying safety rule violation, unsafe behavior, failure to properly supervise work, or other legitimate safety-related reason.

- CG Schmidt Employees
  - CGS employees are expected to comply with company safety requirements and immediately correct unsafe conditions within their responsibility or authority.
  - Violations may result in corrective or disciplinary action including coaching, verbal warning, written warning, suspension, reassignment, or termination of employment. The level of discipline will be determined based on the circumstances and coordinated with CG Schmidt Human Resources in accordance with company policy and applicable law.
  - Nothing prevents immediate removal from the work area or other appropriate action when an employee's conduct creates a serious danger to themselves or others.
- Subcontractors
  - Each subcontractor is responsible for the safety and health of its employees and for providing adequate supervision of its work. CGS oversight of the project does not relieve the subcontractor, its supervisors, foremen, Competent Persons, or employees of their responsibilities under applicable safety requirements.
  - When a subcontractor safety violation is identified, the subcontractor shall immediately correct the condition and take appropriate measures to prevent recurrence.
  - CGS may require additional corrective actions based upon the severity of the violation, the potential consequences, the subcontractor's safety performance, previous violations, adequacy of supervision, and effectiveness of previous corrective actions.
- Serious Safety Violations
  - For purposes of this policy, a serious safety violation is a condition, behavior, or failure to act that creates the potential for death, serious physical harm, or another high-consequence event. This company classification is used for internal enforcement purposes and does not necessarily correspond to OSHA's classification of a violation.
  - Examples may include, but are not limited to:
    - Exposure to significant fall hazards without required protection.
    - Entry into an improperly protected excavation or trench.
    - Failure to control hazardous energy.
    - Unauthorized exposure to energized electrical hazards.
    - Serious crane, rigging, or material-handling violations.
    - Entering a permit-required confined space without required controls.
    - Bypassing, disabling, or removing required safety devices or safeguards.
    - Work performed contrary to an established safety plan when the deviation creates a serious hazard.

    - Other conditions that could reasonably result in a fatality or serious injury.

- Additional Safety Supervision

    - Following a serious safety violation, CSG may require the subcontractor to provide a minimum of 20 hours per week of additional qualified safety supervision on the project. The purpose of this requirement is to improve the subcontractor's management and supervision of its work, support the subcontractor's field leadership, identify additional hazards, verify corrective actions, and prevent recurrence.

    - Unless otherwise directed by CGS, the additional supervision requirement will initially be implemented for a three-week evaluation period. The required hours do not need to be consecutive and may be distributed throughout the workweek based upon the work being performed and the hazards involved.

    - CGS will determine the timing and distribution of the additional supervision hours to ensure the added oversight is focused on active work, higher-risk operations, and other activities where additional supervision will provide the greatest benefit.

    - CGS may approve an alternative supervision schedule when the proposed arrangement provides an equivalent or greater level of oversight and corrective effectiveness.

    - The additional supervision shall be provided by a qualified Project Manager, Superintendent, Executive, Safety Professional, or other management representative acceptable to CG Schmidt. The individual shall have sufficient knowledge of the subcontractor's work and authority to stop work, require corrections, and direct the subcontractor's employees and supervisors as necessary.

    - During the additional supervision period, the subcontractor's representative is expected to:

        - Review the circumstances that resulted in the violation.
        - Evaluate the subcontractor's planning and supervision of the affected work.
        - Participate in applicable Pre-Task Planning and safety discussions.
        - Observe the subcontractor's active work and verify compliance with project requirements.
        - Work directly with the subcontractor's foreman and field leadership to improve hazard recognition and control.
        - Verify that corrective actions have been implemented and remain effective.
        - Communicate significant observations and corrective actions to CGS project leadership.

    - At the conclusion of the evaluation period, CGS will review the subcontractor's safety performance. The evaluation may include the effectiveness of corrective actions, quality of planning and supervision, recurrence of violations, hazard

recognition, field implementation of safety requirements, and overall compliance with project safety requirements.

- Based upon the evaluation CGS may:
  - Discontinue the additional safety supervision requirement.
  - Continue the requirement for an additional period.
  - Modify the number or distribution of required supervision hours.
  - Increase the level or duration of additional supervision when warranted by the seriousness of the violation, repeated violations, or continued inadequate safety performance.

- CGS may discontinue or modify the additional supervision requirement before the conclusion of the evaluation period when satisfactory corrective action and sustained safety performance have been demonstrated. CGS may also extend or increase the requirement when conditions, performance, or continued violations warrant additional oversight.

- The additional supervision requirements supplements and does not replace the subcontractor's required foreman, Competent Persons, Qualified Persons, safety personnel, or other supervision required by OSHA, contract documents, or CG Schmidt requirements.

- The timing and distribution of the additional supervision hours will be determined by CGS based upon the work being performed and the hazards involved. CGS may increase the amount of duration of additional supervision when warranted by the seriousness of the violation, repeated violations, or continued inadequate safety performance.

- Repeated or Continuing Violations

  - Repeated violations, failure to correct identified hazards, inadequate implementation of corrective actions, or additional serious safety violations may result in escalating corrective action, including:

    - Additional safety supervision.
    - Written corrective action or safety improvement plan.
    - Meeting with subcontractor leadership and CGS project leadership.
    - Replacement of subcontractor supervision or personnel.
    - Suspension of specific operations.
    - Removal of individuals from the project.
    - Removal of the subcontractor from the project.
    - Other contractual remedies available to CG Schmidt.

  - CG Schmidt reserves the right to immediately stop work or remove an individual from the project when conduct or conditions create a serious or imminent danger.

6.0 Crisis Communication Plan

- For review of the Crisis Management Plan, go to: CG Schmidt Crisis Management Plan.

- In the event of a serious incident, fatality, property damage, or OSHA inspection, Project Leadership must immediately notify the Safety Director and Director of Field Operations.

7.0 Drug Free Workplace

- CG Schmidt is committed to protecting the safety, health and well-being of all employees and other individuals at our workplace. We recognize that alcohol abuse and drug use pose a significant threat to achieving this goal. We have established a Drug-Free Workplace Program that balances our respect for individuals with the need to maintain an alcohol and drug-free environment.

- This organization encourages employees with drug and alcohol problems to voluntarily seek help.

- Covered Individual Workers

  - Any individual who conducts business for the organization or is applying for a position is subject to CG Schmidt's Drug-Free Workplace Program.

  - Therefore, this program is applicable during all working hours and whenever conducting business on company property at our work sites.

  - Our policy includes, but is not limited to full-time employees, part-time employees, off-site employees and union employees.

- Applicability

  - Our Drug-Free Workplace Program applies whenever anyone is representing or conducting business or representing the organization, while on call, paid standby, and while on Company property or at Company-sponsored events.

- Prohibited Behavior

  - It is a violation of our Drug-Free Workplace Program to use, possess, sell, trade and/or offer for sale alcohol, illegal drugs or intoxicants.

- Searches and Inspections

  - Entering the organization's property constitutes consent to searches and inspections.

  - If an individual is suspected of violating the Drug-Free Workplace Program, he or she may be asked to submit to a search or inspection at any time.

- Searches may also be conducted of vehicles and equipment.

- Consequences
  - One of the goals of our Drug-Free Workplace Program is to encourage employees to voluntarily seek help with alcohol and/or drug problems. If, however, an individual violates the policy, the consequences may include disciplinary action and possible termination of employment.

- Return-to-Work Agreements
  - Following a violation of the Drug-Free Workplace Program, an employee may be offered an opportunity to participate in rehabilitation. In such cases, the employee must sign and abide by the terms set forth in a Return-to-Work Agreement as a condition of continued employment.

- Assistance
  - CG Schmidt recognizes that alcohol and drug abuse and addiction are treatable illnesses. We also realize that early intervention and support improve the success of rehabilitation.
  - To support our employees, our Drug-Free Workplace Program encourages all employees to seek help if they are concerned that they or their family members may have a drug and/or alcohol problem. Requests for assistance will be handled in strict confidence.
  - Any employee who comes forward to seek assistance may be suspended without pay pending completion of a counseling assessment and the furnishing of certification by a Counselor / Physician that the employee is able to return to his or her job and perform it safely.

- Confidentiality
  - All information received by the company through the Drug-Free Workplace Program is considered confidential communication.
  - Access to this information is limited to those who have a legitimate need to know in compliance with relevant laws and management policies.

- Shared Responsibility
  - A safe and productive drug-free workplace is achieved through cooperation and shared responsibility. Both employees and management have important roles to play.
  - Employees should not report to work while their ability to perform job duties is impaired due to on- or off-duty use of alcohol or other drugs.

- In addition, employees are encouraged to be concerned about working in a safe environment and report dangerous behavior to their supervisor.

- It is the supervisor's responsibility to inform employees of the Drug-Free Workplace Program, observe employee performance, investigate reports of dangerous practices, and clearly state consequences of policy violations can be serious.

- Communication

  - To ensure all employees understand our Drug-Free Workplace Program, all employees will receive a written copy of this policy, and the policy will be reviewed in orientation sessions with new employees.

- Pre-Employment Testing

  - Applicants for employment will be required to take a pre-employment 9-panel drug test at an approved facility.

- Post-Employment Testing

  - If CGS has reasonable suspicion to believe that an employee is under the influence of alcohol or an illegal drug, that employee will be required to undergo an alcohol or other drug test and will be subject to disciplinary action up to an including suspension. Reasonable suspicion is a belief based on behavior observations or other evidence, sufficient to lead a prudent or reasonable person to suspect an employee is under the influence and exhibits such traits (as slurred speech, inappropriate behavior, decreased motor skills, etc.). Circumstances, both physical and psychological, will be given consideration.

  - CGS will also require a breath alcohol test and 9-panel drug test where an employee was involved in or caused a work related accident or where an employee was operating or helping to operate machinery, equipment, or vehicles involved in a work related accident, which resulted in a significant recordable injury as defined by OSHA regulations or significant property damage and for which cause of the accident is not readily explainable.

  - Whenever possible, before an employee is required to submit to testing under this policy based on reasonable suspicion, the employee should be observed by more than one individual.

  - Prior to being tested, an applicant or employee must sign the consent and release form authorizing and agreeing to the test. The consent and release form will be presented to the employee at the time of testing. Failure to sign this consent and release form will result in disciplinary action, up to an including termination.

  - To protect the employee's rights any test results shall be disclosed only to the testing lab, the Company, Medical Review Officer, and the employee.

- If an employee refuses to be tested for substance abuse, he or she will remain on suspension for thirty days. Continued refusal to submit to drug screening after the 30-day period, will subject the employee to disciplinary action up to an including termination.

- Positive tests for drugs other than alcohol will be confirmed through the use of a Medical Review Officer. Limits for each substance will be according to appropriate federal, state, and DOT regulations as updated. For Union Employees tested under this program, the laboratory will be one approved by the Union.

- An unbroken chain of custody including tamper proof handling methods shall be maintained. The laboratory must follow test manufacturer's instructions test administration and reporting of results. All tests indicating a positive result will be reviewed by a Medical Review Officer before being reported to the employee, Company, and if applicable the employee's Union as positive.

- At the request of any employee tested, a portion of the original specimen(s) will be preserved for private testing by the employee at his or her own expense by an independent laboratory. Tests performed at the employee's request will be admissible under grievance and arbitration procedures only if the testing laboratory is SAMHSA certified.

- Testing for alcohol content will be by blood analysis or breathalyzer. A positive test result for alcohol will be reflected by blood-alcohol content equal to or greater than current State Motor Vehicle regulation.

- If the test's result is negative, the employee shall be immediately reinstated and paid any wages and benefits that would have been paid had work hours not been interrupted by the test, to a maximum of actual work hours missed. This is considered full reinstatement.

- In the event of a positive confirmatory test for alcohol or other drugs, the tested employee will be referred to participate in the Employee Assistance Program of CGS or the appropriate Union Health Fund.

- If an employee tests positive for substance abuse and enters any required or recommended aftercare program, a negative test within 30 days will make the employee eligible for immediate reinstatement provided CGS has work available and the employee continues in any recommended aftercare program. In the event an employee enters but fails to complete a required aftercare program he/she may be subject to discharge.

8.0 Tobacco Free Workplace

- CG Schmidt is dedicated to providing a healthy, comfortable and productive work environment. Therefore, CG Schmidt is a tobacco-free campus.

- All forms of tobacco are strictly prohibited on company premises and within company buildings, including, but not limited to offices, hallways, waiting rooms, restrooms, lunchroom, elevator, meeting rooms, jobsite trailers, vehicles, and all community work areas. E-cigarettes and all other tobacco products are covered under this policy.

- This policy applies to all employees, clients, contractors, and visitors.

Module 2 – General Site Safety
OSHA 1926 Standards for Construction

1.0 Introduction
2.0 Injury / Incident Reporting and Investigation
3.0 Recording Injuries and Illnesses
4.0 Return to Work Program
5.0 Pre-Task Planning
6.0 Toolbox Safety Meetings
7.0 Employee Orientation
8.0 Stretch and Flex Program
9.0 Cell Phone Use
10.0 Housekeeping
11.0 Material Use and Waste Management
12.0 Security
13.0 Fire Prevention
14.0 First Aid and Medical Locations
15.0 Protection of the Public
16.0 Violence, Harassment, and Horseplay Are Prohibited
17.0 Sanitation
18.0 Access to Elevated Surfaces
19.0 Severe Weather
20.0 Working in the Cold
21.0 Working in the Heat
22.0 Civil Unrest

1.0 Introduction

- It is the policy of CGS to provide a safe and healthy work environment. The guidelines within this section apply to all CGS employees and subcontractors.
- CG Schmidt promotes a learning culture grounded in human and organizational performance. Employees are encouraged to report hazards, near misses, and changing conditions without fear of retaliation. The purpose of these guidelines is not only to enforce safe practices, but to promote learning, strengthen planning, and reduce error-likely situations.

2.0 Injury / Incident Reporting and Investigation

- It is CG Schmidt's policy to require the immediate treatment, investigation, and reporting of all incidents, injuries, and job-related illnesses involving CGS employees and subcontractors while on the job.

- Failure to comply with this policy may result in disciplinary action, including termination. Disciplinary action will never be taken against an employee for reporting an injury, illness, hazard, or near miss.

- Immediately after the health and well-being of the injured party is taken care of, the primary concern is the investigation and reporting of the incident according to the following:

- Procedure

  - Life Threatening or Serious Injuries

    - All life threatening or serious injuries involving a jobsite employee requires the immediate notification of the 911 operator or local ambulance service. Those employees or persons in the area that are trained in CPR and/or first aid may provide assistance in sustaining the injured employee until an ambulance arrives.

    - Once emergency services have been summoned, a foreman, superintendent, or project manager must be contacted and notified of the emergency.

    - The superintendent or project manager must immediately notify the Safety Director and Director of Field Operations of all life-threatening or serious injuries. This ensures timely OSHA notifications, internal communication, and communication with senior leadership.

    - CG Schmidt will arrange for a foreman, superintendent, or project manager to go to the hospital where the injured employee has been taken.

- The designated foreman, superintendent, or project manager will determine if the injured employees' family has been contacted regarding the emergency. That individual will either contact the injured employees' family or arrange for hospital staff to make the contact and will remain at the hospital to meet the injured employees' family.

- Non-Life Threatening or Non-Serious Injuries

  - In the event a CG Schmidt employee is injured or requires medical treatment or evaluation, that employee will be taken to the nearest designated medical facility. The injured employee must not be allowed to transport himself/herself, or arrange for transportation, to the medical facility for initial treatment or evaluation.

  - The foreman, superintendent, or project manager of the injured employee should remain at the medical facility until the injured employee has been treated and evaluated by the physician or health professional or after consultation with CGS Safety Director. If necessary, the foreman, superintendent, or project manager may need to arrange for transportation of the injured employee back to work or home.

- Notification

  - Employee Responsibility

    - The first priority in the event of an injury is to ensure that the injured employee receives the appropriate first aid or medical treatment. Reporting activities should only be initiated once appropriate medical treatment has been arranged.

    - It is the responsibility of all CG Schmidt employees to immediately report to their foreman, superintendent, or project manager the occurrence of an injury while at work.

  - Management Responsibility

    - Upon notification of an accident resulting in injury to a CG Schmidt employee, the foreman, superintendent, or project manager will contact senior management immediately. The foreman, superintendent, or project manager will complete an Incident Report based on information provided by the injured employee or witnesses.

    - An injury resulting in amputation, hospitalization, or loss of an eye must be reported to OSHA within 24 hours. Any fatality must be reported to OSHA within 8 hours.

    - It is the responsibility of the injured employees' foreman, superintendent, or project manager to completely and thoroughly investigate all injuries and incidents that occur in their area. The foreman, superintendent, or project

manager may seek the guidance of their manager or Corporate Safety Director in the event of a serious or complicated situation or if there is reason to believe that fraud is involved.

- All projects are equipped with the necessary equipment to conduct a thorough investigation.
- Evidence will be preserved until the investigation is closed.
- Witnesses will be interviewed and statements collected.
- The primary goals of an accident investigation are to fully document the incident details and to identify the factors that caused the accident to occur. Incident investigations must evaluate system contributors, precursors, and error-likely situations – not solely worker behavior. Such factors may include a lack of training of the injured employee, improperly maintained equipment, violation of a safety rule or safety procedures, or commission of an unsafe act by the injured person or other employee. CGS utilizes learning-based reviews that focus on improving planning, supervision, communication, and work methods. Once the causes have been identified and examined, the foreman, superintendent, or project manager must implement corrective measures designed to prevent the recurrence of a similar accident in the future. The reporting and investigation process will not be considered complete until corrective action has been implemented and documented.
- Upon receipt of the completed Incident Report form, the Safety Director will prepare the first report of injury form and forward to the appropriate state agency, if required. The Safety Director will also provide notification to the claims department of the insurance carrier via email, or phone, or both.
- The Safety Director will be responsible for auditing the timeliness and completeness of incident reporting. If an audit determines that a CG Schmidt employee has failed to report an injury that occurred on the job, that employee will be subject to disciplinary action, including possible termination.

- Restricted Work Activity
  - It is CG Schmidt's policy to make available restricted work (light duty) for the injured employees.
  - All medical information will be handled confidentially in accordance with HIPPA and state privacy requirements. Only individuals with a legitimate business need will be provided access to employee medical records.
  - The physician must state in writing the specific physical restrictions or limitations of the employee. Unless the restrictions call for bed rest or a total restriction of activity, the employee will be returned to work on a restricted basis.

- If the employee is returned to work on a restricted basis, CG Schmidt will attempt to find a job or task that is within the physical limitations imposed by the physician.
- When light duty has been offered to the injured employee, all absences from work for an injured employee that has been released to work with restrictions will be treated as personal absences and not as days away from work as a result of the occupational injury.

- Rehabilitation
  - CG Schmidt will support all efforts necessary to facilitate the rehabilitation of the injured employee.
  - The emphasis of the rehabilitative program will be to return the injured employee to work at the same capacity as before the injury occurred.
  - The injured employee is expected to arrange treatment dates and times around their work schedule, wherever possible.

- Suspicious Claims
  - There may be situations where a claim appears to be suspicious in nature. Possible indications include:
    - Late reporting of the claim.
    - Un-witnessed fall or strain.
    - Injuries reported at the start of shift.
    - Vague descriptions of what caused the injury.
    - Physician finds no evidence of injury.
  - If a claim appears to be suspicious in nature, the insurance company claims adjuster will be notified of the concerns regarding the claim by the Safety Director.
  - The insurance company may determine that surveillance is necessary and perform additional investigation as appropriate.
  - CGS does not tolerate fraudulent workers' compensation claims and will take appropriate action if fraudulent claims are discovered.

3.0 Recording Injuries and Illnesses

- The Safety Department is responsible for maintaining the OSHA 300 Log and Summary of Occupational Injuries and Illnesses (OSHA 300A).

- Entries will be made for all injuries and illnesses that require more than first aid treatment.

- The log will be kept current as injuries occur during the calendar year.

- The log will be posted where all employees can read it no later than February 1st of the following year and will remain in place until at least April 28th of the year thereafter.

4.0 Return to Work Program

- The policy of CG Schmidt is to provide employees who are temporarily restricted from performing some or all of their regular job due to a work-related injury, an opportunity to return to the workplace and contribute whenever practicable.

- Transitional work is defined as the period of time when the employee returns to the workplace with restrictions, modifications or in an alternative capacity until they progress back into their full job duties. Transitional work is temporary and is the graduated return to work based on the employee's progress during the recovery process. Normally, transitional work can last up to time period of transitional work, i.e. 90 days.

- Purpose and Goals:

  - Reduce the medical, disability and lost time costs

  - Reduce indirect accident costs

  - Establish a more stable workforce

  - Enhance the physical and psychological recovery process for the injured worker

  - Enhance the injured employee's sense of confidence and well being

  - Minimize the chance of re-injury

- The purpose of transitional work is to safely reintegrate injured employees into the work environment as soon as possible. It is not a respite, nor is it punitive in nature, or intended to create an undue hardship on the operations of each respective department. We will make an effort to bring our employees back to work whenever practicable. The work will be contributory and add value to our company's work efforts. The tasks that the employee performs will contribute to daily business operations in a beneficial manner.

- Return to Work Placement Process

  - Upon receiving appropriate documentation from a medical provider, the employee may RTW on a transitional work basis, normally for a period of up to company chosen timeframe, i.e. 90 days.

- To ensure that both the employee and their immediate supervisor understand the employee's work restrictions and transitional work assignment, the injured employee's medical restrictions will be communicated to their supervisor.

- Transitional work assignments may require an employee to change shifts to accommodate any restrictions. Therefore, employees working on transitional duty must be available to work any shift necessary.

- Employee Rights and Responsibilities

  - Employees on transitional work do not forego their legal rights and responsibilities to abide by all CG Schmidt policies and procedures.
    4.6.1
  - While on transitional duty, the employee will earn the same base wage rate, which could factor in a Temporary Partial Disability (TPD) payment as that of their pre-injury position, and they will continue to accrue sick, vacation and holiday time as provided under the applicable policies (or labor agreement). The employee must notify their manager/supervisor and/or human resource representative of all scheduled and unscheduled absences.

  - Employees are also subject to all applicable employment policies and procedures while on transitional duty. They are expected to participate in all treatment that is reasonably essential to promote their recovery, including but not limited to, keeping all scheduled appointments with occupational healthcare providers. Non-compliance may result in an interruption of benefits and could jeopardize the employee's ability to remain at work under this program.

  - Any and all changes in the employees' restrictions and transitional work status must be reported to their manager/supervisor and/or human resources representative immediately with the appropriate documentation. CG Schmidt reserves its ability to exercise its rights in accordance with applicable laws regarding an employee's diagnosis, treatment plan and status.

5.0 Pre-Task Planning

- One way to reduce the frequency and risk of accidents is to focus the awareness of the employees who will be performing the task on the safety concerns associated with that task.

- Pre-task planning can help evaluate awareness of potential safety hazards and how to control them.

- For every major task that employees perform, an appropriate Safety Pre-Task Planner should be performed to identify potential work hazards and describe the controls that will be used to mitigate the hazard exposure. A new Safety Pre-Task Planner is to be completed as new tasks begin, weekly for repeated tasks, as conditions change, as new people are added to the task, or as needed.

- The foreman on the jobsite is responsible for creating and reviewing the Pre-Task Planners with the crew.

- Subcontractors are required to complete the CGS Weekly Compliance Form prior to starting work for the week and submit to the CGS Project Leadership Team.

- Copies should be kept on the jobsite.

6.0 Toolbox Safety Meetings

- Instruction and training of employees is an OSHA requirement and is required on all projects.

- Conduct Toolbox Safety meetings for all employees at least once a week.

- Maintain an attendance record by having employees sign the Toolbox Safety Meeting Report or equivalent form.

- All subcontractors on site shall participate in a weekly Toolbox Talk and it is the responsibility of each subcontractor to conduct this training for their personnel.

7.0 Employee Orientation

- All CG Schmidt employees and all individuals working on CG Schmidt projects are required to attend the project specific safety orientation.

- The orientation is intended to provide an overview of the project and discuss any project specific work rules, policies, or procedures.

- The orientation includes the CG Schmidt Safety Orientation presentation and completing the safety orientation form.

- The orientation should also include items as applicable to the current construction phases being performed on the project at the time of the employee's orientation.

- This doesn't supplement or replace any training required to perform work.

8.0 Stretch and Flex Program

- Soft tissue injuries are a major source of disabling injuries and result in significant cost and lost productivity in our industry.

- Warm-up stretches before work begins reduces the incidence and severity of soft tissue injuries.

- The purpose of CG Schmidt's Stretch and Flex Program is to gently condition the muscles and the tendons of the workers before they engage in work activities.

- All CG Schmidt field personnel are required to participate in stretching exercises at the beginning of each workday.

9.0 Cell Phone Policy

- Personal cell phone use on the jobsite is restricted to break periods only.
- Work-related use of cell phones is permitted when performed in a designated safe zone away from active hazards. Devices may not be used when operating tools and equipment, or performing safety-related tasks.
- The distraction provided by the cell phone call exposes all employees to increased hazards.
- Failure to comply with this requirement is subject to disciplinary action.

10.0 Housekeeping

- A neat and orderly work site encourages safe work habits. Each project will incorporate a housekeeping action plan that will be followed by all contractors per contract language.
- Each contractor, through continual inspection and example, is responsible for assuring that trash and debris remain out of the work areas.
- Contractors are responsible for all their work areas and at times may be asked to participate in a general project cleanup.
- Dry sweeping or using compressed air to clean silica-containing dust is prohibited. Wet methods or HEPA vacuums must be used.
- If poor housekeeping practices are observed, corrective action will be discussed with the appropriate contractor to remind them that cluttered work areas will not be tolerated and that their work area(s) pose a hazard to their employees and other site personnel.

11.0 Material Use and Waste Management

- The storage and removal of project waste, trash, and/or scrap materials will be taken into consideration during the project planning phases.
- Employees and subcontractors will be made aware of the waste management procedures upon starting work on the project.
- A recycling program maybe in effect. All subcontractors are required to follow the recycling procedures outlined in the site-specific contract documents. Trash should be separated by metal, wood and general trash.
- All hazardous waste must be stored and collected in special areas.

- No hazardous material is to be abandoned on the job site.
- No waste haulers, disposers, recyclers or scavengers are allowed on the job site without the superintendent's approval.
- Employees will be trained on the proper waste disposal methods.

12.0 Security

- Each project will implement its own site-specific Security Program.
- Emergency procedures regarding serious injuries or illnesses, bomb threats, fire, flooding, or other disasters must be planned and coordinated with all project contractors through orientations and job meetings.
- Immediately notify the appropriate authorities and personnel by the most expeditious means of any serious incident by using the Crisis Management Plan.
- Prior to the job startup, the project management team must conduct an evaluation of the project site, local conditions, and contract stipulations to determine a need for the following:
    - Access Control – Gate with appropriate signs
    - Vehicle Parking
    - Identification Badges for employees per client needs
    - Fencing
    - Outside Lighting
    - Secure Storage Areas – tools and equipment

13.0 Fire Prevention

- Any fire in the workplace has the potential to cause serious personal or property damage. The best way to stop a fire is to eliminate the conditions that could create one. Housekeeping needs to be in order.
- Fire protection shall be provided at each project site including the job trailers. All extinguishers shall be conspicuously located and inspected. A 10 lb. ABC extinguisher will be required for each 3,000 sf of building, with travel distance from any area not to exceed 100 ft. and at least one extinguisher per floor, located adjacent to the stairway.
- Lithium-ion batteries must be charged, stored, and disposed of in accordance with manufacturer guidance and NFPA recommendations. Damaged, swollen, or

overheating batteries must be removed from service immediately and placed in a designated fire-safe isolation container.

14.0 First Aid and Medical Locations

- Prior to the start of the project, the superintendent, after consulting with the Safety Director, will identify and arrange for acceptable off-site medical facilities close to the construction project. The phone numbers on the Emergency phone list will be conspicuously posted and provided to all employees including the subcontractors' competent personnel.

- In the absence of a clinic or hospital near the workplace, a person or persons must be adequately trained to render first aid. When locations are within the acceptable response time of outside providers of emergency service, CG Schmidt will rely on these professionals to provide emergency services in the workplace. However, CG Schmidt has elected to have employees trained to provide first aid and CPR and require them to perform these services as part of their job duties. Training shall be conducted by a nationally accredited association (e.g., Medic First Aid, American Heart Association).

- Additionally, an adequate supply of first aid supplies must be maintained on site. First Aid kits will be staged in CG Schmidt gang boxes, break areas and/or job trailers. All kits will be checked at least weekly as a minimum by the Superintendent or Foreman. The kits will be replenished as necessary and will not be sent to an assignment in a depleted condition. Subcontractors are required to have and maintain first aid kits for use by their employees.

- Where the eyes or body of any employee may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body will be provided within the work area for immediate emergency use. This will include but is not limited to portable and fixed emergency eyewash stations. When installed, eyewash stations will be periodically inspected to ensure proper emergency operation.

- All designated basic first aid and CPR providers shall comply with the provisions of CG Schmidt's Bloodborne Pathogens Program.

15.0 Protection of the Public

- All necessary precautions to prevent injury to the public or damage to property of others shall be taken. The "Public" is defined, as all persons not employed by or under contract to CG Schmidt.

- Installation of temporary barriers and/or fencing designated to protect the Public shall be reviewed and approved by the Owner and/or their representative.

- Precautions shall include but not be limited to the following:

- Work shall not be performed in any area occupied by the Public unless specifically permitted according to the terms of the contract.

- When necessary to maintain public use of work areas involving vehicular roadways, etc., the contractor shall protect the Public in accordance with the applicable regulations.

- Appropriate warnings, signs and instrumental safety signs shall be conspicuously posted where necessary. In addition, a signal person shall control the moving of motorized equipment in areas where the public might be endangered. All signage warnings and traffic control shall comply with the agency that takes judicial precedence.

- Required signs and symbols shall be visible at all times when work is being performed and shall be removed or covered promptly when the hazards no longer exist.

16.0 Violence, Harassment, and Horseplay Are Prohibited

- Physical confrontation and harassment of any form are prohibited and will result in immediate disciplinary action.

- Horseplay and practical jokes are not allowed and will result in immediate disciplinary action.

17.0 Sanitation

- An adequate supply of potable water shall be provided on all construction sites. Portable containers used to dispense drinking water shall be capable of being tightly closed and equipped with a tap. Water shall not be dipped from containers. Each subcontractor shall be responsible for providing potable water to its crews.

- Portable toilets shall be provided for each job site using the following guidelines:

  - Toilets should be provided for employees based on the formula of 1 toilet seat and 1 urinal per 15 employees working a 40-hour week.

  - All facilities must be kept clean and sanitary at all times.

  - Any employee caught defacing or miss-using toilets will be removed from the project.

18.0 Access to Elevated Surfaces

- Access to elevated surfaces 20’ or greater should be from stairs, stair scaffold, or an aerial work platform.

- Ladders greater than 20' must be approved for use by the CGS Safety Director. Personal fall protection may be required.

19.0 Severe Weather

- Prior to beginning any work, supervisors should check NOAA weather reports and forecasts for all weather hazards and continue to monitor.
- Lightning can be unpredictable and can strike up to 10 miles from any rainfall. If there are signs of approaching thunderstorms or other sever weather, workers should not begin any task they cannot quickly stop.
- Thunder is caused by lightning.
- Seek shelter in buildings during a storm. If a safe building is not accessible, utilize a hard-topped metal vehicle with rolled up windows
- Remain in the shelter for at least 30 minutes after hearing the last sound of thunder.
- OSHA prohibits work on or from scaffolds, crane hoists, and work on top of walls during severe weather.
    - Scaffold work may continue only if a qualified person determines it is safe and personal fall protection or wind screens are provided.
    - Crane hoists may continue only if a qualified person determines it is safe.

20.0 Working in the Cold

- Anyone working in a cold environment may be at risk of cold stress.
- What constitutes extreme cold, and its effects can vary across different areas of the country. In regions that are not used to winter weather, near freezing temperatures are considered "extreme cold". A cold environment forces the body to work harder to maintain its temperature. Whenever temperatures drop below normal and wind speed increases, heat can leave your body more rapidly.
- Wind chill is the temperature your body feels when air temperature and wind speed are combined.
- Cold stress occurs by driving down the skin temperature and eventually the internal body temperature (core temperature). This may lead to serious health problems, and may cause tissue damage, and possibly death.
- Some of the risk factors that contribute to cold stress are:
    - Wetness/dampness, dressing improperly, and exhaustion.

  - Predisposing health conditions such as hypertension, hypothyroidism, and diabetes.
  - Poor physical conditioning.

- In a cold environment, most of the body's energy is used to keep the internal core temperature warm. Over time, the body will begin to shift blood flow from the extremities and outer skin to the core. This shift allows the exposed skin and extremities to cool rapidly and increases the risk of frostbite and hypothermia.
- The most common cold-induced illnesses and injuries include:
  - Hypothermia
  - Frostbite
  - Trench foot
  - Chilblain
- Symptoms of hypothermia include:
  - Being to shiver and stomp feet on the ground to generate heat.
  - As the body temperature continues to fall, symptoms worsen, and shivering will stop.
  - The person may lose coordination and fumble with items in the hand.
  - Become confused and disoriented.
  - May be unable to walk or stand.
  - Pupils become dilated, pulse and breathing slow, and loss of consciousness can occur.
  - A person could die if help is not received immediately.
- Frostbite is an injury to the body that is caused by freezing of the skin and underlying tissue. The lower the temperature, the more quickly frostbite will occur. Frostbite typically affects extremities, particularly the feet and hands. Amputation may be required in severe cases. Symptoms include:
  - Numbness in the affected body part.
  - Tingling or stinging.
  - Aching.

- Bluish or pale, waxy skin.
- Blisters may occur in the affected part, in severe cases.

- Trench foot or immersion foot is caused by prolonged exposure to wet and cold temperatures. It can occur at temperatures as high as 60 degrees if the feet are constantly wet. Non-freezing injury occurs because wet feet lose heat 25-times faster than dry feet. To prevent heat loss, the body constricts the blood vessels to shut down circulation in the feet. The skin tissue begins to die because of lack of oxygen and nutrients and due to the buildup of toxic products. Symptoms include:
  - Redness of the skin.
  - Numbness.
  - Leg Cramps.
  - Swelling.
  - Blisters or ulcers.
  - Bleeding under the skin.
  - Gangrene (foot may turn dark purple, blue, or gray).
- Chilblains are painful inflammation of small blood vessels in the skin, caused by the repeated exposure of skin to temperatures just above freezing to as high as 60 degrees. Symptoms include:
  - Redness.
  - Itching.
  - Possible Blistering.
  - Inflammation.
  - Possible ulceration in severe cases.
- To prevent cold stress:
  - Monitor weather conditions.
  - Dress properly for the weather.
  - Keep extra clothing, including underwear, handy in case you get wet and need to change.
  - Have a warm area to take break and take regular breaks if needed to warm up.

- Monitor your physical condition and that of your coworkers.
- Stay dry in the cold.
- Drink warm sweetened fluids.
- Avoid touching cold metal or wet surfaces with bare skin.

- If a person suffers cold stress:
  - Contact a CG Schmidt Foreman, Project Manager, or Superintendent for assistance and call CGS Safety Director.
  - Move the person to a warm room or vehicle.
  - Remove wet clothes and replace with dry clothes, cover with blankets. Do not cover the face.
  - If person is able to drink, provide warm sweetened drinks.
  - Place warm bottles or hot packs in armpits, sides of chest, and groin.
  - Do not rub areas affected by frostbite because it could cause more damage.
  - Do not attempt to rewarm an area with frostbite, it is better to have medical professionals rewarm and treat.
  - Do not break blisters.
  - For immersion foot, remove boots and wet socks. Dry the feet and avoid walking because this could cause tissue damage.
  - Avoid scratching. Use corticosteroid creams to relieve itching and swelling.
  - If symptoms are severe, call 911.

21.0 Working in the Heat

- Temperatures in our work areas can fluctuate during the workday, sometimes by several degrees. We need to be aware of inside temperatures as much as outside temperatures. Exposure to heat can cause illness and death. Those with history of heat illness are more susceptible than others. Everyone needs to look out for each other and themselves to ensure we are staying hydrated and healthy.

- Additional PPE to be considered is sunscreen and sunshades.

- Heat illness includes:

  - Heat stroke (most serious)
  - Heat exhaustion
  - Heat cramps
  - Heat rash
  - Heat syncope (fainting)
  - Rhabdomyolysis (muscle breakdown)
- Symptoms of heat exhaustion include:
  - Headache
  - Dizziness
  - Fainting
  - Weakness with wet skin
  - Irritability or confusion
  - Thirst
  - Nausea or vomiting
- Symptoms of heat stroke include:
  - The same as heat exhaustion plus
  - Dry skin (if you aren't sweating, it's bad)
  - Inability to think clearly
  - Unconsciousness
  - Collapse
  - Seizures
- Risk factors for heat illness include:
  - High temperature
  - High Humidity

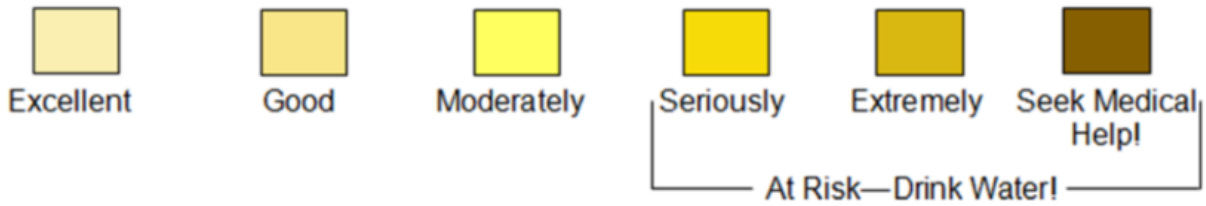
- Direct sun exposure
- No breeze or wind
- Risk increases when:
  - Physical labor is involved
  - Prior history of recent exposure to hot workplaces

- To prevent heat illness:
  - To reduce the impact that heat stress will have on the core body temperature, acclimatization incrementally increases the exposure to heat over a 7-14 day period. Acclimatized people who are not exposed to heat stress for a week or more may need some time to re-acclimatize, typically 2-3 days.
  - Provide sufficient cool water close to the work area.
    - When working in the heat plan on drinking at least one pint of water per hour.
    - If a person is drinking a lot of fluids during the workday and not urinating, they are most likely dehydrated.
    - Hydration starts the evening before. Start drinking water before coming to work and continue during the day.
    - Avoid caffeine because it dehydrates.
  - Take a break in a cool or shaded area.
  - Consider adding shade tents or umbrellas in work areas that have direct sunlight. Set up fans or misting devices that can help cool people while they work or take a break.

- If a heat illness occurs:
  - Contact a CG Schmidt Foreman, Project Manager, or Superintendent for assistance and call CGS Safety Director.
  - Move the person to a cooler or shaded area, air conditioning is preferred.
  - Remove outer clothing, fan and mist the person with water, making sure they are also drinking water.
  - Use ice bags or ice towels to help cool the person. The neck, armpits, and groin are the best areas to help cool the body.

- If the person is not alert or confused, this is severe, call 911 and implement the previous first aid steps until help arrives.

The chart below shows urine color and how to use it to interpret level of dehydration.



22.0 Civil Unrest

- Civil unrest includes riots, demonstrations, threatening individuals, or assemblies that have become disruptive.
- Perform a risk assessment:
  - Identify the risk level of the project site and take necessary proactive precautions.
- The following are indicators resulting in an increased risk level:
  - Community reaction to the project.
  - Location of the project.
    - Municipality
    - Consider surrounding buildings, neighborhoods, etc. The project could be a target of the circumstances.
  - Political aspects of the project.
  - Local Police and/or Security Expert assessment.
    - Collaborate with local Police, Fire, and Security Experts when an elevated risk is identified.
    - Share logistics, layout, access / egress points, and other specific information should an event occur.
- Site Considerations:
  - Verify “No Trespassing” and “Construction Personnel” signage are in place.
  - Identify primary and alternate muster point locations and evacuation procedures.

- Place site fencing and gates based upon the layout of the site. Some projects have natural or other manmade barriers that function as fencing.
- Perform the following daily:
  - Inspect the fence for any damage, gaps, and stability. Correct and deficiencies. Secure the fence at the end of the workday.
  - Avoid storing material or equipment along either side of a perimeter fence.
  - To minimize theft potential, assess the need to upgrade locks and chains to a product that provides the most ideal protection and/or deterrent against bolt cutters. Bolt cutters are the most common tool utilized by a typical thief.
- Consider electronic monitoring systems and technology such as video with motion activated technology, fire, intrusion alarm, and water leak detection.
  - Where video surveillance systems are in place and available ensure that:
  - Memory cards are refreshed, and video equipment has ample off-site storage / cloud backup.
  - Ensure video cameras are adjusted to focus on access / egress points, windows, doors, gates, loading docks, etc.
  - Ensure resolution settings are adjusted to allow for sufficient acuity to identify persons in various lighting conditions.
  - Ensure camera locations are not obstructed.
- Consider third party Security Guards with specialization in civil unrest.
- Provide good lighting inside and the exterior of the project.

- Project Sites With an Elevated Risk Assessment Considerations:
  - Document pre-loss conditions by taking photos of project pre-existing conditions in anticipation of a future potential fire or theft claims, as well as, maintaining inventory of high value materials, equipment, etc.
  - Adjust and limit material deliveries to minimize onsite storage.
  - Remove or empty any dumpsters prior to the end of the day.
  - Remove any ground level ladder access points to platforms, scaffold, etc. at the end of each day.

- Report to authorities any unusual activity, unaccounted for or out of place stored material such as bricks, debris, backpacks that are unattended, etc. in publicly accessible areas in or around the project.
- In situations where employees and other workers may need to remain on site in a “safe area” during a disturbance, ensure adequate water, food, and supplies are available.
- If it is necessary to evacuate the site in advance of a known event, consider the following:
  - Shut off the domestic water supply to the building and secure with a valve lock.
  - Drain domestic water lines if freezing conditions are possible and the building is to be without heat.
  - Remove fuel tanks and containers from the site.
  - Remove vehicles and other equipment.
  - Remove small objects and waste that could be used to cause damage or spread fire.
  - Remove combustible materials or store in an area less prone to damage.
  - Remove or secure all access points.
  - Document with photo and video the site conditions.

- Identifying If/When an Event Is Going To Occur:
  - Monitor news / social media for information.
  - Communicate with local Police Public Information Officer.
  - Be aware of risk factors such as:
    - Curfews in place via local executive orders.
    - Police activity in the area such as arrests, shootings, or other activity that makes the news.
    - Political elections.
- If You Observe Civil Unrest:
  - Follow the project emergency call tree for notification.

- Call 911 to request Police.
- Provide the address, location, and any details available to the dispatcher.
- If safe to do so:
  - Secure the site fencing, building, office/trailer, and work areas.
  - Secure / relocate any tools, equipment, material, and flammable liquids, compressed gas, and other fuel sources that have the potential of being used as weapons.
  - Utilize gang boxes, Conex type storage containers, or other secure methods for the above that cannot be relocated.
  - Secure / relocate any heavy equipment, scissor lifts, aerial lifts, telehandlers, etc. Remove keys and secure them.
  - Secure the base of any tower crane access points.
  - Remove any ground level ladder access points.
  - Secure or remove any exterior trash chutes to prevent access and any fires breaching the chute up into the building.
- Remain inside and away from doors and windows if the disturbance is outside.
- If the disturbance is inside the building, exit the site if safe to do so.
- Maintain accurate headcounts of all people working and/or visiting the site. Check in with each group of people on a periodic basis.
- Do not:
  - Do not provoke or become part of the disturbance.
  - Do not corner of crowd the hostile individual(s)
  - Do not attempt to touch the individual(s)
  - Do not “blow off” or ignore the hostile individual(s)
- If you are confronted by angry, belligerent, or violent individuals, use the following steps when communicating with them:
  - Remain calm.

    - Be courteous and confident.
    - Allow the opportunity for the person to express their feelings and concerns.
    - Listen respectfully and objectively.
    - Notify your supervisor as soon as you are able.

- After an Incident:
    - To ensure reliance after an incident, solicit support from risk management partners to ensure applicable insurance coverage(s) are aligned with potential risks and reviewed regarding limits and terms, at a minimum.
    - Take photos and video to document what occurred.
    - Inventory material, equipment, and tools to identify what is damaged and/or missing.
    - Identify startup procedures for systems and equipment that were shut down.
- Training:
    - Employees, subcontractors, and clients should be trained on the following:
        - This plan and what to do in the event of a disturbance.
        - Situational awareness and understanding of areas/locations to avoid where protest activity or crowds may accumulate.
        - Never walk through a large crowd or protest when entering/leaving any project or building.
    - Employees must play a defensive role relying on good communications, reporting, and surveillance.

Module 3 – Safety Committee

1.0 Introduction
2.0 Scope

1.0 Introduction

- Safety is one of the biggest issues facing our workforce today. CGS feels strongly about the safety or our employees, subcontractors, and the general public impacted by our work. We have a Safety Committee to help share the safety rules and requirements, along with developing methods to increase the wellbeing of the construction industry as a whole.

- The goal of the Safety Committee is to help facilitate effective communication, identify hazards and controls, provide training, and investigate accidents and near misses. The result is safe and healthy work sites.

- The Safety Committee also serves as a platform for employee participation. Committee activities include identifying precursors and error-likely situations, evaluating leading indicators, reviewing reported concerns, and supporting learning reviews following incidents and near-misses. Members will promote a non-retaliatory environment for hazard reporting and safety improvement.

- The committee will be made up of representatives from multiple areas within CGS, both union and non-union.

- Committee members will serve a one-year term and rotations will occur on a staggered basis. Members can serve longer than one-year terms.

- The Safety Committee will meet at a minimum of once a month.

- The Committee will be chaired by the Safety Director or their designee. Each meeting will include documented minutes, action items, assigned responsibility, and deadlines.

- The Safety Committee serves in an advisory capacity to the Safety Director and Senior Leadership. Recommendations from the Committee will be formally reviewed, tracked, and either implemented or returned with written feedback.

2.0 Scope

- Create interest in safety and health issues

- Provide advice and consultation to employees and management of safety and health issues

- Management leadership and commitment

- Accountability

- Ensuring all tasks are carried out safely and efficiently

- Safety programs, policies, and plans

- Safety processes, procedures, and practices
- Assist with the annual review of the Safety & Health Program and recommend revisions to strengthen consistency and compliance.
- Safety goals and objectives
- Safety program audits
- Review subcontractor safety performance, recurring hazards, and systemic issues to support consistent expectations across CG Schmidt projects.
- Safety tracking and metrics
- Review leading indicators—near misses, good catches, inspection results, PTP trends—and communicate emerging risks to project leadership.
- Safety communications to maintain a high level of awareness on safety
- SafeStart training and program development

Module 4 – Safety Inspections

1.0 Introduction
2.0 Procedures
3.0 Responsibility
4.0 Routine Inspections
5.0 OSHA Inspections

1.0 Purpose

- Construction by its very nature is a dynamic occupation with ever changing environments. It is vital to constantly evaluate and assess our sites to ensure they are free from recognized hazards that are likely to cause serious injury or death.

- CGS utilizes this program to assist in identifying potential hazards on the construction sites and take appropriate measures to eliminate recognized hazards.

- CGS views inspections as leading indicators that help prevent incidents before they occur. Inspections focus on identifying precursors, system weaknesses, and error-likely situations. All employees are encouraged to report hazards without fear of retaliation. CGS utilizes digital inspection systems to ensure hazards are tracked, corrected, and verified efficiently.

2.0 Procedures

- All CGS employees and subcontractors are empowered with the authority to stop work and take appropriate measures when hazards are identified. Any employee who identifies an imminent danger must stop work, notify their supervisor immediately, and ensure the area remains secured until the hazard is corrected. No employee will face retaliation for executing stop-work authority.

- A safety inspection will occur at various times by a variety of people, as it is in all of our best interests to constantly be on the look out to identify and correct hazards. CGS uses a digital inspection platform to document findings, assign corrective actions, track completion, and store records electronically. All items identified during inspections must be closed out in the system with photos, notes, or verification as applicable.

- If an imminent danger is identified, work must cease immediately. The Superintendent must secure the area, notify the Safety Director, and ensure the hazard is abated before work resumes. Imminent dangers include fall exposures without protection, trench hazards, structural instability, energized electrical hazards, crane overload or malfunction, gas leaks, or other life-threatening conditions.

3.0 Responsibility

- Safety Department
  - Assist superintendent and field staff in identifying and creating solutions to hazards.
  - Review identified hazards.
  - Review abatement procedures and ensure they were done correctly in a timely fashion.

  - Do necessary research when and if necessary to assist field staff.

- Superintendent
  - Close out all safety issues in a timely fashion.
  - Immediately dangerous to life and health (IDLH) issues are to be addressed immediately.

- Project Manager
  - Work with superintendent to ensure all safety issues are closed out in a timely fashion.
  - Work with superintendent to issue notices of non-compliance, where applicable.
  - Act as liaison between the client, superintendent, and subcontractor offices where needed.

4.0 Routine Inspections

- The basic goal of safety inspections is to identify any unsafe conditions and corrected them immediately. It is the responsibility of all field employees to inspect the job site, tools and equipment on a daily basis prior to the start of work, for unsafe conditions.

- Job site safety inspections must be conducted routinely. Look for those items on the job, which may develop into unsafe conditions that could jeopardize our employees or the employees of others.

- Look for normal wear and tear. Rope strands wear and break, scaffold lumber develops cracks and hand tools develop defects. In short, all things wear out with use. In the process of wearing out, unsafe conditions can be created.

- What actions of the workers that create unsafe conditions? This includes not only our fellow workers, but also those of other trades. Materials may be left in improper locations. Guards and barricades may be removed and not replaced. Tools may be abused, making them unsafe for further use. Safety devices may be made inoperative.

- Concentrate on those areas that are most likely to produce accidents.

- Prior to the start of work employees and subcontractors must inspect the job site for potential hazards including:
  - Electrical Equipment
    - i.e., switches, cables, grounds, open wiring, assured grounding and other elements of electrical systems

- Hand Tools
  - i.e., electric tools, wrenches, hammers, chisels and other hand tools
- Hazardous Materials
  - i.e., oxygen and acetylene tanks, solvents, lubricants and cleaners
- Material Handling Equipment
  - i.e., hoists, blocks, slings, dollies and ropes
- Personal Protective Equipment
  - i.e., hard hats, eye protection, safety shoes, welding hoods, burning goggles, safety belts, lanyards and lifelines
- Elevated Work Surfaces
  - i.e., scaffolds, planking and ladders
- Protective Structures
  - i.e., overhead protection, barricades, toe boards, safety cables and safety rails
- Floor Openings
  - i.e., hoistways, pits and other floor openings in which personnel or equipment may fall
- Storage Areas
  - i.e., all areas where company tools, equipment and materials are stored on the job site
- Safety Devices
  - i.e., safety circuits, overloads, governor and generator switches
- Work Areas
  - i.e., machine rooms, pits, unloading areas, aisle ways, areas around the hoistways and in the hoistway and fire protection
- Excavations
  - i.e., soil classifications, access/egress, protective systems, sloping benching

- Miscellaneous Equipment
  - i.e., first aid kits, space heaters, chain falls and other items not included in the other categories
- Environmental Hazards
  - i.e., gases, fumes, chemicals and other hazardous materials

5.0 OSHA Inspections

- Procedure
  - This procedure provides a checklist of steps to be taken by members of project management in handling OSHA inspections and providing necessary documentation.
    - Prepare to complete a copy of the CGS OSHA Inspection Form
    - Ask the compliance officer to wait inside the office area
    - Call the CGS Safety Director
    - Call your Project Manager/Managing Director
  - Prior to the OSHA inspection, a review of the specifics of handling the inspection must be taken by the project management during the inspection. A Corporate Representative will attend all OSHA inspections. The Corporate or Project representatives or designated alternates along with their general roles are as follows:
    - **Safety Director** – attends and acts as spokesperson at the opening and closing conferences.
    - **Safety Director/Superintendent** – will be the spokesperson during the inspection and will accompany the OSHA Inspector during the entire inspection
    - **Project Manager/Project Engineer** – will act as note taker during the inspection and will accompany the OSHA Inspector during the entire inspection
- Opening Conference
  - Note the time Inspector arrives
  - Review the Inspector's credentials carefully and record exact full name
  - Identify the type of inspection:
    - Catastrophe and/or Fatality

        - Complaint
        - Referral
        - Planned Inspection
        - Focused Inspection
    - If complaint inspection, request a copy of the complaint if not furnished by Inspector.
    - Determine the scope of inspection and priorities by requesting a verbal statement if it is not furnished by the Inspector.
    - Determine which records the Inspector wishes to see. All requested documents must be reviewed by the Safety Director prior to release to OSHA to ensure accuracy, completeness, and consistency. Provide only documents specifically requested.
    - Advise the Inspector as to whether there are employee union representatives.
    - Ensure that if the client has a Plant Manager/Building Manager, he advises the Inspector of restricted areas and requests the Inspector to advise if he wishes to photograph or make tests in these areas.
- Inspection
    - Make detailed notes of records requested, copies of records furnished and comments made by the Inspector relating to them.
    - Make detailed notes regarding the violations alleged by the Inspector.
    - Do not argue with the Inspector concerning the validity of a violation or problem; establish proof of your position by gathering evidence after the inspection.
    - Make detailed notes after the inspection of employees' complaints or comments. Be sure to note the employee's name, classification and department, nature of the complaint or comments, and the Inspector's response. A statement from the employee may be necessary at a later time.
- If testing by Industrial Hygienist occurs, make notes including the following:
    - Purpose of the test
    - Time begun
    - Test equipment utilized, manufacturers model/serial number or unit

- Name and department of employee(s) participating in test
- Specific area of project in which test made
- Location of testing equipment and distance from closest employee
- Time the test ended
- Result of the test
- NOTE: Items must be noted for every test; even if test, such as noise test, is made several times during the inspection

- When the OSHA Inspector takes photographs, ask for an explanation of the purpose of the photograph and take the same photograph from the same angle, distance, etc.
  - Make detailed notes which must include:
    - Purpose of photograph
    - Time taken
    - Area of project in which photograph taken
    - Distance and angle of camera from subject
    - NOTE: Subject of any photograph taken by Inspector and duplicate with project camera either at the same time or after Inspector leaves
- Employee Interviews
  - Employees have the right to speak privately with OSHA or decline an interview
  - Supervisors and managers do not have the right to a private interview
  - CG Schmidt may request to be present for non-private interviews where permitted.
  - Employees must be paid for their time during an interview.
- Closing Conference
  - If applicable, alleged violations must be identified as follows:
    - Determine exact nature of the alleged violation
    - Determine standard, by number, allegedly violated; or if violation is based on the general duty clause
  - Document the methods the Inspector believes will affect compliance

Module 5 – Personal Protective Equipment
1926 Subpart E - Personal Protective and Life Saving Equipment

1.0 Introduction
2.0 Dress Code
3.0 Face and Eye Protection
4.0 Head Protection
5.0 High Visibility Clothing
6.0 Hearing Protection
7.0 Hand and Arm Protection
8.0 Respiratory Protection
9.0 Protective Footwear
10.0 Fall Protection Equipment
11.0 Hazard Assessment
12.0 Training
13.0 Care of Personal Protective Equipment

1.0 Introduction

- Protective equipment, including personal protective equipment (PPE) for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers must be provided, used, and maintained in a sanitary and reliable condition.

- Each employee is responsible for the care and condition of equipment that is issued to them.

- The supervisor must perform necessary checks to insure that equipment is maintained as required and insure that equipment that is damaged is promptly replaced. Supervisors shall not allow employees to conduct tasks without the proper PPE.

- Where employees provide their own protective equipment, as authorized by their supervisors, the equipment must meet all applicable rules, procedures, standards, codes, and regulations specified in this section. Also, the proper maintenance and sanitation of the equipment must be provided.

- Personnel are to refer to this Safety and Health Program, their Pre-Task Planners, manufacturer's recommendations, and other methods to determine the appropriate PPE for the intended task.

- The following sections listing personal protective equipment and clothing (PPE) is required at all times, for all personnel while working on or visiting the construction site.

2.0 Dress Code

- All employees will wear, as minimum protection, full-length pants and short sleeve t-shirts. Cut-offs, tank tops or modified shirts or pants are not acceptable work apparel.

- No obscene, vulgar, or inappropriate displays on clothing will be allowed and will be at the discretion of CG Schmidt management.

- No large holes or tears that could catch on material or equipment will be allowed.

- Sweatpants or sweat suits are not allowed.

3.0 Face and Eye Protection

- With the exception of office or break areas, employees must wear safety glasses 100% of the time while on the construction site. Minimum eye protection must include approved safety glasses **with rigid side shields**, which meet ANSI Z87.1 **and are marked Z87+ (high-impact rated)**, including prescription safety eyewear.

- Additional eye and face protection in combination is required when:

  - Welding, burning, or cutting with torches

- Using abrasive wheels, portable grinders, or files
- Chipping concrete, stone, or metal
- Working with any materials subject to scaling, flaking, or chipping
- Drilling or working under dusty conditions
- Using explosive actuated fastening or nailing tools
- Working with compressed air or other gases
- Conducting pressure washing activities
- Other tasks where the eyes and face are at an increased risk for injury

4.0 Head Protection

- With the exception of office trailers and break areas, all people must wear approved head protection meeting the requirements of ANSI Z-89.1, CSA Z94.1, and tested to EN12492 requirements for energy absorption and penetration, with integrated chinstrap, properly 100% of the time while on the construction site.
- ANSI Z-89.1 Type 2 head protection with integrated chinstrap is acceptable.
- The employee first/last name and company must be clearly printed on the front of the head protection.
- All delivery personnel, vendors and visitors must wear approved head protection while on the project.
- Only manufacturer approved attachments may be utilized.

5.0 High Visibility Clothing

- Warning vest or other suitable garments marked with or made of reflective or high visibility material will be required for all personnel at all times or until otherwise directed by the CGS project team.
- High-Visibility safety apparel and accessories must meet the most recent edition of ANSI/ISEA 107.
- Approved high visibility colors include yellow/green, orange, and pink.

6.0 Hearing Protection

- A **Hearing Conservation Program** must be established for workers exposed at or above 85 dBA as an 8-hour Time Weighted Average (TWA). Work areas must be monitored to identify areas of high noise exposure (85 dBA and higher).

- Appropriate hearing protection must be worn in work areas where noise levels are 85 dBA or greater.

7.0 Hand and Arm Protection

- Fingers, hands, and arms are injured more often than any other parts of the body. Hand protection is required while working on the jobsite.

- Hand protection shall be selected based upon the hazard such as, but not limited to skin absorption or harmful substance, cuts or lacerations, abrasions, punctures, chemical burns, thermal burns, and harmful temperature extremes. It is the responsibility of the individuals and their Foreman or Supervisor to identify tasks on their Pre-Task Planner to identify tasks that wearing gloves may interfere such as smoothing caulk, working with tiny parts. The CGS Safety Director has the ultimate say on selection of and wearing gloves.

- Cut resistant sleeves are required to be worn during demolition operations.

8.0 Respiratory Protection

- Respirators may be worn for exposure assessments, protection from airborne contaminants, and employees may elect to voluntarily use respirators.

- When employees elect voluntary use of respirators, the respirator provided will generally be the paper filtering face piece type. Any time respirators other than paper filtering face piece respirators are used for voluntary protection, additional information must be followed in the **Respiratory Protection Program**.

9.0 Protective Footwear

- At a minimum, all people on a jobsite are to wear a sturdy protective work boot. Some jobsites and/or clients may require safety toe boots.

10.0 Fall Protection Equipment

- A full body harness and the appropriate fall protection are to be worn by all persons working at heights of 6 feet or greater where suitable work platforms cannot be provided.

- All personnel working from an aerial lift must use fall protection.

- All fall protection equipment is to be used in accordance with the **Fall Protection Policy**.

11.0 Hazard Assessment

- The Superintendent or Foreman will perform an assessment of the workplace utilizing the Safety Pre-Task Planner to determine if hazards are present, or likely to be present, which necessitate the use of additional personal protective equipment.

- This assessment will consist of a survey of the workplace to identify sources of hazards to workers. Consideration will be given to hazards such as impact, penetration, laceration, compression (dropping heavy objects on foot, roll-over, etc.), chemical exposures, harmful dust, heat, light (optical) radiation, electrical hazards, noise, etc. The Safety Pre-Task Planner includes name and date completed.

- Where such hazards are present, or likely to be present, CG Schmidt will:

  - Select, and have each affected employee use, the types of PPE that will protect the employee from the hazards identified in the hazard assessment.

  - Communicate equipment selection decisions to each affected employee.

  - Select PPE that properly fits each affected employee.

  - Train employees in the use and care of PPE as described elsewhere in this program.

- Whenever there is a change in process or in the workplace that might introduce or change an exposure or hazard, the company will perform an assessment to determine if there needs to be additional PPE provided or it there is a need for a change in the PPE provided.

- CG Schmidt will review the workplace hazard assessment on an annual basis.

12.0 Training

- Each employee who is required to use PPE will be trained in the following:

  - Why PPE is necessary

  - When PPE is necessary

  - What PPE is necessary and any alternative choices of equipment

  - How to properly don, doff, adjust, and wear PPE

  - The proper care, maintenance, storage, useful life, and disposal of PPE

- If an employee who has been trained demonstrates a lack of knowledge or behavior which leads the supervisor to believe the employee does not have a proper understanding of the PPE involved, that employee will be retrained.

- If there are changes in the workplace or processes that change the exposures or type of PPE to be used, all affected employees will be retrained.

- Training is documented.

13.0 Care of Personal Protective Equipment

- PPE will be regularly cleaned, inspected, and stored according to instructions given during the training sessions or as directed by supervisors or managers.

- Defective or damaged PPE shall not be used. Employees are to report any defective or damaged equipment to their supervisors for repair or replacement.

Module 6 – Fall Protection
1926 Subpart M - Fall Protection

1.0 Introduction
2.0 Procedure
3.0 Fall Protection Planning
4.0 Fall Rescue Plan
5.0 Equipment
6.0 Training

1.0 Introduction

- The employer must determine if the walking / working surfaces on which its employees are to work have the strength and structural integrity to support employees safely. Each employee on a walking / working surface (horizontal and vertical) with an unprotected side or edge which is 6 feet or more above a lower level must be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.

2.0 Procedure

- The project leadership ensures the installation of fall protection systems required to allow employees to perform work activities safely and must comply with all the pertinent requirements of this policy before an employee begins the work that necessitates the fall protection.

- Employees must be protected from falling during the erection, modification, or disassembly of guardrails, scaffolds, formwork, or any other walking/working surface.

- Guardrail systems and their use must comply with the following guidelines:

  - Top edge height of top rails, or equivalent guardrail system members, must be 42 inches plus or minus 3 inches above the walking / working level. When conditions warrant, the height of the top edge may exceed the 45-inch height, provided the guardrail system meets all other criteria of this policy.

  - Midrails must be installed at a height midway between the top edge of the guardrail system and the walking / working surface.

  - Toe board is no more than ¼ inch gap from the floor and at least 3 ½ inches high.

  - Uprights must be positioned at no more than 8 feet apart or per manufacturer instructions.

  - Guardrail systems must be capable of withstanding, without failure, a force of at least 200 pounds applied within 2 inches of the top edge, in any outward or downward direction, at any point along the top edge.

- Warning lines and their use must comply with the following guidelines:

  - This is a barrier on a roof to warn workers approaching an edge.

  - Will not stop a fall, only for visual purposes.

  - Used only on low slope roofs.

- Consists of ropes, wires, or chains, and stanchions erected around all sides of the roof. Ropes, wires, or chains shall be flagged at not more than 6-foot intervals with high-visibility material.
- Line is between 34 inches and 39 inches from the roof surface.
- No worker is allowed between the edge of line and roof edge unless other fall protection is in place.
- For roofers only, warning lines are to be set back minimum 6 feet from edge.
- For all other trades, warning lines are set back minimum 15 feet from edge.
- Points of access, material handling areas, storage areas, and hoisting areas shall be connected to the work area by an access path formed by two warning lines. When the path to a point of access in not in use, a rope, wire, chain, or other barricade, shall be placed across the path. The path shall be offset such that a person cannot walk directly into the work area.

- On work surfaces that do not have guardrails or other means of fall protection, employees must utilize personal fall arrest system consisting of a safety harness with a deceleration lanyard attached to an anchorage point or a fall restraint system which prevents a person from getting close enough to the edge to fall. It is to be always worn while working more than 6 feet above ground and / or floor elevations.
- Project leadership should work closely with field personnel to identify potential fall hazards and should solicit field personnel's ideas on how to provide appropriate protection.
- If a situation occurs where tie-off may not seem possible, the site manager is to review the fall hazards and tie-off capability with the appropriate project supervision to determine an acceptable solution to meet company policy, as well as federal, state and local regulations. Site management must consult with the Safety Department to help determine solutions.
- The use of a Safety Monitor is not allowed on CG Schmidt projects.

3.0 Fall Protection Planning

- Fall protection planning is to be carried out on any project where employees will be working at heights of 6 feet or greater from any location to a surface below.
- Fall protection planning is to be included as part of the site pre-task safety planning by a qualified person and is to include the following elements:
  - Identification of fall hazards in the work area.
  - Identify work areas where tie-off and use of fall protection may be difficult.

- The type of fall protection which will be used.
- The correct procedures for the assembly, maintenance, inspection, and disassembly of the fall protection system.
- The correct procedures for handling, storage, and securing of tools and materials.
- The training provided to employees on the use and inspection of fall protection equipment.
- The method of providing overhead protection for workers who may be in or pass through, the area below the work site.
- The method to be used for prompt, safe removal of injured workers.

4.0 Fall Rescue Plan

- Definitions
  - **Fall Rescue Plan** – A strategy or procedure, planned, to safely retrieve a person who has fallen from an elevated work surface and is suspended in a full body harness. This includes self-rescue or mechanically aided rescue.
  - **Mechanically Aided Rescue –** A procedure to safely retrieve a person who has fallen from an elevated work surface using mechanical means.
  - **Prompt Rescue –** The recommended goal for contact with a subject needing rescue is six minutes, per ANSI Z359.2-6.1 Fall Protection Program.
  - **Self-Rescue –** An act or instance of an employee using his or her fall protection equipment to rescue himself or herself.
  - **Suspension Trauma –** A serious medical condition that can lead to unconsciousness, injury, or death, which can occur when a worker is suspended in a harness for too long after a fall.
  - **Program Administrator** – The CGS Safety Department for CGS work and Subcontractor management for their personnel. The Program Administrator assists with identifying and monitoring fall hazards, maintenance of all related records, approve training programs, fall protection equipment and methods, and assists with the development of the site-specific fall rescue plan.
- Procedure
  - A fall rescue plan must be a part of the hazard assessment for any job that requires work at heights above 6 feet. The rescue plan includes consideration of the following rescue types and circumstances:

- **Self-Rescue –** 90% of workers will be able to perform a self-rescue when proper personal fall protection equipment is selected and utilized.
  - Climb back up to the level from which the fall occurred (from a few inches to 2-3 feet).
  - If utilizing fall protection with descent device, activate and descend to the lower level.
  - Return to the floor or ground to be evaluated for possible medical attention.
  - Remove all components of the fall arrest system impacted by the fall event from service and document the components with name, date, and activity at the time of the fall. Give the equipment to the CGS Corporate Safety Director or designee.
- **Assisted Rescue –** When the worker can climb up or down a ladder.
  - Erect a ladder below or secure rescue ladder from above the fallen worker allowing for him or her to climb onto a lower level or back to the level from which the fall occurred.
  - Return to the floor or ground to be evaluated for possible medical attention.
  - Remove all components of the fall arrest system impacted by the fall event from service and document the components with name, date, and activity at the time of the fall. Give the equipment to the CGS Corporate Safety Director or designee.
- **Assisted Rescue with Mechanically Aided Aerial Lift –** When able to bring an aerial lift into position underneath the worker.
  - A rescuer will position the aerial lift under the fallen worker ensuring a second fall protection device is available for the fallen worker.
  - Attach the second lanyard or self-retracting lifeline in the aerial lift to the fallen worker.
  - Disconnect the rescued worker from the impacted fall arrest equipment.
  - Lower the worker to the ground to be evaluated for possible medical attention.
  - Remove all components of the fall arrest system impacted by the fall event from service and document the components with name, date, and activity at the time of the fall. Give the equipment to the CGS Corporate Safety Director or designee.

- **Mechanically Aided with Rope System –** If the worker's injuries prevent the worker from self-rescue or another means is not possible, a fully assisted rescue is necessary.
    - The tripod will be set up and secured.
    - A haul line will be attached to the worker's fall arrest system directly to the D-ring on the worker's harness.
    - The worker is then raised or lowered to the appropriate work platform or ground to be evaluated for medical attention.
    - Remove all components of the fall arrest system impacted by the fall event from service and document the components with name, date, and activity at the time of the fall. Give the equipment to the CGS Corporate Safety Director or designee.

5.0 Equipment

- Fall protection equipment shall meet the requirements of applicable ANSI, ASTM, and OSHA requirements.
- Anchors are a secure point of attachment. Anchorage connectors vary by the task and what structure they are attached to. They must be able to support the intended loads of a personal fall arrest system and provide a sufficient factor of safety for fall arrest. Examples include beam anchors, web tie-off adaptors, cable tie-off adaptors, eyebolt anchor, wedge anchor, swivel roof anchor, horizontal lifeline, vertical lifeline, and the Raptor Cart. Your gear is only as good as the anchor it's attached to!
- Body support is a full body harness. Full body harnesses help to distribute fall forces over the upper thighs, pelvis, chest, and shoulders during a fall arrest event. They also provide a connection point on the worker for the personal fall arrest system when working at heights.
- Connecters include shock absorbing lanyards and self-retracting lifelines that connect a worker's harness to the anchorage. Examples include self-retracting lifelines, leading edge self-retracting lifelines, shock absorbing lanyards, positioning lanyards, and rope grabs. When rope grabs are used the rope must be properly terminated to a manufactured termination bar or the rope has manufactured eyelets and self-closing snap hook.
- Decent and Rescue devices are used to raise or lower a fallen worker to safety or retrieve them from a confined space. For those in need of rescue, time is of the essence to help ensure a safe and effective rescue. Another technique for rescue is a boom lift, scissor lift, or ladder. Choose the right descent and rescue solution for your application.
- Only Self Retracting Lifelines are to be used in mobile elevating work platforms.

6.0 Training

- Training is to be provided prior to the use of fall protection systems and equipment.
- Training will be documented including an outline of the training completed, date, and attendance.
- Re-training is provided when there are deficiencies in training, when work practices are changed or when fall protection equipment is modified.

Module 8 – Stairways and Ladders
OSHA 1926 Subpart X - Stairways and Ladders

1.0 Introduction
2.0 Ladder Work Practices
3.0 Straight and Extension Ladders
4.0 Step Ladders
5.0 Climbing on Ladders
6.0 Ladder Maintenance
7.0 Training
8.0 Stairs

1.0 Introduction

- This section provides the guidelines for selection, proper use, inspection, and maintenance of manufactured and job-built ladders. Any deviation from this policy must be reviewed and approved by the Superintendent and Safety Director prior to implementation. Deviations must be documented and supported by an alternative protective measure that provides equal or greater protection.

- Ladders and stairs must be capable of supporting intended loads, inspected for defects and be secured from slipping, sliding or tipping.

2.0 Ladder Work Practices

- All portable ladders must be rated Type IA (300 lbs) or Type IAA (375 lbs) and meet OSHA and ANSI A14 requirements.

- Wooden ladders must not be painted.

- Never use aluminum ladders to work on or near electrical installations or near exposed electrical circuits. Ladders used in proximity to energized electrical equipment must have non-conductive side-rails.

- Portable ladders must be long enough to reach the intended work location. Employees shall not stand on the top step or top cap of a step ladder and shall not stand on the top three rungs of straight or extension ladders.

- Ladders must not be placed on boxes, barrels or other unstable bases to obtain additional height.

- Portable ladders are not designed as tie-off points and shall not be used as anchorage for fall protection. If a task exposes an employee to a fall hazard requiring fall protection, an alternate access method (scaffold, aerial lift, platform ladder, or engineered system) must be used.

- When ladders are used to access upper or lower landings, the side rails shall extend at least 3 feet above the landing and be secured at the top. A corral system shall be in place at all ladder access points to prevent fall hazards.

3.0 Straight and Extension Ladders

- Extension ladders must not be taken apart in order to use the two sections separately.

- The bottom of the straight or extension ladders is to be placed with its feet approximately ¼ the ladder length away from the supporting structure (4:1 rule). Both feet must rest on a solid, level surface.

- When using a straight or extension ladder, both rails are to be placed against a surface that is capable of supporting the applied load. Do not support the ladder on the top rung.

- The top of all straight and extension ladders must be secured to prevent the ladder from slipping. Alternately, someone must hold the base of the ladder if tie-off is not possible or secure a cleat or block at the floor. Holding the base of a ladder is permitted only as a temporary measure when securing the ladder is not feasible and must be limited in duration.

- All manufactured ladders used must be equipped with approved safety feet. Job-built ladders must be secured to prevent slippage.

4.0 Step Ladders

- Step ladders are to be fully opened, spreaders locked and placed so all four feet are level.

- Lean-Safe ladders are to be used per manufacturer guidelines.

- Step ladders shall only be used in accordance with the manufacturer's intended design and load rating. Leaning or using step ladders in a folded or partially opened position is prohibited unless specifically designed for that use.

5.0 Climbing on Ladders

- Only one person is allowed on a ladder at a time, except step ladders that have been designed for both sides to be used and manufacturer's guidelines are followed.

- Each employee is to have three points of contact on the ladder when traveling up or down the ladder.

- Always face the ladder when climbing up or down, and when working on the ladder.

- Get off ladders to move them. Never "walk" a ladder.

- When reaching from a ladder to do work, always keep the trunk of your body between the ladder rails.

- When a ladder is used to gain access to an elevated structure, such as a roof, the top of the ladder must extend at least three feet above the point of support.

- Barricade or guard ladders against being bumped when placed in aisles, walkways, roads or at a doorway.

- The person setting the ladder is responsible for ensuring barricades or controls remain in place for the duration of ladder use.

6.0 Ladder Maintenance

- Ladders that have loose parts needing tightening may be repaired and defective parts may be replaced.
- Ladders with broken or bent side-rails or damaged steps must be discarded.
- Defective ladders must be immediately tagged “Do Not Use” and removed from service until repaired or discarded.

7.0 Training

- Employees using ladders must be trained on ladder selection, inspection, setup, proper use, load limits, and recognition of ladder-related hazards. Retraining is required when unsafe ladder use is observed, equipment changes, or conditions warrant. Training must be documented.

8.0 Stairs

- Any travel area with a break in elevation of 19 inches or more shall be provided with a designated stairway in accordance with OSHA 1926.1051. Any stairway or stair system with four or more risers, or that rises more than 30 inches, shall be equipped with handrails and guardrail systems meeting OSHA requirements.
- All job and storage trailers must have approved, secured, stairs and decks with handrails and platform guardrails.
- All stairways must be kept clear and free of obstructions. Storage of materials in stairways is prohibited.

Module 9 – Scaffolds and Mobile Elevated Work Platforms
OSHA 1926 Subpart L - Scaffolds

1.0 Introduction
2.0 General Procedures
3.0 Erection/Dismantling
4.0 Platform Construction
5.0 Access
6.0 Fall Protection
7.0 Protection From Falling Objects
8.0 Fixed Scaffolding
9.0 Suspension Scaffold
10.0 Mobile (Rolling) Scaffold
11.0 Mobile Elevated Work Platforms
12.0 Training

1.0 Introduction

- All employees working on a scaffold or mobile elevated work platform must be trained on safe use. This is to ensure not only the safety of the workers on the scaffold, but also those around them.

- All scaffolding is to either follow an existing design or be designed by a professional engineer. When pre-manufactured scaffolding is used, manufacturer's guidelines are to be followed. All aspects of the scaffold design are to comply with OSHA regulations 1926 Subpart L.

- A competent person is to be designated to supervise the erection, moving, alteration and dismantling of scaffolding, as well as, the supervision of day-to-day work activities on the scaffolding. In addition, the use of this equipment must conform to OSHA regulations.

- As the Controlling Employer, CG Schmidt is responsible for ensuring scaffolding and mobile elevated work platforms used on its projects comply with OSHA requirements, regardless of which employer erected or is using the equipment.

2.0 General Procedures

- A designated competent person is to supervise erection of scaffold.

- While work is being performed on the scaffolding, the competent person is to inspect the scaffolding daily, or prior to each use.

- The competent person will affix an appropriate tag to the scaffold.
    - Red Tag: do not use
    - Yellow Tag: OK to use, follow written guidelines
    - Green Tag: OK to use

- Only the designated Competent Person may install, modify, or remove scaffold tags.

- The following are requirements for Mast-Climber Inspections:
    - All Units require an Annual Inspection to be performed by a Qualified Technician no later than 13 months from the previous Annual Inspection.
    - All Bridges require an Annual Inspection to be performed by a Qualified Technician no later than 13 months from the previous Annual Inspection.
    - All Units and Bridges require frequent inspections every 3 months while in use or not.

- All Units and Bridges require a daily inspection every day it is in use prior to work starting.
- These Inspections must be documented in accordance with the manufacturer requirement.
- Maintenance and Inspection logs must be kept on record.
- Operation of mast climbers is prohibited if inspection documentation is missing or out of date.

3.0 Erection/Dismantling

- The competent person is responsible for supervising the proper erection, moving and dismantling of the scaffolding. This responsibility includes the following:
  - Inspect the scaffold and its components for defects and wear before each use.
  - Immediately have any worn or damaged scaffolds or scaffold components repaired or replaced.
  - Never move the scaffold while employees are on it.
  - Never erect scaffolding in close proximity to power lines. If there are power lines in the general vicinity of the scaffolding the competent person is to ensure the proper clearance between the scaffolds and power lines.
  - Employees involved in scaffold erection and dismantling must be protected from fall hazards when feasible and when such protection does not create a greater hazard, as determined by the Competent Person.

4.0 Platform Construction

- Scaffolding work platforms are to meet the following criteria:
  - Each platform on all working levels shall be fully planked or decked between the front uprights and the guardrail support. This does not apply when platforms are used solely as walkways by employees performing scaffold erection or dismantling.
  - Each scaffold plank will be installed so that the space between the adjacent planks and the space between the platform and uprights is no more than 1” wide.
  - The front edge of all platforms will not be more than 14” from the face of the work, unless there is a guardrail or personal fall arrest system in place. Plastering and lathing operations can be 18” from the face of the work.
  - Platforms and walkways are to be a minimum of 18” wide.

- Platform planks shall extend more than 6” and not more than 12” past the end support unless planks are hooked, cleated or otherwise restrained. For spans over 10’, planks can project up to 18” past the end support. Planks may extend further past the end supports if handrail is used to block access to the cantilevered end of the plank.
- When adjacent planks are overlapped, overlap must occur directly over a support.
- Overlapped planks must overlap more than 12” or must be secured.

- If any of these platform requirements cannot be met, employees must use personal fall arrest systems while working on the platform.
- Scaffold platforms must not be overloaded beyond the manufacturer’s rated capacity, including personnel, tools, and materials.

5.0 Access

- When scaffold platforms are more than 2’ above or below a point of access, a safe means of access shall be provided. Safe means of access include:
  - Ladders
  - Ramps and walkways
  - Stairs
  - Direct access from another scaffold
- Because safe access is to be provided to both the working employees and those employees erecting and dismantling the scaffolds, the site supervisor/foreman will ensure the following:
  - General Access
    - Stairways, ramps, portable ladders, hook-on ladders and attachable ladders will be positioned so as not to tip the scaffold.
    - All stair rail systems and handrails will be surfaced to prevent injury from punctures or lacerations, and to prevent snagging of clothing.
    - Ladders integral to the framework of the scaffolding are to have uniform rung spacing and are to be vertically aligned between platforms. It is unacceptable to have the ladder section of the framework switch from side to side between platforms.
    - Cross braces are not to be used as means of access.
  - Erection and Dismantling Access

- A safe means of access will be provided where it is feasible and does not create a greater hazard.
- The competent person will determine whether a safe means of access is feasible and safe based on the site conditions and the type of scaffold being erected or dismantled.
- Hook-on attachable ladders shall be installed as soon as scaffold erection has progressed to a point that permits safe installation and use.
- Cross braces are not to be used as means of access.

6.0 Fall Protection

- Fall protection is required on scaffold platforms more than 6 feet above a lower level and during access where required by OSHA or the scaffold design.
- Fall protection consists of either a guardrail system or the use of personal fall arrest systems.
- Guardrail systems are to be installed along all open sides and ends of platforms.

7.0 Protection From Falling Objects

- Work on scaffold platforms poses a hazard of falling tools, materials and debris to employees working below the platform.
- In addition to requiring the use of hardhats in areas below scaffold platforms, workers are to be protected from falling objects in the following ways:
  - When possible, the area below a scaffold platform is to be cordoned off and personnel are not to be allowed in the area.
  - If an exclusion zone is not possible, toeboards are to be installed around the edge of the work platform.

8.0 Supported Scaffolding

- Supported scaffold must be completely self-supporting. Scaffold may not be propped up (shored) with supports or lean against the building or work surface for support.
- Supported scaffolds with a height to base width ratio of more than four to one (4:1) must be restrained from tipping by guying, tying, bracing or equivalent means.
- Supported scaffold poles, legs, posts, frames and uprights must bear on base plates, mudsills, or other adequate firm foundations.

- Footings are to be level, sound, rigid and capable of supporting the loaded scaffold without settling or displacement.

9.0 Suspension Scaffold

- A written scaffold plan is to be developed when suspension scaffolding is to be used.
- At a minimum the plan is to cover the following issues:
  - Detailed design of the scaffold, placards and weight limits must be attached to the unit
  - Detailed procedures for installing, moving and dismantling the scaffold
  - General rules for use of the scaffold
  - Employees working from suspension scaffolds must use a personal fall arrest system independent of the scaffold support system.

10.0 Mobile (Rolling) Scaffold

- The maximum platform height is not to exceed 4 times the minimum base dimension. Outriggers may be used to increase the minimum base dimension.
- The minimum platform width is not to be less than 20."
- Scaffold is not to be moved with employees on the scaffold. All equipment and materials are to be secured before moving the scaffold.
- Never pull scaffold from the top. Always push at the base.
- Wheels or casters on mobile scaffolds must be locked when the scaffold is in use.

11.0 Mobile Elevated Work Platforms (Scissor and Aerial Lifts)

- The following general procedures apply to all operations involving scissor lifts and aerial lifts, which include extensible boom platforms, aerial ladders, articulating boom platforms, vertical tower and a combination of devices:
  - All employees using MEWPs are to be trained in their safe operation.
  - In addition to general MEWP training, employees are to be instructed in the control of a given MEWP before operating the MEWP.
  - MEWPs are not to be field modified.
  - Both ground and platform level controls are to be tested each day before use.

- When working from an extensible and articulating boom platform, 100% tie-off is mandatory. Only self-retracting lifelines are permitted.
- All work is to be performed from inside the guardrails of the MEWP with feet on the floor of the platform. Exception is when equipped with manufacturer approved equipment for personal fall protection outside of the guardrails.
- Load limits specified by the manufacturer are not to be exceeded.
- Ground conditions must be evaluated for stability, slope, and support prior to MEWP use.
- Equipment will have a working alarm when moving or use a spotter on the ground level.
- Only 1 person is permitted to be on a scissor lift while traveling between work areas. Additional personnel shall function as a spotter ensuring a clear path of travel.
- Where overhead hazards exist while the scissor lift is in the down position, an evaluation shall be made to determine if the operator can operate the scissor lift from the ground.

12.0 Training

- All employees who will perform work on scaffolding or MEWPs are to receive training to ensure that work is performed safely.
- At a minimum, the training is to cover the following topics:
  - The nature of potential fall hazards, overhead hazards, stability, falling object hazards, and electrical hazards in the work area.
  - The correct procedures for dealing with these hazards including the proper method for erecting, using and disassembling fall hazard and falling object hazard protection systems.
  - The importance of being conscious of and not exceeding the load limits of scaffolding and MEWPs.
  - This training can be improved on site as the topic of a toolbox safety meeting.
- If the competent person in charge of work performed on a given scaffold sees condition, behavior, or work practices that cause him/her to suspect employees lack the training necessary to work safely on the scaffolding lifts, additional training is to be provided.
- If unsafe conditions or use of scaffolding is observed, the involved employees will be re-trained on the particular scaffold system.

- Retraining is required when equipment changes, work conditions change, unsafe behavior is observed, or an employee demonstrates a lack of understanding. Training must be documented.

Module 10 – Electrical
OSHA 1926 Subpart K - Electrical

1.0 Introduction
2.0 Qualified Person
3.0 Training
4.0 Safe Work Practices
5.0 Use of Equipment
6.0 Safeguards for Personal Protection
7.0 Assured Equipment Grounding Conductor Program
8.0 GFCI – Ground-Fault Circuit Interrupter
9.0 Temporary Lighting and Wiring
10.0 Job Wide Extension Cord Clean Up

1.0 Introduction

- All employees who work with electrical conductors and associated equipment are to understand safe work practices relative to their job assignments.

- Electrical safety requirements that are necessary for the practical safeguarding of employees involved in construction work are divided into four major divisions regarding installation safety requirements, safe work practices, environmental and maintenance considerations, and special equipment.

- CG Schmidt employees are not permitted to work on or near exposed energized electrical components. Electrical work involving energized conductors must be performed only by qualified electrical subcontractors in accordance with OSHA requirements.

2.0 Qualified Person

- Qualified persons (Electricians) may be permitted to work on or near exposed energized conductors with adequate training and protection.

- Unqualified persons (Non-Electricians) are not to work on or near exposed energized conductors.

- CGS Schmidt does not employ qualified electricians as defined by OSHA 1926 Subpart K. All work involving exposed energized electrical conductors must be performed by qualified electrical subcontractors. CG Schmidt employees are prohibited from performing energized electrical work.

3.0 Training

- CG Schmidt employees shall be trained to recognize electrical hazards, maintain required clearances, verify de-energization, and coordinate with qualified electrical subcontractors. CG Schmidt employees shall not perform energized electrical work.

- In some cases, de-energizing may be unfeasible due to design or operational limitations.

- If employees must work on energized conductors, training will include safe work practices to be used to protect the employee from exposure to the electrical hazards.

- Only trained, qualified employees are to work on energized electrical conductors.

- Training for employees shall include:

    - Company lockout and tagout policy

    - Personal protective equipment specific to electrical exposure

- Insulating and shielding equipment and tools
- Proximity to overhead lines
- Company Assured Grounding Program
- Safety related work practices, including proximity to energized conductors
- How to identify energized equipment from non-energized equipment
- Determination of nominal voltages

- Training is also to be job specific, identifying actual potential exposures on the project and methods of exposure prevention and protection. This training may be accomplished through on the job training sessions, such as foreman toolbox safety meetings or by classroom safety training.

4.0 Safe Work Practices

- Live conductors that an employee may be exposed to shall be de-energized by a qualified person prior to employees working on them.

- Exceptions are allowed only when de-energizing conductors introduces additional or increased hazards, or de-energizing is infeasible due to design or operational limitations.

- Working on Energized Conductors

  - Only qualified electrical subcontractor personnel may work on energized conductors. CG Schmidt employees are prohibited from performing energized electrical work.

  - Any energized electrical work performed by subcontractors must be supported by the subcontractor's energized work permit and approved by CG Schmidt Safety Management prior to work.

  - If exposed energized conductors cannot be de-energized, other safe work practices are to be used to protect exposed employees.

  - The Company Lockout / Tagout Policy is to be adhered to at all times. Conductors not locked and tagged out are to be treated as energized.

  - If work is to be performed closer than OSHA regulations allow, the lines are to be de-energized and grounded, or other protective measures taken. Protective measures include grounding, isolating, and insulating to prevent employees from contacting overhead lines directly with any part of their body or indirectly through conductive materials, tools, or equipment.

- Any vehicle or mechanical equipment capable of having parts of its structure near overhead lines is to be operated to assure a minimum 10-foot clearance. Exceptions to this policy are to be coordinated with the Corporate Safety Director.

- Employees may not enter areas with exposed energized conductors unless adequate lighting is provided.

- When working in confined spaces with exposed energized conductors, employees shall use protective shielding, barriers, and insulating materials as necessary to avoid contact. Doors, hinged panels, and other equipment are to be secured to prevent contact between the employee and energized conductors.

- Conductive materials and equipment that are in contact with any part of an employee's body are to be handled in a manner to prevent contact with energized conductors or circuit parts. When handling long dimensional material, such as ducts and pipes, employees are to use safe work practices to prevent incidental contact with energized conductors. This may include use of insulating materials, grounding, and special material handling requirements.

- When used in an area with exposed energized conductors, all ladders shall have nonconductive side-rails.

- Conductive clothing and jewelry, such as rings, key chains, metal headgear, and watchbands, are not to be worn by employees working around exposed energized conductors.

- Employees are not to perform housekeeping duties close to exposed energized conductors unless specific safe work practices have been implemented to prevent employee contact with the hazard.

- Electrical safety interlocks are only to be bypassed by a qualified employee and then only temporarily while the qualified employee is working on the equipment. The interlock system is to be returned to the operable safe condition when the work is completed.

5.0 Use of Equipment

- Portable Electric Equipment

  - Portable equipment is to be handled in a manner, which does not damage the flexible cords.

  - Portable electrical equipment is to be inspected prior to each use.

  - If damage to equipment is identified, the equipment is to be removed from service until repaired.

  - Attachment plugs and receptacles having grounding conductors are not to be altered or damaged. If altered or damaged, they are to be removed from service.

- Adapters, which interrupt circuit continuity, are not to be used.
- Employees are authorized and expected to remove damaged electrical equipment from service immediately.

- Electric Power and Lighting Circuitry
  - Load rated switches, circuit breakers, and other equipment specifically designed as a means of disconnection are to be used for opening, reversing, or closing circuits under load.
  - When a circuit is "tripped" and de-energized, the cause of the circuit tripping is to be determined prior to energizing.
  - Over-current protection of circuits is not to be modified.

6.0 Safeguards for Personal Protection

- All live electrical wiring shall be enclosed and protected against accidental contact.
- Qualified electrical subcontractors performing electrical work shall comply with NFPA 70E requirements. CG Schmidt employees shall maintain required clearances and avoid exposure to energized components.
- Protective equipment is to be maintained in a safe, reliable condition, and inspected prior to each use.
- Employees working in areas where there is potential exposure to electrical hazards are to use insulated tools and handling equipment.
- Employees are to be alerted to electrical hazards by the use of signs and tags.
- Employees shall maintain a safe clearance of at least 10’ when working in an elevated position near energized overhead lines.
- In locations where it is necessary to prevent or limit employee access to work areas, barricades are to be used.

7.0 Assured Equipment Grounding Conductor Program

- Either ground fault circuit interrupters or an assured grounding conductor program shall be used to protect employees on construction sites.
- All flexible cords (i.e., extension cords, power tool cords, etc.) are to be visually inspected daily by the user. The inspection shall consist of, but not be limited to, checking for the following:

- Missing ground prong on cord plug
- Damaged insulation
- Indication of possible internal damage (i.e., stretching, kinking)
- Damaged plugs
- Broken, cracked or burned receptacles

- Any cord or tool failing inspection must be immediately removed from service until repaired or replaced.

- Equipment connected by cord and plug, which are not part of the permanent wiring of a building, or structure shall be tested to assure proper grounding. These tests shall be conducted as follows:
  - All equipment-grounding conductors shall be tested to assure electrical continuity.
  - Receptacles, including those on power distribution boards, shall be tested for correct attachment of the equipment-grounding conductor.
  - Power tools and cords will also be tested for correct polarity.

- Tests shall be documented by means of color-coding and logged in the inspection log. The following color-coding system will verify that all testing is current. On all properties other than MSHA, the color-coding schedule is:
  - January- March White
  - April – June Green
  - July- September Red
  - October- December Orange

8.0 GFCI – Ground-Fault Circuit Interrupter

- All 120-volt, single-phase 15 and 20-ampere receptacle outlets on construction sites, which are not a part of the permanent wiring of the building or structure and which are in use by employees, shall have approved ground-fault circuit interrupters for personnel protection.

- All extension cords, tools, etc. plugged into permanent power shall have GFCI protection at the source of that power.

9.0 Temporary Lighting and Wiring

- The electrical contractor is responsible for providing a minimum of 5 foot-candles of illumination for the project. Subcontractors are required to provide additional lighting as may be required.

- The provisions of this paragraph do not apply to conductors which form an integral part of equipment such as motors, controllers, motor control centers and like equipment.

- No wiring system of any type shall be installed in ducts used to transport dust, loose stock, or flammable vapors. No working system of any type shall be installed in any duct used for vapor removal or in any shaft containing only such ducts.

- The feeder shall originate in a distribution center. The conductors shall be run as multi-conductor cord or cable assemblies or within raceways.

- Receptacles shall be of the grounding type. Each branch circuit shall contain a separate equipment-grounding conductor and all receptacles shall be electrically connected to the grounding conductor.

- Temporary lighting receptacles are to be used for temporary lighting only.

- Disconnecting switches shall be installed to permit the disconnection of all underground conductors of each temporary circuit.

- All lamps for general illumination shall be protected from accidental contact or breakage.

- Electric cords shall not suspend temporary lights unless cords and lights are designed for this means of suspension.

- Flexible cords and cables shall be protected from damage. Sharp corners and projections shall be avoided. Flexible cords and cables may pass through doorways or other pinch points if protection is provided to avoid damage.

- Extension cord sets used with portable electric tools and appliances shall be of three-wire type and shall be designed for hard or extra hard usage. Flexible cords used with temporary and portable lights shall be designed for hard or extra hard usage.

- The National Electrical Code, ANSI/NFPA 70, in Article 400, Table 400-4, lists various types of flexible cords, some of which are noted as being designed for hard or extra hard usage.

10.0 Job Wide Extension Cord Clean Up

- All contractors will participate in a job wide extension cord clean up on a regular basis determined by the CGS Superintendent or Corporate Safety Director.

- All extension cords will be picked up, inspected, and properly stored at the end of the work shift.
    - Exception: extension cords utilized for temperature control or a critical task are to be inspected, but left in place.

Module 11 – Lockout / Tagout
1910.147 - The Control of Hazardous Energy (Lockout/Tagout)

1.0 Introduction
2.0 Responsibility
3.0 Procedures
4.0 Training
5.0 Requirements

1.0 Purpose

- A Lockout / Tagout program is in place to safeguard employees from hazardous energies when performing work. This program identifies the procedures and practices that are used to shut down and lock and tag out machines, equipment, pipelines, and conduits. The purpose of this program is to ensure that all hazardous energy sources, including electrical, mechanical, hydraulic, pneumatic, thermal, chemical, and gravity energy are isolated, locked, tagged, and verified before work begins.

- Before servicing or maintenance is performed on machinery or equipment, or work must be performed where there is a risk of engulfment, equipment is required to be turned off, and the area is isolated. All devices that would provide energy are locked out and tagged out. Employees are required to comply with all restrictions and limitations.

2.0 Responsibility

- Authorized Employee: An employee who locks or tags out machines or equipment in order to perform servicing or maintenance.

- Affected Employee: An employee whose job requires them to operate or use a machine or equipment on which servicing or maintenance is being performed, or whose job requires them to work in an area where such servicing or maintenance is being performed.

- Other Employees: Employees whose work operations are or may be in an area where energy control procedures are being utilized.

- The Safety Director shall ensure that appropriate personnel receive instructions on their roles and responsibilities. **All persons installing a lockout / tagout device shall date, print their name and company, and sign their names on the tag.**

3.0 Procedures

- The authorized employees will notify all affected employees that a machine or equipment is going to be shut down and a lockout / tagout system will be implemented and explain why.

- An authorized person shall:

  - Identify the type and magnitude of energy

  - Understand the hazards of the energy

  - Know the methods to control the energy

  - Use the normal stopping procedure of the machine or equipment

- Isolate the machinery or equipment from the energy source
- Lockout the energy source with each authorized employee's assigned individual lock and then place a tag stating the reason for the lock. If more than one individual is required to lockout / tagout equipment, each should place his or her own lock on the isolating device.
- Be responsible for employees working under the protection of a group lockout or tagout device.
- When group lockout/tagout is used, a primary Authorized Employee shall be designated and is responsible for coordinating lockout activities, ensuring continuity of protection, and verifying isolation before work begins.
- Release or restrain all stored or residual energy (e.g., capacitors, springs, elevated parts, hydraulic pressure, pneumatic pressure) before servicing or maintenance begins.
- Ensure that no personnel are exposed to machinery or equipment.
- Verify isolation by attempting to start the machine or equipment using normal operating controls, then return controls to the "off" or neutral position.
- Complete the task.
- Energy control procedures shall be inspected at least annually by an Authorized Employee other than the one using the procedure. The inspection shall include a review with affected employees and be documented.

- After the job is complete, check all areas around the machinery or equipment to ensure that no one is exposed.
- Remove all tools, equipment, and unused materials and perform appropriate housekeeping.
- Ensure that no employees are exposed to machinery or equipment and notify all affected employees that lockout controls are going to be removed.
  - Remove tag and lock by the individual authorized employee only.
  - Re-energize the machinery or equipment.
  - If machinery is in good working order, notify affected employees that normal operations can be continued.
- For a simple lockout / tagout and where more than one person is involved with the job, each person shall install his or her own personal lockout / tagout device. A "tree device" shall be used so all locks can be applied.

- When lockout / tagout extends for more than one day, the lockout / tagout shall be verified to be still in place at the beginning of the next day. Where the lockout / tagout is continued on successive shifts, the lockout / tagout is considered to be a complex lockout / tagout. For extended or multi-shift lockout/tagout, a designated Authorized Employee shall be responsible for continuity of protection, shift-to-shift communication, and verification that energy control remains effective.

- If a lock is left in place and the Authorized Employee is unavailable, removal may occur only after the following steps are completed:

  - Verification that the employee who applied the lock is not present on site.

  - Best effort to contact the employee.

  - A hazard assessment confirming it is safe to remove the lock.

  - Approval by the CG Schmidt Superintendent and Safety Director.

  - Notification to the employee before they return to work.

  - Documentation of the removal.

4.0 Training

- Training shall be provided based on employee role. Authorized Employees receive detailed training on energy control procedures and device application. Affected and other employees receive training on recognizing lockout/tagout devices and understanding restrictions related to locked or tagged equipment.

- Documented training is to occur prior to initial assignment and if there is a change in job assignments, in machines, energy control procedures, or a new hazard is introduced.

- Recommended training can include, but is not limited to the following:

  - Recognizing lockout / tagout

  - Installing lockout / tagout devices

  - Duties of employees in executing procedures

  - Authorized and unauthorized removal of lockout / tagout devices

  - Employee lockout / tagout methods

  - Any required training

- Retraining is required when there is a change in job assignment, change in procedure, or a new hazard is introduced.

5.0 Requirements

- Supervisors, Foreman, and Superintendents ensure that work procedures that require the use of lockout / tagout be conducted as specific to this program.

- Employees are required to comply with the provisions of this program. The authorized employees who use the lockout / tagout procedures must comply with the program's uses, restrictions, and limitations. Other employees must comply with the restrictions and not attempt start-up or energize any equipment.

- Subcontractors performing work for CG Schmidt must use a lockout/tagout program that meets or exceeds OSHA requirements. CG Schmidt will coordinate lockout/tagout activities with subcontractors when work involves shared equipment, energy sources, or overlapping operations.

Module 12 – Industrial Hygiene
1926 Subpart D - Occupational Health and Environmental Controls
1926 Subpart Z - Toxic and Hazardous Substances
1910.95 Occupational Noise Exposure
EPA.gov

1.0 Introduction
2.0 Asbestos
3.0 Lead
4.0 EPA Lead Renovation Repair and Painting Program
5.0 Silica
6.0 Hexavalent Chromium
7.0 Carbon Monoxide
8.0 Hearing Conservation Program
9.0 Mold
10.0 Water Intrusion Prevention and Mitigation

1.0 Introduction

- The purpose of this procedure is to outline the Industrial Hygiene (IH) process, including resources to accomplish the purpose of this section. This procedure provides instruction to establish guidelines for IH surveillance and subsequent analysis of materials present or potentially present at CGS projects.

- Industrial hygiene evaluations, sampling, and exposure assessments shall be coordinated through the Corporate Safety Director. When regulated exposures are suspected or confirmed, a qualified third-party industrial hygienist shall be engaged as required by applicable OSHA standards. Supervisors and employees are not authorized to independently perform exposure determinations.

2.0 Asbestos

- The Federal Occupational Safety and Health Administration established a standard which controls construction worker exposure to asbestos. This standard applies to all employees who work in areas in which asbestos had been determined to be present.

- Asbestos is any material containing one or more of asbestos, chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that has been chemically treated and/or altered. Exposure to these chemically treated materials has the potential to cause lung cancer, asbestosis, mesothelioma, and cancer of the stomach and colon.

- Asbestos containing materials can be found in pipe insulation, floor tile, sound proofing, pipe and boiler materials, and between walls.

- In the absence of testing data, suspect materials shall be treated as presumed asbestos-containing material (PACM) until proven otherwise.

- It is the policy of all Projects to prevent exposure of employees to asbestos.

- Employees are to be trained to identify material, which may be asbestos.

- The testing, encapsulation, and/or removal will be done by a licensed, trained asbestos abatement contractor. CGS employees will not disturb asbestos containing material in any way.

- Abatement contractor is responsible for ensuring the containment of any abatement procedures to eliminate possible exposure to other people working in the area.

- If the containment is inadequate all abatement work is to be stopped until containment is secure.

- Supervisor’s Responsibilities

- Ensure that all employees are aware of the hazards of asbestos when asbestos is known to be present in the workplace.
- Assure notification of EPA, state regulatory authorities, the client, and Corporate Safety Director when asbestos is encountered.
- Train employees in identification of suspected asbestos material and subsequent safe work procedures.
- Assure testing and monitoring is performed in compliance with state and federal laws whenever our employees are working in areas where concentrations of asbestos may reasonably be expected to exceed Permissible Exposure Limits (PEL).
- Assure removal and monitoring by licensed, trained asbestos abatement contractors.

- Safety Department
  - Responsible for developing, implementing, and monitoring the asbestos program.
  - Assist supervisors with preventing employee exposure to asbestos.
  - Assist supervisors in coordinating the asbestos abatement and monitoring program.

3.0 Lead

- This procedure establishes uniform guidelines for complying with the requirements of the Occupational Safety and Health Administration (OSHA) Standard for Lead in the Construction Industry, Title 29 CFR 1926.62 of the Code of Federal Regulations and provides organization-wide guidelines to protect employees from the excessive exposure to Lead when working on a construction site.
- This procedure applies to all Company operations.
- Lead exposure controls, monitoring, and protective measures shall be implemented based on task-specific exposure assessments in accordance with 29 CFR 1926.62. Protective measures will be commensurate with the actual exposure potential and regulatory requirements.
- Every consideration will be given to the use of utilizing engineering controls to eliminate the Lead hazards to the point where personal protective equipment and respiratory equipment is not required.
- When feasible engineering controls are not effective in controlling the Lead exposure, then appropriate personal protective equipment and respirators will be provided.

- Employees required to utilize appropriate Personal Protective Equipment due to the potential exposure to Lead or other toxic substances will use the equipment in the prescribed manner and extend reasonable care to maintain it in serviceable condition as a condition of employment.

- The CG Schmidt Corporate Safety Director will have the responsibility to oversee that this procedure is implemented, monitored, and enforced for all Company operations.

    - It is the responsibility of Management to provide the necessary support to the Program Administrator in the successful completion of this procedure.

    - Project Manager / Superintendent – shall be responsible to implement this procedure for all operations and monitor that it is being implemented and enforced on/for the individual projects.

- The primary application of this procedure is to new construction, repair, alteration or renovation operations performed by the Company.

- Application of this procedure is also extended to those areas of construction in which lead is utilized in building construction/materials, such as roofs, cornices, tank linings, electrical conduits, plumbing and paints.

- Training is to be documented and kept with the employee's file.

- Untrained employees will not disturb lead containing materials. Operations within the construction industry which may generate lead exposures include, but are not limited to, the following:

    - Removal of lead containing paint.

    - Removal of encapsulation of materials containing lead.

    - Installation of materials containing lead.

    - Demolition/salvage of structures/equipment where lead or materials containing lead are present.

    - Storage or containment of lead or materials containing lead on construction sites or locations where construction activities are performed.

    - Open flame cutting/heating operations, welding, cutting or grinding of lead painted surfaces during repair, reconstruction, demolition or dismantling operations.

- An employee is not to be exposed to lead at concentrations greater than the Permissible Exposure Limit (PEL) of fifty micrograms per cubic meter of air (50 $\mu g/m^3$) averaged over an 8-hour period.

- If employees working immediately adjacent to a lead abatement activity are exposed to lead due to the inadequate containment, they must leave the area until the containment is sufficient.

- Action level means employee exposure, without regard to use of respirators, to an airborne concentration of lead of thirty micrograms per cubic meter of air (30 ug/m3) calculated as an 8-hour time-weighted average (TWA).

- The Project Manager / Superintendent should contact the Client or the property owner/manager and request written documentation that there is or is not a lead exposure existing on the project.

    - The documentation should include any data that would indicate that lead does or does not exist, such as reports from previous laboratory test. If this documentation is not provided, the project must be considered to have an exposure potential existing.

    - It is then our responsibility to determine if there is a lead exposure existing on the project and provide the appropriate personal protection equipment for our employees until an assessment has been completed.

    - If it is determined that there is a lead exposure existing on the project, all contractors and/or other interested parties must be notified and documented.

    - Work involving the use of construction materials containing lead (or where the likelihood of disturbing in place lead paints and coatings is present) should be targeted for detailed evaluation of their potential for lead exposure.

    - Each project location must be assessed for the potential of an employee being exposed to lead at or above the PEL. Exposure is based on the employee not wearing a respirator.

    - Personal samples should be taken which are representative of a full shift, including at least one sample from each job classification and representative work area.

    - The following exposure assumptions are conservative planning values used solely for interim protection until exposure assessments are completed and shall not be construed as actual exposure determinations.

    - Until an assessment has been completed, it shall be assumed that the lead exposure at the project site is greater than the PEL, but not in excess of 10 times the PEL for tasks such as:

        - Manual demolition operations

        - Manual scraping or sanding of surfaces

        - Power tool cleaning with a dust collection system

    - Spray painting operations with lead-based paints
  - Until an assessment has been completed, the project site shall assume that the lead exposure levels are in excess of 500 µg/m³ for the following operations:
    - Using lead-based motor
    - Lead burning, rivet busting
    - Power tool cleaning with a dust collection system
    - Power tool cleaning without a dust collection system
    - Abrasive blasting enclosure movement and removal
  - Until an assessment has been completed, the project site shall assume that lead exposure levels are in excess of 2500 µg/m³ for the following operations:
    - Abrasive blasting
    - Welding
    - Cutting
    - Torch burning operations
  - Additional criterial to perform an assessment of a project site are:
    - Information, observations, or calculations which would indicate exposure to Lead
    - Previous air monitoring reports or other documentation
    - Employee complaints of signs and symptoms to exposure
  - All documentation for assessments and monitoring must be maintained in the project files.
- Assessment methods
  - Prior Data: Whenever possible, request of the property owner/manager written documentation that there is/is not a lead exposure existing on the project. The documentation should include all data that would indicate that lead does or does not exist, such as reports from previous laboratory test. If this documentation is not provided, then the project must be considered as having an exposure potential existing. This documentation must have been obtained within a reasonable current timeframe or it may not be reliable.

- Bulk Sampling: Whenever possible, obtain samples of paint and any other materials (including soil) that may be suspected of containing lead, that are within work zones.
    - Samples should be placed in an uncontaminated container and submitted for analysis by an independent laboratory.
    - These samples should be obtained at least one week prior to any operations commencing to permit the independent laboratory to complete their analysis and return written reports to the company. If the laboratory's analysis reports indicate routine high concentrations of lead, then over exposures to lead must be considered, and appropriated protective measures taken to minimize the potential exposure/hazard to employees.
    - When bulk sampling is not feasible, the use of additional methods, i.e. lead stick, to determine the presence of lead is acceptable.

- Air sampling should be conducted initially for all representative operations and work areas in order to establish a baseline 8-hour TWA of employee exposure. Each job classification should be tested for a minimum of 7 hours. If the results are under the AL (Action Level), monitoring may be discontinued. Additional monitoring should be performed whenever there is a change in operations, processes, controls or any other situation that may increase the lead exposure potential.
    - Ongoing air sampling monitoring shall continue if the laboratory analysis reports indicate that lead exposure exceeds the PEL. It is suggested that air sampling be ongoing whenever operations are being performed or employees are within the area where there is an exposure potential, so as to document the actual exposure should an employee become ill or a claim be filed alleging over exposure.

- Exposure monitoring will enable the company to:
    - Identify sources of exposures.
    - Select the appropriate respiratory devices, personal protective equipment, and effectiveness of monitoring.
    - Determine the effectiveness of work practices in controlling exposures.
    - Recognize the need for monitoring exposures/control practices including the need for additional engineering controls.
    - All employees involved in air monitoring should receive notification to the sampling results within 5 days of the company receiving the testing facilities results.

- During the interim period while an assessment is being performed, the project site shall provide protection to employees. Protective measures shall include, but not be limited to:

- Respirators, in accordance with Table 1, shall be used.

- Personal Protective Equipment shall be issued by/as the project site. This equipment and clothing shall, at a minimum include:

  - Coveralls or similar full-body work clothes (suggest that these be of the disposable type). This clothing shall be issued clean and dry. New or laundered clothing shall be issued weekly. Clothing worn where exposure levels exceed 200 µg/m³ shall be replaced daily. Clothing shall be removed only in designated change areas. Change areas will be provided with separate areas to store work and street clothing. Employees will not leave the project site in contaminated clothing. Showers will be provided when/where feasible, and employees will be required to shower at the end of the work shift.

  - The project site shall provide all cleansing agents and towels when showers are provided. Closed receptacles shall be proved to receive contaminated clothing and towels.

  - Both disposable and non-disposable coveralls/clothing, or other contaminated personal protective equipment will have to be bagged, labeled, and laundered or disposed of in accordance with all applicable Federal, State, and Local required regulations.

- The project site shall provide all gloves, hats and shoes or shoe coverlets, face shields, goggles and all other appropriate personal protective equipment.

- Hand washing facilities shall be provided by the project site. Where showers are not provided, employees shall be required to wash their hands and face prior to eating, at end of shift or leaving the project site.

- Engineering and work practices

  - Establishing Regulated Areas: The Project Manager at the project site shall establish regulated areas where exposure hazards are in excess of the PEL.

  - Posting of Warning Signs: Project supervision will post signage for the appropriate hazards within regulated areas. Signs are to be posted at all entry points into the regulated areas. When airborne lead concentrations exceed the PEL, warning signs must read:

DANGER
LEAD WORK AREA
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM
DO NOT EAT, DRINK OR SMOKE IN THIS AREA

  - Restricted Access Areas: Caution tape or other means of barricading will be used to restrict access to regulated areas on the project site.

- Eating Areas: Lead may be unintentionally ingested when eating, drinking, or smoking in regulated areas or prior to washing/showering. Project supervision should strictly enforce the Company policy of prohibiting eating, drinking, smoking, chewing gum or use of chewing tobacco/snuff in regulated areas. A clean area, free from exposure to lead should be provided for employees to use for breaks or eating lunch. Employees using the clean/lunch area should have access to water, cleansing agents and towels, and be required to wash their face and hands prior to eating. While drinking is permitted, proper hygiene practices should be observed with water coolers and drinking cups. It is desirable for both water coolers and drinking cups be kept out of areas where there is the potential for lead to be airborne. Drinking cups can be kept within an enclosed/sealed container until used to minimize the potential to become contaminated with lead.

- Burning, Cutting and Heating: In enclosed spaces, all surfaces covered with a toxic preservative (paint or others) shall be stripped of all toxic coatings for a minimum distance of 4 inches back from where the cutting or heating is to be done.

- Labeling: All contaminated materials placed in containers for shipping or storage must be labeled in accordance with all applicable OSHA, EPA, State and Local Laws and Codes. Contaminated work clothing for laundering or disposal shall be labeled as is prescribed by all Federal, EPA, State and Local Laws and Codes.

- Housekeeping: General Housekeeping is an important part of limiting employee exposure to lead. Every effort shall be made to limit the accumulation of dust on surfaces or floors in regulated work areas. It is preferred that wet cleaning or vacuuming be used to clean dust from surfaces. Avoid sweeping to minimize creating airborne particles that may be contaminated.

- A medical surveillance program shall be provided so as to comply with OSHA Standard 29 CFR 1926.62(j)(1).

  - The employer shall make available initial medical surveillance to employees occupationally exposed on any day to lead at or above the action level. Initial medical surveillance consists of biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels.

  - The employer shall institute a medical surveillance program in accordance with paragraphs (j) (2) and (j) (3) of this section for all employees who are or may be exposed by the employer at or above the action level for more than 30 days in any consecutive 12 months.

  - The employer shall assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician.

  - The employer shall assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician.

- All employees who have the potential for exposure to lead, shall be provided with Safety Training prior to their initial job assignment and at least annually thereafter. Safety Training should include, but be not limited to:
    - Contents of OSHA Standards 29 CFR 1926.62, Lead and 29 CFR 1926.59, Hazard Communications.
    - The specific nature of the operations to be assigned/undertaken which could result in exposures to lead at or above the action level.
    - The purpose, selection, fit, use and limitations of respirators.
    - The purpose and description of the applicable medical surveillance program.
    - Engineering controls and work practices.
    - Compliance procedures.
- Each site shall implement engineering controls to reduce exposure below the PEL. When engineering controls cannot reduce the level of exposure below the PEL, the controls shall nonetheless be used to reduce the levels to the lowest feasible level.
- Each site, which requires a lead exposure program, shall develop a site-specific written program. The contents of this written program shall include:
    - A description of each activity in which lead is emitted.
    - A description of the specific means which will be used to reduce exposure to include engineering and personal protective equipment. The studies used to determine these methods shall be included.
    - A report of the technology considered in meeting the PEL.
    - Air monitoring data, which documents the source.
    - A detailed schedule for implementing the program.
    - A work practice program including respirators, personal hygiene, and personal protective clothing.
    - An administrative control schedule if applicable.
    - A description of arrangement made for interfacing on multi-employer work sites.
    - A determination of the exact tools and equipment to be used in assembling, disassembling, installing, cutting, etc. to ensure that exposure levels are maintained below the action level.

- Frequent inspections of the work site, materials, and equipment.

Table 1.0

Airborne Concentration or Condition of Use	Required Respirator
Not in excess of 500 µg/m3	½ face air purifying with HEPA cartridge ½ mask supplied air in demand mode
Not in excess of 1250 µg/m3	Loose fitting hood/helmet powered air purifying respirator (PAPR) with HEPA cartridge Hood or helmet supplied air respirator in continuous floor mode
Not in excess of 2500 µg/m3	Full face air purifying respirator with HEPA cartridge Tight fitting PAPR with HEPA Full face supplied air respiration in demand mode Full face SCBA in demand mode

Not in excess of 50,000 µg/m3	½ mask supplied air respirator operated in pressure demand or positive pressure
Not in excess of 100,000 µg/m3	Full face supplied air respirator operated in pressure demand or equivalent type system
Greater than 100,000 µg/m3 Unknown concentration, or fire fighting	Full face SCBA operated in pressure demand or other positive pressure mode

NOTE:

1. Respirators specified for higher level concentration can be used at lower concentrations.

2. Full-face respirators are required for lead aerosols when eye or skin hazards are present.

4.0 EPA Lead Renovation Repair and Painting Program

- This program pertains to a child-occupied facility as defined by the **EPA Lead Renovation, Repair and Painting Program**.

- Definition of a "Child-Occupied" Facility

  - Child-occupied facility means a building or portion of a building, constructed prior to 1978, visited regularly by the same child, under 6 years of age, on at least two different days within any week (Sunday through Saturday period), provided that each day's visit lasts at least 3 hours and the combined weekly visits last at least 6 hours, and the combined annual visits last at least 60 hours. Child-occupied facilities may include, but are not limited to, daycare centers, preschools and kindergarten classrooms. Child-occupied facilities may be located in target housing or in public or commercial buildings. With respect to common areas in public or commercial buildings that contain child-occupied facilities, the child-occupied facility encompasses only those common areas that are routinely used by children under age 6, such as restrooms and cafeterias. Common areas that children under age 6 only pass through, such as hallways, stairways and garages are not included. In addition, with respect to exteriors of public or commercial buildings that contain child-occupied facilities, the child-occupied facility encompasses only the exterior sides of the building that are immediately adjacent to the child-occupied facility or the common areas routinely used by children under the age of 6.

- This EPA rule does not apply to activities of minor repairs that disrupt 6 square feet or less of painted surface per room for interior activities or 20 square feet or less of painted surfaces for exterior activities where none of the work practices prohibited or restricted by § 745.85(a)(3) are used and where the work does not involve window replacement or demolition of painted surface areas.

- **Lead-based paint may be found on any surface in the buildings being renovated (inside or outside).** When lead-based paint is disturbed during renovation, repair or painting activities, dangerous amounts of lead dust can be created. Jobs such as demolition, window replacement, opening up walls, etc. can also release accumulated lead dust into the renovated projects. Even after a typical renovation cleanup, dangerous levels of lead dust can remain.

- Lead gets into the body by being swallowed or breathed in.
    - People, especially children can swallow lead dust as they eat, play and perform other ordinary hand-to-mouth activities.
    - People may also breathe in lead dust or fumes while they work on jobs that sand, scrape, burn, brush, blast or otherwise disturb painted surfaces that contain lead paint.

- Once in the body, lead can have significant effects on human health.
    - In children, lead poisoning damages the nervous system and can cause developmental and behavioral problems.
    - In adults, lead poisoning can cause health and reproductive problems.

- Certification Requirements for Renovation Contractors Include
    - All firms performing renovation, repair or painting work must become Certified Lead-Safe Companies.
    - Firms must have one or more “Certified Lead-Safe Renovators” assigned to jobs where lead-based paint is disturbed.
    - All renovation workers must be trained. Renovation workers can be trained on-the-job by a Certified Renovator to use lead safe work practices.
    - **CG Schmidt currently has (1) Certified Lead-Safe Renovators**
        - **Josh Schmitz, Safety Director**

- For all contractors performing Lead Safety for Renovation, Repair and Painting – the following 7 Step Process must be applied. There may be additional rules and regulations .

- Always refer to EPA 40 CFR Part 745 Lead, Renovation, Repair and Painting Program or your Certified Lead Safe Renovator for more information.
    - Step 1 – Determine if the project involves Lead-Based Paint.

- Find out the age of the structure or child-occupied facility.
- If it was built prior to 1978, it may have lead-based paint.
- Consider when additions were built. Some parts of the building may have been built later than others.
- Lead-based paint may be found either inside or outside the building and is most common in kitchens or bathrooms and in high gloss paint on trim, such as windowsills, doorframes and railings.
- **As with asbestos, we must obtain a lead survey from our client**. All surfaces affected by a renovation covered by the Renovation, Repair and Painting Rule, **must either be tested for lead-based paint or presumed to contain lead-based paint**. Testing must include all affected surfaces coated with paint, shellac, varnish, stain, coatings or even paint covered by wallpaper, if it will be disturbed during the renovation work. A report documenting the testing must list the surfaces tested and the surfaces that contain lead-based paint. If lead-based paint is present on an affected surface, then the lead safe work practices must be used on the job. **We must share this information with our subcontractors in our contract documents and in our meetings.**

- Step 2 – Set it up safely
  - When you work on a project with lead-based paint, you should separate the work area from the rest of the building. The work area is the area that may become contaminated during the work. The size of the work area may vary depending on the method used to disturb lead-based paint and the amount of dust and debris that is generated as a result. Unauthorized persons must be prevented from entering the work area. This can be accomplished by posting warning signs and by establishing barriers around the work area such as barrier tape, fencing, plastic barriers in doorways, etc.
  - **CG Schmidt Best Practices – Inside**
  - Remove furniture and belongings from the work area
  - Items too large to move – cover with plastic
  - Cover floors with plastic
  - Close all doors including cabinet doors with plastic
  - Cover door access with 2 layers of protective sheeting
  - Close and cover all air vents
  - Close all windows

- **CG Schmidt Best Practices – Outside**
- Cover ground and plants with heavy plastic
- Close windows and doors
- Move or cover play areas that are within 20'
- Multi-story buildings have special rules
- Avoid working in high winds

- Step 3 – Protect the workers
  - Workers should protect themselves. Without the right personal protective equipment, workers may ingest or inhale lead from the job and may risk bringing lead from the worksite home to their families.
  - Protective eyewear
  - Disposable coveralls
  - N-100 rated respirator
  - Disposable gloves
  - Disposable shoe covers
  - At the end of the work period, vacuum off dust and remove disposable protection clothing.
  - Wash up – workers should wash their hands and faces each time they stop working. It is especially important to wash up before eating and at the end of the day.
- Step 4 – Minimize the dust
  - As you work, your goal is to keep down the dust. Remember that as you scrape, drill, cut, open walls, etc., you are creating dust. You can keep dust down by using the right tools and following some simple practices that minimize and control the spread of dust.
  - **CG Schmidt Best Practices**
  - Wet dry sandpaper or sanding sponge
  - Misting bottle, pump sprayer or garden hose
  - Heavy plastic sheeting

- High Efficiency Particulate Air (HEPA) vacuum cleaner
- HEPA room air filter
- Heavy duty plastic bags for demo material
- Tack floor pads

- Step 5 – Leave the work area clean
  - The work area should be left clean at the end of every day and especially at the end of the job. The area should be completely free of dust and debris.
  - **Products to use:**
  - HEPA vacuum with attachments and a powered beater bar
  - Disposable (wet) cleaning wipes or hand towels
  - Detergent or general purpose cleaner
  - Mop and disposable mop heads
  - Electrostatic charged dry cleaning cloths
  - **What to do:**
  - Pick up as you go. Put trash in heavy-duty plastic bags
  - Vacuum the work area with a HEPA vacuum
  - Clean tools at the end of the day
  - Wash up each time you take a break and before you go home
  - **When the job is complete, renovators should:**
  - Remove plastic sheeting carefully and dispose of it
  - Make sure all trash and debris are disposed of properly
  - Vacuum all surfaces with a HEPA vacuum
  - Mist and scrub the work area until dust and debris are removed
  - Re-clean the area thoroughly if you find dust or debris
- Step 6 – Control of waste

- **Bag or wrap your waste at the work site and in the work area:**
- Collect and control all your waste. This includes dust, debris, paint chips, protective sheeting, HEPA filters, dirty water, clothes, mop heads, wipes, protective clothing, respirators, gloves, architectural components and other waste.
- Store all waste in a secure container or dumpster until disposal
- Limit on-site storage time
- **Dispose of wastewater appropriately:**
- Always dispose of wastewater in accordance with federal, state and local regulations.
- **Be aware of waste disposal rules:**
- For work done in commercial, public or other nonresidential child-occupied facilities, where waste may be considered hazardous and require special disposal methods.

o Step 7 – Verify work completion with the Cleaning Verification Procedure or Clearance

- When all work is complete, and before interior space is re-occupied, you need to determine whether it is a safe environment to be in.
- After completion of cleaning, the cleaning verification procedure is performed by wiping all dust collection surfaces in the work area with a wet, disposable cleaning cloth and comparing that cloth visually to an **EPA Post-Renovation Cleaning Verification Card**. Dust collection surfaces include windowsills, countertops and other large horizontal surfaces such as built-in shelving and floors. Cleaning verification may only be performed by an EPA Certified Renovator if renovations covered by the Renovation Repair and Painting rule were performed.
- Note: For exterior work, only a visual inspection for dust, paint chips or debris is required.

- The renovation report should describe the whole project from posting signs to cleaning verification or clearance. The report should name the Certified Renovator designated by the Certified Firm as responsible for lead-safe work practices on that project. Also, include proof of certification for the designated Certified Renovator. The report also must have a signed statement from the Certified Renovator that covers the following areas:
  - Written proof of receipt of Renovate Right by owner prior to construction

- Proof of non-certified worker training
- Proof of posting warning signs
- Lead sample surveys
- Description of work area containment
- Description of on-site waste containment and transport
- Proof of proper post-renovation work area cleaning
- Proof of successful cleaning verification

5.0 Silica

- Silicosis is a disabling and sometimes fatal disease caused by prolonged exposure to crystalline silica by inhalation. Overexposure to dust that contains microscopic particles of crystalline silica can cause fibrosis or scar tissue formations in the lungs that reduce their ability to work to extract oxygen from the air. In addition to silicosis, inhalation of crystalline silica particles has been associated with other diseases such as bronchitis, tuberculosis, and lung cancer. There are 3 forms of silicosis:
  - Chronic Silicosis usually occurs after 10 or more years of exposure
  - Accelerated Silicosis results from higher exposures and develops much faster than chronic silicosis
  - Acute Silicosis occurs where exposures are the highest and can cause symptoms to develop within a few weeks
- Crystalline silica, also known as quartz, is a natural compound in the earth's crust and is the basic component of sand and gunite. Concrete, masonry products, drywall material and drywall compounds, glass, tile, and manufacturing abrasives contain silica. Individuals may be exposed to silica dust as a result of the following activities:
  - Abrasives blasting using silica sand as the abrasive
  - Chipping, hammering, and/or rock drilling
  - Crushing, loading, hauling, and/or dumping of rock
  - Demolition of concrete and masonry structures
  - Doing any of the following to concrete, masonry, drywall, drywall compounds, ceramics, clay, pottery, and tile:
    - Chipping

        - Hammering
        - Drilling
        - Sanding
        - Sawing
        - Grinding
        - Scraping
    - Dry sweeping or pressurized air blowing of concrete, sand, or drywall dust
    - Mixing of concrete and mortar

- CGS is dedicated to ensuring the safety and health of employees, subcontractors, our clients, and the general public on all of our projects. The following methods can be utilized to reduce worker and general public exposure to airborne crystalline silica:
    - Engineering Controls such as vacuum shrouded tools connected to filtered vacuums with filter cleaning mechanisms or utilizing wet methods will greatly reduce exposure to below the action level
    - When engineering controls are infeasible, administrative controls such as rotating workers can be implemented to reduce the amount of time of exposure
    - It may be necessary to use PPE in addition to the above listed control methods. If PPE is required, employees will be trained in its use, limitations, how to don and doff the equipment, and storage
    - Reference CGS Respiratory Protection Program for additional information
    - OSHA published Table 1 which gives additional information regarding the controls to be utilized for specific tasks
- Action Level: A concentration of 25 micrograms per cubic meter of air (25 µg/m³) calculated as an 8-hour time-weighted average (TWA).
- Permissible Exposure Limit (PEL): Workers will be protected from respirable crystalline silica exposures above the PEL of 50 micrograms per cubic meter of air (50 µg/m³) calculated as an 8-hour time-weighted average (TWA).
- A site-specific competent person, designated by CG Schmidt, shall be responsible for implementing and monitoring compliance with the respirable crystalline silica standard. The Corporate Safety Director provides program oversight and technical support.

- Training
  - Employees will receive training on work operations that result in silica exposure and ways to limit exposure.
  - Training includes:
    - Health hazards associated with respirable crystalline silica exposure.
    - Specific workplace tasks that could expose employees to respirable crystalline silica.
    - Specific measures the employer is implementing to protect employees from respirable crystalline silica exposure.
    - The contents of the respirable crystalline silica standard.
    - The identity of the competent person designated by the employer.
    - The purpose and a description of the medical surveillance program required under the standard.
- Air Monitoring
  - Air monitoring and sampling is available when silica exposures are anticipated to be over the permissible exposure level.
  - Sampling is also available for after engineering controls have been implemented to ensure exposures below the permissible exposure level.

6.0 Hexavalent Chromium

- This procedure applies to occupational exposures to chromium (VI) in all forms and compounds in construction in accordance with CFR 1926.1126.
- This procedure applies to all company and subcontractor operations.
- Action Level: A concentration of airborne chromium (VI) of 2.5 micrograms per cubic meter of air (2.5 $\mu g/m^3$) calculated as an 8-hour time-weighted average (TWA).
- Chromium (VI) [hexavalent chromium or Cr(VI)]: Chromium with a valence of positive six, in any form and in any compound.
- Permissible exposure limit (PEL): The employer shall ensure no employee is exposed to an airborne concentration of chromium (VI) in excess of 5 micrograms per cubic meter of air (5 $\mu g/m^3$), calculated as an 8-hour time-weighted average (TWA).

- The employer shall use engineering and work practice controls to reduce employee exposure to chromium (VI) below the PEL unless the employer can demonstrate that a process or task does not result in any employee exposure above the PEL for 30 or more days per year (12 consecutive months). Wherever engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, the employer shall supplement with respiratory protection.

- The employer shall not rotate employees to different tasks to achieve compliance with the PEL.

- Air monitoring shall be performed to determine exposure to employees. Employees shall be notified of the results of air monitoring.

- When there is an exposure to chromium (VI) all aspects of CFR 1926.1126 shall be followed.

7.0 Carbon Monoxide

- The purpose of this section is to reduce or eliminate the exposure of workers to carbon monoxide while using gas powered equipment.

- Carbon Monoxide (CO) is a colorless, odorless, toxic gas which interferes with the oxygen-carrying capacity of blood. CO can overcome a person without warning.

- Permissible Exposure Limit (PEL): The employer shall ensure no employee is exposed to carbon monoxide in excess of 50 ppm, calculated as an 8-hour time-weighted average (TWA).

- Gas powered equipment shall only be used in well ventilated areas to ensure CO concentrations don't exceed dangerous levels.

- Where possible, alternative methods shall be used, such as electric or hydraulic equipment.

- Gas monitoring equipment is available to monitor conditions.

- If carbon monoxide concentrations approach or exceed permissible exposure limits, work shall stop immediately and the area shall be ventilated or evacuated until safe levels are restored.

Concentration	Symptoms
35 ppm	Headache and dizziness within 6 to 8 hours of constant exposure
100 ppm	Slight headache within 2 to 3 hours
200 ppm	Slight headache within 2 to 3 hours; loss of judgement
400 ppm	Frontal headache within 1 to 2 hours
800 ppm	Dizziness, nausea, and convulsions within 45 minutes; insensible within 2 hours

1,600 ppm	Headache, increased heart rate, dizziness, and nausea within 20 minutes; death in less than 2 hours
3,200 ppm	Headache, dizziness, and nausea within 5 to 10 minutes. Death within 30 minutes.
6,400 ppm	Headache and dizziness within 1 to 2 minutes. Convulsions, respiratory arrest, and death in less than 20 minutes
12,800 ppm	Unconsciousness after 2 to 3 breaths. Death in less than 3 minutes

8.0 Hearing Conservation Program

- The CG Schmidt Hearing Conservation Program has been prepared to comply with OSHA Regulation 1926.52 and 1926.101. The scope of the program includes the safe practices and requirements for proper noise protection selection, use and maintenance. The program applies to all tasks/operations that produce employee noise exposures in excess of 85 dBA time-weighted average (TWA) for 8 hours.

- Where construction-specific OSHA standards apply, CG Schmidt complies with 29 CFR 1926 requirements. Where construction standards defer to general industry standards, 29 CFR 1910 requirements apply.

- Definitions:
  - A Scale: The setting on a sound level meter that most clearly resembles the way the human ear hears.
  - Audiogram: A test of an individual's hearing threshold level as a function of frequency.
  - Baseline Audiogram: The audiogram against which future audiograms are compared.
  - dBA: Decibel level using the A Scale.
  - Decibel (dB): Unit of measurement of sound level.
  - Hertz (Hz): Unit of measurement of frequency, numerically equal to cycles of a sound wave per second.
  - Time-Weighted Average Sound Level: Weighted average sound level over a given amount of time, usually 8 hours

- Responsibilities:
  - Program Administrator: Corporate Safety Director
    - Issue and administer the program and ensure that the program satisfies the requirements of all applicable federal, state, or local hearing conservation requirement.

        - Take sound level measurements of specific tasks/operations and determine noise levels via dosimetry.
        - Make available to affected employees or their representative copies of the OSHA, Section 1926.101, upon request.
        - Answer specific questions and after requested, review information concerning noise exposure levels and the hearing conservation program.
        - Store sound level surveys for at least two (2) years.
        - Notify employees of the results of sound level surveys.
        - Review the effectiveness of the hearing conservation program and making recommendations for changes.
    - Project Manager / Superintendent
        - Enforcing the use of hearing protection by employees required to wear them.
        - Enforcing administrative and engineering controls within the specific job task/operation to limit employee noise exposure.
    - Employees
        - Responsible for wearing hearing protection as required.
- Hearing Protection Program
    - Mandatory hearing protection shall be Company-provided and required for use on a CG Schmidt construction site during work hours.
    - Employees who are exposed to noise levels at or above 85 dBA for 8-hour time-weighted average action level shall be included in the hearing conservation program.
    - Affected employees will be provided with hearing protection in various types and styles and employees will be trained annually about noise and how to protect themselves.
    - Selection of proper hearing protection will be based upon the noise exposure and the Noise Reduction Rating (NRR) of the hearing protection.
- Sound Level Surveys
    - Audiometric testing will be conducted for areas/tasks where the sound level equals or exceeds an 8-hour time-weighted average of 85 dBA.

- A dosimeter will be used to determine sound level exposures over an 8-hour day or equivalent.
- Sound level surveys will be conducted upon request or as needed.

- Training
  - Affected employees will be trained on the effects of noise on hearing.
  - Affected employees will be trained on the purpose of hearing protection including the advantages and disadvantages of various hearing protection, and instructions on selection, fitting, use and care of hearing protection.
  - Affected employees will be trained on the purpose of audiometric testing and how tests will be administered.

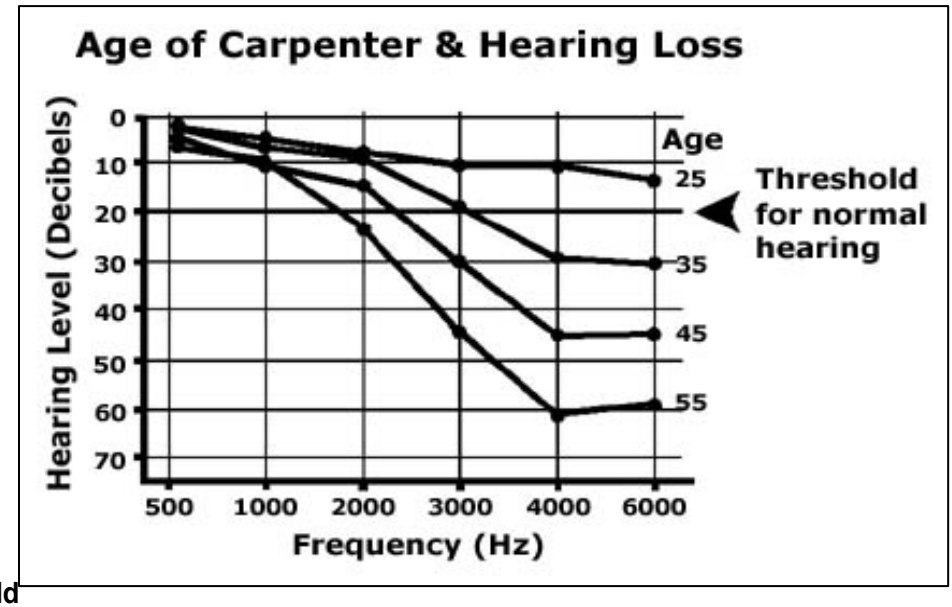
- Baseline Audiogram
  - Regulated employees subject to occupational noise exposure per 29 CFR 1910.95 shall be provided with a valid baseline audiogram against that future audiograms can be compared within 6 months of an employee's first exposure at or above the action level (85 dBA).
  - Regulated employees specific to 29 CFR 1910.95 will be notified to have at least 14 hours without exposure to overdue workplace noise prior to baseline audiogram testing.
  - Regulated employees specific to 29 CFR 1910.95 shall annually receive a new audiogram where exposure exists at or above a 9-hour Time Weighted Average (TWA) of 85 dBA. Further, baseline audiograms shall be compared to annual renewals to determine whether a standard threshold shift has occurred. If so, the employee shall be made aware of the fact via documentation within 21 days of determination.
  - Hearing protection use shall be re-evaluated and/or refitted for regulated employees specific to 29 CFR 1910.95 upon a threshold average shift of 10 decibels or more at 2000, 3000, and 4000 hertz in one (1) or both ears.
  - A medical evaluation may be required if applicable or necessary.

- Recordkeeping
  - CG Schmidt shall maintain accurate records of employee training and exposure measurements. All records shall be maintained as required by 29 CFR 1910.95 by the Corporate Safety Director at the Corporate Office.
  - Access to records shall be provided upon request to employees, former employees, representatives designated by the individual employee, and the Assistant Secretary of Labor of Occupational Safety and Health.

- Transfer of records shall be provided if CG Schmidt ceases to do business, by transferring said records to the successor employer required to be maintained by 29 CFR 1910.95(m), and the successor employer shall retain said records for the remainder of the period described in the above paragraphs.

- In all cases where the sound levels exceed the values shown herein, a continuing, effective hearing conservation program shall be administered.

Duration per day in hours	Sound Level dBA slow response
8	90
6	92
4	95
3	97
2	100
1 ½	102
1	105
½	110
¼ or less	115



9.0 Mold

- Microorganisms including, but not limited to, mold, mildew, spores, and other forms of fungi or bacteria, occur naturally in the environment, are necessary for the natural decomposition of plant and other organic material, and are found everywhere life can support it. Microorganisms require moisture and a growth medium (fabric, carpet, wallpaper, building materials, drywall, tiles, wood, etc.). If moisture is allowed to remain on a growth medium, microorganisms can develop within 24 to 48 hours. Moisture may cause the growth, release, discharge, dispersal, or presence of microorganisms, which at certain levels may cause deterioration of building materials, damage to property, health hazards, personal injuries, and/or other irritant effects.

- Currently, there are no federal standards or recommendations relating to the prevention of mold growth, health standards for mold exposure, or required/approved abatement or remediation methodologies. Scientific research on the relationship between mold exposures and health effects is ongoing.

- Reference EPA.gov/mold for resources and additional information.

- Eating and drinking where mold is located should be avoided.

- The key to mold control and prevention is moisture control. Solve moisture problems before they become mold problems.

- If mold is discovered during new construction, it is the responsibility of the contractor that caused the condition to correct.

- If mold is discovered in an existing building the building owner is to be contacted by the Project Manager for abatement / remediation.

- A Remediation Plan is to be created and include an assessment of the size of the mold and/or moisture problem and type of damaged material, steps to fix the water or moisture problem, PPE, containment, and removal.

- Communication with building owner and occupants is essential for successful mold remediation.

- Supervisors are responsible to ensure all employees are aware of the presence or potential for mold and what to do when encountered.

- There is always a little mold everywhere in the air and on many surfaces. Mold exposure does not always present a health problem; but for those who are sensitive, mold spores can bring on allergic symptoms such as:

    - Respiratory problems, such as wheezing and difficulty breathing.

    - Nasal and sinus congestion.

    - Burning and watering eyes.

    - Dry, hacking cough.

    - Sore throat.

    - Nose and throat irritation.

    - Shortness of breath.

    - Skin irritation.

10.0 Water Intrusion Prevention and Mitigation

- Water infiltration is one of the costliest types of incidents that we face in building construction because water can be suddenly released or enter a building from a variety of sources. This Water Damage Prevention Plan will focus on the factors influencing the occurrence of water damage losses and the loss control steps that

can be implemented to reduce the frequency and severity of an incident. Having a prevention and mitigation plan in place can help prevent and limit damage should a problem occur. The plan incorporates pre-task planning, identifying risks, proper sequencing of work, and response measures if water is found.

- Sources of Water Damage:
  - Inclement weather.
    - Our Superintendent and/or Project Manager is assigned to monitor weather conditions and prepare the site for inclement weather. Preparation shall include the securing of materials stored out in the open and protecting it from weather conditions. Material will be stored on pallets or dunnage, covered with tarps, and kept out of low-lying areas, no matter inside or outside the building. Designated people shall take prompt corrective action in the event the inclement weather penetrates the building.
  - Flooding and surface water.
    - Protecting the jobsite from water damage starts on day one. Site grading and drainage shall be completed as soon as possible. It is important to schedule the installation of machinery, electrical systems, or other equipment in subgrade levels before the necessary water protection is provided. Pumps shall be available to remove water from pits, tanks, excavations, and foundation areas. Site drains shall be kept clear and protected with silt fencing until the job is ready to be turned over. The silt fence will capture and keep most foreign material out of the drainage system and prevent it from becoming clogged.
  - Open-Sided Floors.
    - Ideally, no finished work, such as drywall, painting, or trim should be started on a floor until the entire exterior wall finishes are installed, caulked, and sealed. If work must continue in areas that are not watertight, then every precaution must be made to ensure that such openings are enclosed. This may include temporary waterproof, windproof, fireproof material. Windblown rain can damage the areas adjacent to the openings, floors, and adjacent surfaces. When rain is allowed to collect on the floors, water can flow to lower areas, and cause damage beyond the immediate penetration point. It is important that these temporary enclosures are regularly inspected and maintained to prevent further damage.
  - Temporary Roofs.
    - The location and construction of temporary roofs shall be part of the construction planning process for all projects. Temporary roofs are required to cover the elevator core, tower crane openings, large mechanical openings, stairwells, and other areas determined to be prone to water entry. Extensive

planning and coordination with all the subcontractors should occur to ensure that they are aware of which floors have been designated for temporary roofs. They will implement plans with appropriate means and methods to avoid damaging temporary roofs to ensure that water does not penetrate to lower floors and cause damage.

- The following best practices shall be implemented for temporary roof floors:
  - Sleeves in all deck penetrations shall be installed so as to protrude about the finished floor elevation and create a dam effect and keep water from penetrating to lower floors. These sleeves, pipe, conduit, and other mechanical openings should be sealed with waterproof fire stop / caulking to prevent water from flowing down and around the sleeve or pipe openings.
  - Electrical and communications rooms and/or duct banks shall have curbs installed and waterproof flashing. The curbing shall provide a physical barrier and prevent water from flowing down theses vertical openings and damaging equipment.
  - Waterproof membrane shall be installed over all area where water will likely drain to lower levels, such as the gap between the floor and exterior curtain wall system.
  - Temporary dams and gutters shall be installed around openings associated with stairways, elevator shafts, and large electrical and mechanical floor penetrations to prevent water from traveling vertically down the shafts.
  - Floor drains shall be installed on floors designated for temporary roofs to expedite the natural drainage off the floors. Water also can be collected in barrels equipped with pumps that can then pump the water into the drain stack.
  - The floor below the temporary roof should be inspected before, during, and immediately after inclement weather to ensure that water is not draining on the floor or floors below.
  - If schedule permits, finish work shall be not permitted on the two floors immediately below the temporary roof. This will provide an added layer of protection if water does start to leak through the temporary roof.

- Roofs and Balconies.
  - Roofing subcontractors shall ensure that their installed material sis sealed along leading edges to prevent it from being damaged by high winds. Subcontractors shall also complete the sealing around roof drains and ensure that the drain screens are installed. These drain screens will help to keep foreign material from clogging the pipe. They also need to coordinate their

work with the plumbing subcontractor so that the roof drains are completed and tied into the drain system. If required, this will also include temporary drain lines to handle any additional flow that the permanent drains cannot handle.

- Drains on all roof areas shall always be kept clear. Good housekeeping practices are important. Debris and construction material can easily wash into the drains resulting in clogging. Housekeeping, proper storage practices, and drains need to be inspected on a regular basis. All roofs shall be monitored before and during inclement weather to ensure any leaks are contained, drained, and cleaned up as soon as possible.

- Water in pipe systems (potable water, hydronic HVAC systems, fire sprinklers, drains, and vents).

  - Preventing water damage associated with piping systems is mostly dependent on the quality of the work performed by the various subcontractors installing these systems. There are many new and different products being used today, and it is required that the installers be trained on the proper procedures to cut, connect, and support the pipe systems. Subcontractors are required to provide adequate supervision to ensure manufacturer installation guidelines are adhered to. It is our continuous goal to implement a thorough QC Program. This includes that all of the pipe system tests will be witnessed, accepted by the Owner's Consultant, and documented prior to being covered up, whether inside or outside the building.

  - Pipe systems shall be tested with air under low pressure before they are tested with liquids. This is especially important if the building is exposed to freezing temperatures and temporary or permanent heat is not available. When a system is tested with water, it shall be completely drained so it is not susceptible to freezing temperatures.

  - Communication and coordination during testing and commissioning of pipe systems is extremely important for a successful water damage prevention plan. All subcontractors will be required to notify us and other subcontractors when and which systems are being tested. The subcontractors must have enough workers available to check and respond quickly to any leaks, prevent ones from happening, and mitigate any further damages. There shall be an adequate means of communication so that the signal to shutoff valves is promptly communicated and acted upon.

  - Water in pipe systems can be susceptible to freezing; therefore, good planning is required to ensure that the building can maintain appropriate temperatures to avoid damages due to frost. Wind also can severely affect the building's ability to maintain adequate temperatures, so it is important for the team to make sure that all affected exterior openings are blocked off and weather tight. If heating is not provided, the water shall be shutoff at the curb valve before it enters the building. In cold climates, the building's

temperature shall be monitored during non-working hours, such as overnight, weekends, holidays, and work stoppage.

- As water is introduced into pipe systems, it is important that all valves are tagged with signage and placards. An easy to read diagram that provides the location and type of various active valves around the jobsite shall be available. This is so that responders and other personnel can easily find the valves in the event of a water leak.

- Controls and Planning.
  - Pre-Task Planning
    - Pre-task planning is critical in prevention of any accidental construction leaks. First step in pre-task planning is for project teams and key Foremen to have a good understanding of the existing building hydronic system designs.
    - The pre-task plan shall identify any activities with the potential for water breaks. The Foreman should review with the crew and CGS Superintendent.
    - Before work begins, workers should inspect existing systems to identify any preexisting water problems. Identify any live systems that may require impairment.
    - Pre-construction meetings will take place with mechanical and fire protection subcontractors to review water damage protection and quality control measures. Some key concerns are system-testing protocols for leak monitoring after activation, leak detection protocols, alarm systems, flow detection and monitoring, as well as system and component inspections.
  - Proper Work Sequencing
    - Schedule impairment of any live systems that may be affected. Delivery of finish materials such as drywall, paneling, ceiling tiles, and wood finishes should be scheduled after high-risk activities are complete. Store materials off the ground, on dunnage, and away from moisture sources, and cover porous materials with plastic sheeting or tarps. At the end of each day, have workers walk the entire project to make sure all temporary water sources have been turned off.

- Response.
  - Employees and subcontractors responding to water related issues should know what steps to take under the various situations and weather conditions.
  - Since some valves are easier to turn then others, especially under high-water pressure, our team shall conduct practice drills so employees can practice

locating valves, as well as turning them off. This process is especially important as construction progresses because it might become difficult to find the valves as all are built and equipment is installed.

- Emergency clean-up.
    - Equipment for emergency clean-up includes wet vacs, fans, blowers, squeegees, absorbent material, extension cords with GFCI protection, waterproof tarps, waterproof sheet membrane material, and waterproof caulk. Emergency generators may be needed in the event of a power failure.
    - To protect the building, material and equipment from additional damage after the water event has been controlled, the project team shall assess the damage and document with pictures and video.
    - Notify our Risk Manager and Safety Director immediately.
- Responding to water damage.
    - Fire sprinkler shut off valves shall be located.
    - Sprinkler shut guns for pendant and/or concealed heads are available.
    - Main domestic water shut off valve is located.
    - The project team and foreman are trained on the locations of the appropriate shut off valves.

Module 13 – BloodBorne Pathogens Program
1910.1030 - Bloodborne Pathogens

1.0 Introduction
2.0 Definitions
3.0 Exposure Determination
4.0 Methods of Compliance
5.0 Safe Work Practices
6.0 Housekeeping Procedures
7.0 Communication of Hazardous Materials
8.0 Hepatitis B Vaccinations
9.0 Post Exposure Documentation
10.0 Post Exposure Follow Up
11.0 Training

1.0 Introduction

- This exposure control plan provides precautions necessary for employees to use when occupationally exposed to blood, bodily fluids, and other potentially infectious materials.

- These materials may cause diseases such as hepatitis B (HBV) and human immunodeficiency virus (HIV).

- This covers all employees who could be "reasonably anticipated" as the result of performing their job duties to face contact with blood and other potentially infectious materials.

- CG Schmidt employees are not routinely exposed to bloodborne pathogens as part of their normal job duties. Occupational exposure may occur during emergency response or first aid assistance, and this program is intended to address those situations.

2.0 Definitions

- **Blood:** Human blood, human blood components, and products made from human blood.

- **Bloodborne Pathogens:** Pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, Hepatitis B Virus (HBV) and human immunodeficiency virus (HIV).

- **Contaminated:** The presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface.

- **Contaminated Laundry**: means laundry, which has been soiled with blood or other potentially infectious materials or may contain sharps.

- **Contaminated Sharps:** means any contaminated object that can penetrate the skin including, but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires.

- **Decontamination:** The use of physical or chemical means to remove, inactivate or destroy Bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface is rendered safe for handling, use, or disposal.

- **Engineering Controls:** Controls that isolate or remove the Bloodborne pathogens hazard from the workplace.

- **Exposure Incident:** A specific eye, mouth, or other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious materials that results from the performance of an employee's duties.

- **Hand Washing Facilities:** A facility providing an adequate supply of running potable water, soap and single use of towels or hot air drying machines. (Potable water: Water, which is satisfactory for drinking, culinary and domestic, purposes and meets with the basic sanitary requirements.)

- **HBV:** means hepatitis B virus.

- **HIV:** means human immunodeficiency virus.

- **Licensed Healthcare Professional:** is a person whose legally permitted scope of practice allows him or her to independently perform the activities required by Hepatitis B Vaccination and Post-exposure Evaluation and Follow-up.

- **Occupational Exposure:** Reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee's duties. Other Potentially Infectious Materials: means (1) The following human body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids; (2) Any unfixed tissue or organ (other than intact skin) from a human (living or dead); and (3) HIV-containing cell or tissue cultures, organ cultures, and HIV or HBV: containing culture medium or other solutions; and blood, organs, or other tissues from experimental animals infected with HIV or HBV.

- **Parenteral:** means piercing mucous membranes or the skin barrier through such events as needle sticks, human bites, cuts, and abrasions.

- **Personal Protective Equipment:** is specialized clothing or equipment worn by an employee for protection against a hazard. General work clothes (e.g., uniforms, pants, shirts or blouses) not intended to function as protection against a hazard are not considered to be personal protective equipment.

- **Regulated Waste:** means liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling; contaminated sharps; and pathological and microbiological wastes containing blood or other potentially infectious materials.

- **Sterilize:** The use of a physical or chemical procedure to destroy all microbial life, including highly resistant bacterial endospore. (The use of alcohol, soap and water, an approved antiseptic liquid, boiling water, heating to high temperature, burning, etc.)

- **Universal Precautions:** An approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other Bloodborne pathogens.

- **Work Practice Controls:** Controls that reduce the likelihood of exposure by altering the manner in which a task is performed.

3.0 Exposure Determination

- Occupational exposure for the positions listed below is limited to incidental exposure during first aid, CPR, or emergency response activities and is not a routine job function.
- Job Classification: The listed positions with first aid, CPR, and AED certification could be exposed to bloodborne pathogens:
  - Project Managers
  - Project Engineers
  - Superintendents
  - Foreman
  - Craft Workers
  - Safety Professionals
  - Office Managers / Administrative Assistant
  - Designated First Aid Providers
- Tasks: Providing first aid and/or CPR to an injured or ill worker.
- Exposure: Potential exposure to blood and or other body fluids.

4.0 Methods of Compliance

- Universal Precautions shall be observed to prevent contact with blood or other potentially infectious materials. All body fluids shall be considered potentially infectious materials.
- The exposure control plan will be available on the project.
- First-aid kits shall be readily accessible. Employees rendering first aid shall use appropriate protective equipment to prevent exposure to blood or other potentially infectious materials.
- Any injured employee will report to the project office trailer and be provided with the first-aid materials, i.e. cleansing solution, Band-Aid, aspirin, etc., for minor injuries.

- In the event, an injured person requires assistance for treatment of the minor injury, the person rendering aid shall wear a pair of rubber medical-type gloves. (Rubber medical-type gloves are a required item of inventory of the first-aid kit.)

- Upon completing treatment of any injury, both the person providing assistance/treatment and the injured person will wash thoroughly with soap and water to remove all traces of blood or other body fluids from their skin. If clothing is contaminated with blood or body fluids, it shall be removed prior to continuing work to minimize the potential of additional distribution and contamination of other persons, materials, tools, etc. Place soiled clothing in a plastic bag. Discard clothing if contaminated with another person's blood. Contaminated clothing shall be handled, cleaned, or disposed of in accordance with this program and applicable regulations.

- Should a serious injury be incurred to an employee on the job site which results in extensive bleeding, and another employee comes to the injured's assistance (Good Samaritan) and is contaminated with the injured's blood, this employee will also be offered the hepatitis B vaccination free of charge.

- Any tool, material, working area, or equipment known to have been contaminated with human blood or other body fluids shall be cleaned/decontaminated prior to being put back into service. Any soil, material or other items, which cannot be cleaned or decontaminated, shall be disposed of in an appropriately approved manner.

- Areas and equipment that become contaminated with blood or body fluids should be cleaned immediately with an EPA-registered disinfectant or a freshly prepared bleach solution (¼ cup bleach per gallon of water) shall be used for decontamination.

5.0 Safe Work Practices

- Universal precautions should be observed at all times when working with bodily fluids.

- Hands shall be washed with soap and water and/or a disinfectant solution immediately after gloves are removed.

- Mouth pieces/barriers shall be available in the project first aid kits for performing CPR. In addition, a Bloodborne Pathogen spill kit will be kept with each kit.

6.0 Housekeeping Procedures

- If an area on the job site is encountered that has been contaminated with blood or body fluids, report the situation immediately to the Project Manager or Superintendent. Do not proceed into the area of possible exposure.

- Contaminated broken glass should never be picked up directly with the hands, even if wearing gloves. Use a brush and dustpan to clean up broken glass.

- All contaminated sharps (i.e. broken glass, needles, or any other sharp object) must be discarded in the designated sharps container. These containers will be on those

job sites where there is potential for exposure to sharps. The sharps containers are to be closeable, puncture resistant, leak proof, red in color or appropriately labeled with a biohazard tag. The sharps containers will be kept in the trailers. Never manually open, empty, or clean contaminated sharps containers.

- Any other items contaminated with potentially infectious material will be disposed of in a properly designated container. (i.e. red bag in spill kit)

- Any material contaminated with potentially hazardous material is regulated waste and must be discarded according to federal, state and local regulations.

7.0 Communication of Hazardous Materials

- The universal biohazard symbol must be affixed to containers of regulated waste. They must be in fluorescent orange or orange-red in color.

- Red bags or red containers may be substituted for red labels.

8.0 Hepatitis B Vaccinations

- The Hepatitis B vaccine and vaccination series are available to employees who have the potential for occupational exposure to bloodborne pathogens.

- The Hepatitis B vaccination shall be made available as soon as feasible following an exposure incident, in accordance with 29 CFR 1910.1030.

- The HBV vaccination series is provided at no cost to the employee and are provided by a licensed physician as specified by the Company.

- Employees exposed to bloodborne pathogens will have medical evaluation at the time of the exposure and be placed on post-exposure follow up by a licensed physician as specified by the Company.

- Hepatitis B vaccinations may be declined by the employee. A mandatory Hepatitis B vaccination declination statement must be signed by the employee. The employee may receive the vaccination at a later date if they desire.

- If routine boosters of the Hepatitis vaccine are recommended by the U.S. department of Public Health, the booster shots will also be available to the employee at no cost, and administered by a licensed physician as specified by the Company.

9.0 Post Exposure Documentation

- All post-exposure evaluations and medical records shall be treated as confidential in accordance with OSHA and applicable privacy laws.

- An employee exposure report form is to be completed as soon as possible after the exposure. Exposure means direct contact with blood or body fluids without protective equipment or not covered by protective equipment.

- An Incident Investigation Form is to be completed by the Project Manager or designee.

- All exposure reports will be kept by the Company for the duration of employment, plus thirty years.

- All medical records will be made available to anyone having the written consent of the subject employee or OSHA representatives.

10.0 Post Exposure Follow Up

- Should it become known to the project supervisory personnel that a person who had received first-aid medical treatment on the Project was confirmed to be infected with HIV or HBV, then the person(s) involved in that incident shall be provided the prescribed follow-up treatment.

- Management shall make immediately available to the exposed employee a confidential medical evaluation and follow-up, including at least the following:

  - Documentation of the route(s) of exposure, and circumstances under which the exposure occurred.

  - Identification of the source individual, if feasible.

  - Source individual's blood to be tested and the results made available to the exposed employee, if consented to. (Refer to Federal, State and Local Laws regarding obtaining consent and confidentiality for testing of blood.)

  - Exposed employee's blood to be tested for HBV and HIV serological status.

  - Offer HBV vaccination series to the exposed employee.

  - Provide counseling.

  - Provide a written opinion in accordance with 29 CFR 1910.130(f)(5).

11.0 Training

- Each employee with an occupational exposure shall receive training at the time of initial assignment and at least annually thereafter.

- Annual training shall be provided within one year of their previous training.

- Additional training shall be provided when changes to tasks or procedures occur.

- Training will be documented and be maintained for 3 years from the date on which the training occurred. Training records shall be maintained by the Safety Department.

Module 14 – Hazard Communication Program
OSHA 1910.1200 Hazard Communication
OSHA 1926.59 Hazard Communication

1.0 Introduction
2.0 Container Labeling
3.0 Safety Data Sheets (SDS)
4.0 Employee Training and Information
5.0 Non-Routine Tasks
6.0 Recordkeeping
7.0 List of Hazardous Chemicals
8.0 Informing Contractors

1.0 Introduction

- This program was developed to meet the requirements of OSHA 1910.1200 and 1926.59 Hazard Communication Standard.
- The written program will be available at all CGS jobsites for review by any interested employee.
- The guidelines within this program are designed to help reduce employee exposure to hazardous chemicals. The primary objective is to prevent exposure to hazardous chemicals by accepting controls that will provide protection.
- This program follows the guidelines set forth by the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). The GHS provides a common and coherent approach to classifying chemicals and communicating hazard information on labels and safety data sheets.

2.0 Container Labeling

- CGS Foremen shall verify that containers under their control are properly labeled and shall confirm that subcontractors maintain proper labeling for chemicals they bring onto the jobsite.
    - The identity of the contents, which must match the corresponding SDS.
    - Appropriate hazard warnings including routes of entry, target organs, and first aid measures.
    - The name, address, and phone number of the manufacturer, importer, or responsible party.
- Foreman will ensure that all secondary containers will be labeled with:
    - The identity of the contents matching the corresponding SDS.
    - Appropriate hazard warnings including routes of entry, target organs, and first aid measures.
- Each container of hazardous chemicals received from the chemical manufacturer, importer, or distributer will be labeled with the following information:
    - Product identifier
    - Signal word
    - Hazard statement(s)
    - Pictogram(s)

  - Precautionary statement(s)
  - Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

- CGS and our subcontractors will use the GHS labeling system for secondary containers. When a chemical is transferred from the original container to a portable or secondary container, the container will be labeled, tagged, or marked with a GHS label containing the following information:
  - Product identifier
  - Signal word
  - Hazard statement(s)
  - Pictogram(s)
  - Precautionary statement(s)
- Portable containers into which hazardous chemicals are transferred from labeled containers and that are intended for the immediate use by the employee who performs the transfer does not require a label. The container must be labeled if the portable container will be used by more than one employee or used over the course of more than one shift. Food and beverage containers shall never be used for chemical storage.

3.0 Safety Data Sheets (SDS)

- A SDS will be obtained and maintained for each hazardous chemical in the workplace. SDSs will be readily accessible during each work shift to employees via electronic access at MSDSonline.com. Hard copies can be printed upon request.
- SDSs will be obtained from the chemical manufacturer, importer, or distributer. The name on the SDS will be the same as that listed on the chemical inventory list.
- Subcontractors are responsible for obtaining and maintaining SDS for the project and shall immediately forward them to the superintendent. It is the responsibility for the subcontractor competent person to monitor for compliance.
- The project superintendent shall assure the SDS are readily available for project workers.
- Program Responsibilities
  - The Safety Director is responsible for overall administration of the Hazard Communication Program, including program review, policy updates, and oversight.

- Project Superintendents and Foremen are responsible for verifying container labeling, ensuring SDS availability, communicating hazards to employees, and enforcing program requirements in the field.
- Subcontractors are responsible for hazard communication related to chemicals they bring onto the jobsite, including SDS availability and employee training.
- Qualified third-party professionals will be engaged as necessary for exposure monitoring, specialized hazard assessments, or spill response beyond routine housekeeping.

- It is the policy for CGS that when toxic or hazardous substances are received without an SDS or the appropriate one is not on file at CGS; the chemical will be rejected or isolated from use by the Superintendent until the appropriate SDS is obtained and reviewed by the Safety Department.
- Supervisors will review incoming SDS for new and significant health and safety information and pass information to affected employees.

4.0 Employee Training and Information

- Employees shall receive hazard communication training from their employer. CGS will ensure that subcontractors have programs in place and that site-specific chemical hazards are communicated.
  - An overview of the requirements contained in the OSHA Hazard Communication standard, 1910.1200 and 1926.59.
  - Any operations in their work area where hazardous chemicals are present.
  - Location and availability of our written hazard program.
  - Physical and health hazards of the chemicals in their work area.
  - Methods and observation techniques used to determine the presence or release of toxic and hazardous substances in the work areas.
  - Safe practices that employees can use to protect themselves from hazards in their workplace; including specific procedures the employer has implemented to prevent exposure to hazardous chemicals such as engineering controls, emergency procedures, and personal protective equipment options.
  - Explanation of the labeling system and what the information means.
  - Explanation of SDS and how employees can use this information to protect themselves.
  - Training on pictograms and labels.

- Prior to a new chemical hazard being introduced into any section of the work site, the process will be reviewed and addressed at the site foreman's meeting before the scope of work begins.

5.0 Non-Routine Tasks

- The competent person and the immediate supervisor of an employee performing a non-routine task is responsible for ensuring that adequate training has been provided to the employee. Employees share in this responsibility by ensuring that their immediate supervisor knows that the non-routine task will be performed. Non-routine tasks involving hazardous chemicals must be reviewed with the Project Superintendent and Safety Department prior to work commencing.

6.0 Recordkeeping

- Records related to hazard communication training, chemical inventories, and SDS management will be maintained by CGS.

7.0 List of Hazardous Chemicals

- An inventory of all known toxic and hazardous substances used at CGS projects shall be maintained.

8.0 Informing Contractors

- It is the responsibility of the subcontractor or client vendor to provide CGS with the following information:
    - The toxic and hazardous substances on the jobsite and the appropriate SDS.
    - Precautionary measures that need to be taken to protect employees during normal operating conditions and foreseeable emergencies.
    - Explanation of labeling systems used.
- The project manager will be responsible for contacting each subcontractor before work begins to gather and disseminate any information concerning chemical hazards that the contractor will bring to our workplace and notify the Safety Director of any high hazard products or materials.

Module 15 – Respiratory Protection Program
OSHA 1926.103 Respiratory Protection

1.0 Introduction
2.0 Engineering Controls
3.0 Responsibilities
4.0 Work Area Surveillance
5.0 Use of Respirators
6.0 Selection of Respirators
7.0 Types of Respirators
8.0 Selection of Cartridges
9.0 Cleaning and Storage of Respirators
10.0 Inspection and Maintenance of Respirators
11.0 Medical Examinations
12.0 Fit Testing
13.0 Training

APPENDIX OSHA Appendix D

1.0 Introduction

- The guidelines within this program are designed to help reduce employee exposure to occupational air contaminants. The primary objective is to prevent excessive exposure to these contaminants. This is accomplished as far as feasible by accepted engineering and work practice control measures. When effective engineering controls are not feasible, or while they are being implemented or evaluated, respiratory protection may be required to achieve this goal. In these situations, respiratory protection is provided at no cost to the employees.

- A respirator wearer must be physically capable of withstanding the additional demands on the respiratory system.

- Personnel are to refer to their Pre-Task Planners and other methods to identify conditions that may require the use of respiratory protection.

2.0 Engineering Controls

- The primary objective of this respirator program is to control occupational disease caused by breathing air contaminated with harmful dust, fog, fumes, mists, gases, smoke, sprays, and vapors. The following engineering controls will be implemented:

  - General and local ventilation

  - Substitution of less toxic material

  - Enclosure or confinement of the work task

- When engineering controls have not eliminated the hazard, respirators will be used as a last resort.

3.0 Responsibilities

- The CGS Safety Department is responsible for overall administration of the Respiratory Protection Program, including program oversight, policy updates, training coordination, and recordkeeping.

- Project Superintendents and Foremen are responsible for enforcing respirator use requirements in the field and ensuring employees comply with program elements.

- Subcontractor employers are responsible for implementing and administering respiratory protection programs for their employees.

- Qualified third-party professionals will be engaged as required for exposure assessments, air monitoring, or specialized evaluations.

- Workers

- Use respiratory protection in accordance with the manufacturer's instructions and training provided.
- Immediately report any defects in the respiratory protection equipment and immediately evacuate to a safe area when there is a respirator malfunction.
- Promptly report to the supervisor any symptoms of illness that may be related to respirator usage or exposure to hazardous atmosphere.
- Care for, clean, and store assigned reusable respirators in accordance with manufacturer instructions and training provided
- Be clean-shaven in all facial areas that seal the respirator to the face.
- Inspect the respirator before each use in accordance with the training provided.
- Perform a user seal negative and positive respirator fit check each time a respirator is donned in accordance with training provided.
- Comply with medical evaluation requirements.

4.0 Work Area Surveillance

- The site supervisor / foreman is responsible for the following:
  - Maintain appropriate work area surveillance to ensure acceptable work conditions.
  - Maintain general work area awareness and report conditions that may require respiratory protection or further evaluation.
- The Safety Director will inspect areas where respirators are used to verify compliance with the Respiratory Protection Program.

5.0 Use of Respirators

- Voluntary use of respirators shall comply with Appendix D to 29 CFR 1910.134.
- All employees required to use respiratory protection must receive training in the proper use of the equipment and its limitations.
- All employees are to undergo a medical evaluation and fit testing prior to wearing a respirator.
- Respirators should be properly maintained, correctly used, and conscientiously worn.
- Employees may not have facial hair that impairs a proper seal.
- Employees must leave the contaminated area immediately upon suspicion of:

- Upon malfunction of the respirator.
- Upon detection of leakage of contaminant into the respirator.
- If increased breathing resistance of the respirator is noted.
- If severe discomfort in wearing the respirator is detected.
- Upon illness of the respirator wearer, including: sensation of dizziness, nausea, weakness, breathing difficulty, coughing, sneezing, vomiting, fever, and chills.
- To wash face to prevent skin irritation.
- To change filter/cartridge elements or replace respirators whenever they detect the warning properties of the contaminant or increased breathing resistance.

- Work in atmospheres that are Immediately Dangerous to Life or Health (IDLH) is not routinely performed by CG Schmidt. If such conditions are identified or anticipated, work shall stop and qualified third-party professionals shall be engaged to evaluate and control the hazard before work resumes.

6.0 Selection of Respirator

- The CGS Safety Director provides oversight and guidance regarding respiratory protection selection. Final respirator selection shall be based on manufacturer guidance, applicable OSHA standards, and task-specific hazard evaluations.
- Subcontractors are solely responsible for medical evaluations, fit testing, training, and program administration for their employees.
- Employers shall provide the respirators that are applicable and suitable for the purpose intended.
- Respirators are used for two purposes:
  - Protect against an oxygen deficiency or enriched atmosphere, which is less than 19.5% oxygen or greater than 23.5% oxygen. Normal atmosphere has about 21% oxygen level. Respirator selection shall be based on known or anticipated hazards, applicable OSHA standards, and exposure assessments performed by qualified personnel when required.
  - Protect against toxic contaminants such as:
    - Asbestos.
    - Carbon Monoxide.

    - Lead.
    - Paints and Epoxies.
    - Heavy Dusts and Irritants.

- Proper respiratory protection is based upon air surveillance and sampling of suspected hazardous substances. Testing is performed for chemical and physical properties of the contaminant, as well as the toxicity and concentrations of the hazardous material.
- Use the following link to access 3M's Respiratory Protection Selection Guide
    - https://multimedia.3m.com/mws/media/639110O/3m-respirator-selection-guide.pdf

7.0 Types of Respirators

- Dust mask disposable respirators.
    - Used for nuisance dust.
    - Mist from sprays that do not produce harmful vapors.
- Negative pressure respirator.
    - Half Face Respirator.
    - Full Face Respirator.
    - Powered Air Purifying Respirators (PAPR).
    - Self-Contained Breathing Apparatus (SCBA).
    - Air Supplied Respirator.

8.0 Selection of Cartridges

- Cartridges are selected according to the contaminants in the work area.
- Manufacture's masks must be used with the same manufacturer's cartridges. You cannot substitute filters with another manufacturer's mask.

9.0 Cleaning and Storage of Respirators

- Respirators will be cleaned and sanitized by the user after each day of use.
- Remove the cartridge to keep it dry.

- Remove the following and wash each separately:
  - Face piece.
  - Inhalation and exhalation valve flaps.
  - Gaskets, breathing tubes.
  - Cartridge element connection.
  - Wash in a warm sanitizing detergent solution.
  - Rinse in warm water and let dry at room temperature in a non-contaminated area.
  - Reassemble only after respirator is completely dry.
- Respirators and filters will be stored in a cool, dry place fee of contaminants, dust, and excessive heat that may cause damage to the respirator.

10.0 Inspection and Maintenance of Respirators

- Respiratory protective equipment shall be inspected regularly, including a leak check, and maintained in good condition.
- All repairs to respiratory protective equipment must be performed by a qualified person.
- Air purifying cartridges shall be replaced as necessary so as to provide complete protection. Cartridges should not be allowed to reach the breakthrough point before being replaced.
- Mechanical particulate filters shall be cleaned or replaced as necessary so as to avoid undue resistance to breathing.
- All filters, cartridges, and canisters must be labeled and color coded with NIOSH approved labels.

11.0 Medical Examinations

- Every employee considered for inclusion in the Respiratory Protection Program must participate in a medical evaluation.
- A mandatory medical evaluation questionnaire in 1910.134 must be used and reviewed by the company PLHCP.
- If the PLHCP deems it necessary, the employee will receive an examination at no cost to the employee.

- The purpose of the medical evaluation is to assure that the employee is physically and psychologically able to perform the assigned work while wearing respiratory protective equipment.
- If the PLHCP denies approval, the employee will not be able to participate in the Respiratory Protection Program.
- Copies of the medical evaluation and questionnaire must be kept as a medical record in accordance with 1910.1020.
- A copy of the written medical determination must be kept in the employees file.
- A determination of the employee's ability to wear a respirator while working is made initially before fit testing.
- Future evaluations are made when there is a change in workplace conditions or information indicating a need for re-evaluation.

12.0 Fit Testing

- Employees will be properly fitted and tested for a face seal prior to use of the respirator in a contaminated area.
- Fit testing will be done initially upon employee assignment to an area where tight fitting respirators are required and will be repeated at least every 12 months thereafter.
- Qualitative or quantitative fit testing shall be conducted using OSHA-accepted methods in accordance with 29 CFR 1910.134.
- Positive pressure tight-fitting respirators will be fit tested in the negative pressure mode.

13.0 Training

- Both supervisors and workers are to be trained by the Safety Director in the following:
  - Basic respiratory protection practices, including limitations.
  - Selection and use of respirators.
  - Nature and extent of the hazards to which employees will be exposed.
  - Maintenance and storage of respirators and cartridges.
  - The legal and regulatory requirements pertaining to the use of respirators.
- Training is to be completed upon initial assignment and annually thereafter.

Appendix: OSHA Appendix D

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

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

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.

2. Choose respirators certified for use to protect against the contaminant of concern. The National Institute for Occupational Safety and Health (NIOSH) of the U.S. Department of Health and Human Services certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.

3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.

4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

_____ _____

Employee Signature Date

Module 16 – Confined Space
1926 Subpart AA - Confined Spaces in Construction

1.0 Introduction
2.0 Definitions
3.0 Duties and Responsibilities
4.0 Procedures for Entering a Permit-Required Confined Space
5.0 Written Permit System
6.0 Training
7.0 Rescue and Emergency Services
8.0 Alternate Procedures Confined Space
9.0 Concluding Entry Operations
10.0 Program Review and Revision

Appendix: Confined Space Entry Permit

1.0 Purpose

- This document provides practices and procedures that must be followed when entering a permit-required confined space. This program is intended to be in compliance with the requirements of OSHA Subpart AA -- 29 CFR 1926.1200.

- CGS policy prohibits entry into permit-required confined spaces without first identifying and, if necessary, eliminating or isolating all potential hazards. Before workers enter a permit-required confined space, CGS will make every effort to eliminate or isolate all existing or potential hazards in order to reclassify the confined space using alternative procedures establish by OSHA regulations or to classify the space as a non-permit-required confined space as permitted by OSHA regulations. The procedures set forth in this program must be followed by all employees prior to entering into a confined space of any type, shape, configuration, or classification.

2.0 Definitions

- Confined space - is a space that:

  - Is large enough and so configured that an employee can bodily enter and perform assigned work,

  - Has limited or restricted means for entry or exit, and

  - Is not designed for continuous human occupancy. Examples of confined spaces include but are not limited to manholes, sewers, storm drains, water mains, pipelines, drilled shafts, enclosed beams, digesters, lift stations, underground utility vaults, tunnels, wind turbines, concrete pier towers, transformer vaults, tanks, process vessels, bins, pits, silos, boilers, incinerators, ventilation or exhaust ducts, pipe chassis, crawl spaces, and attics.

- Permit-required confined space **-** is a confined space that either:

  - Contains or has the potential to contain a hazardous atmosphere,

  - Contains a material that has the potential for engulfing an entrant,

  - Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section, or

  - Contains any other serious safety or health hazard.

  - Note: All confined spaces are considered to be a permit-required confined space until the space is tested and evaluated by the Entry Supervisor who must determine if the confined space may be reclassified as an alternative entry or non-permit required confined space.

- Controlling Contractor - is the employer who has the overall responsibility for construction at the work site. The Superintendent must notify all employers who have workers onsite that a permit-required confined space is present on the site, its location, and any hazards it poses.

- Entry Employer - is any company that employs or directs employees who will enter confined spaces. The entry employer is responsible for the safety of all employees assigned to work inside or around confined spaces.

  - If it is necessary for employees of this company to enter a permit-required confined space the entry supervisor must ensure that a copy of the Confined Space Entry Program is available at the construction site and that it is implemented whenever employees are directed to enter a confined space. The written program must be made available prior to and during entry operations to employees and their authorized representatives.

- Program Administrator - The Confined Space Entry Program will be administered by the safety department. The administrator will ensure all project managers, superintendents, supervisors, foremen, and crew leaders are aware of the content of the Confined Space Entry Program and of their responsibilities to implement the program at their jobsites. The Safety Department provides program oversight, guidance, and support. Site-specific execution and entry decisions are the responsibility of the Entry Supervisor.

- The program administrator will ensure a copy of the confined space entry program is available on all jobsites where a confined space is known to exist or may exist as the construction work progresses.

3.0 Duties and Responsibilities

- Entry Employer Safety Department

  - The safety department shall be responsible for the development, documentation, and administration of the Confined Space Entry Program. In fulfilling these responsibilities, the safety department shall carry out the following tasks:

    - Develop the written Confined Space Entry Program and revise the program as necessary.

    - Maintain records of employee training.

    - Provide guidance for the proper selection and use of appropriate gas monitoring equipment, respiratory protection, and personal protective equipment to meet the requirements of this program.

    - Annually audit work operations and documentation using canceled permits to evaluate the overall effectiveness of the Confined Space Entry Program and

ensure that employees participating in entry operations are protected from permit space hazards.

- Assist each manager/supervisor in identifying confined spaces encountered by his/her employees.

- Provide guidance for the proper selection and use of appropriate safety and rescue equipment to meet the requirements of the Confined Space Entry Program.

- Supervisors shall identify and report all job areas and locations that are or may be confined spaces. A list of confined spaces that are identified shall be submitted to the Safety Department and the Controlling Contractor.

- An Entry Supervisor is a qualified person, such as a foreman or crew leader, who is responsible for classifying the confined space, determining if acceptable entry conditions are present at a permit-required confined space, for authorizing entry, and overseeing entry operations. An entry supervisor may serve as an attendant or entrant if that individual is trained and equipped to perform the task. The designated Entry Supervisors shall carry out the following tasks:

  - Identify and evaluate the hazards of permit spaces before employees enter them.

  - Classify confined spaces as “permit required”, “alternate procedure”, or "non-permit required.”

  - Take the necessary measures to prevent unauthorized entry into confined spaces by posting danger signs, notifying other employers and employees’ onsite or their authorized representative of the existence, location, and hazards of the confined spaces.

  - Check that the permit has been completed properly and that gas monitoring and other tests have been conducted before permitting entry and signing the permit.

  - Identify personnel who are authorized to enter the confined space(s).

  - Identify the employees under their supervision who are required to wear respirators.

  - Implement isolation/lockout program procedures for the confined space hazards.

  - Verify atmospheric monitoring is conducted as required to ensure acceptable entry conditions are maintained.

  - Verify ventilation is provided when required to control or eliminate atmospheric hazards.

- Provide instructions and necessary additional training to employees who may enter confined spaces if conditions or hazards exist for which employees have not been trained.
- Provide instruction to personnel on the proper use of equipment required for confined space entry.
- Inform personnel about respiratory hazards in confined spaces.
- Verify a rescue plan has been prepared and rescue services are available for all permit-required confined space(s).
- Conduct a pre-entry briefing to inform attendants and entrants of possible hazards that may be encountered.
- Maintain equipment that is used to enter confined spaces.
- Maintain records of equipment maintenance and employee training.
- Conduct work site inspections to verify compliance with confined space entry procedures.
- Remove unauthorized individuals who enter or attempt to enter the confined space.
- Issue and cancel entry permits.

- An Attendant is the individual stationed outside the permit-required confined space and has the following knowledge and responsibilities:
  - Is familiar with and understands the hazards that may be faced during entry into the confined space.
  - The attendant shall only monitor one confined space at a time. If employees are entering multiple spaces simultaneously, a separate attendant is required for each confined space.
  - Is aware of possible behavioral changes and effects of hazard exposures to entrants.
  - Continuously maintains an accurate count of entrants.
  - Remains outside the space until relieved by another attendant or all entrants have exited the confined space.
  - Assists and communicates with entrants.
  - Assesses activities inside and outside the space to determine if it is safe for entrants to remain in the space.

- Alerts entrants of the need to evacuate the space.
- Summons rescue and other emergency services as soon as the attendant determines that the entrants may need assistants to escape the confined space.
- Performs non-entry rescue when possible using the tripod and retrieval systems.
- Prevents unauthorized entry into the confined space while entry is underway.
- Performs no duties that might interfere with the attendant's primary duty to assess and protect the entrants.
- Under no circumstances enter into a confined space to perform a rescue unless properly trained to perform confined space rescue and until properly relieved by another authorized attendant.

- Entrants are the individuals who enter into a confined space to perform assigned tasks. Entrants must:
  - Be familiar with and understand the hazards they may face during entry into a confined space.
  - Know how to properly use the safety equipment provided for entry into the space.
  - Communicate with the attendant on a regular and as needed basis to allow the attendant to assess the entrant's status and to alert the entrant of the need to evacuate the space if needed.
  - Alert the attendant of any hazardous conditions or situations identified within the space.
  - Evacuate the space immediately when ordered by the attendant or entry supervisor, or if the entrant detects a prohibited condition.
  - Report any deficiencies or malfunctions of equipment to the attendant or entry supervisor.
  - Understand emergency procedures in case of an accident in a confined space

4.0 Procedures for Entering a Permit-Required Confined Space

- The Entry Supervisor will identify and classify every confined space as a permit-required confined space, alternate procedure confined space, or non-permit confined space. When permit-required confined spaces are identified, supervisors will also be responsible for the following:
  - To prevent unauthorized entry into permit-required confined spaces, Supervisors must post warning signs, erect barriers as needed, and notify the controlling

contractor and other onsite employers of the location(s) and dangers posed by each permit-required confined space.

- Entry Supervisor will identify and evaluate the hazards in confined spaces before classifying the confined space. All confined spaces must be classified before allowing employee(s) to enter into the confined space. The following hazards shall be identified prior to entry into a confined space:
  - Atmospheric hazards
  - Oxygen deficient or enriched
  - Flammable atmospheres
  - Toxic atmospheres
  - Electrical hazards
  - Mechanical hazards
  - Engulfment hazards
  - Physical hazards (falls, debris, slipping hazards)
  - Danger of unexpected movement of machinery
  - Pneumatic or hydraulic hazards
  - Burn hazards
  - Heat stress hazards
  - Noise hazards
  - Other known hazards
- The Entry supervisor will utilize the entry permit to implement procedures and practices necessary for safe permit space entry operations. The permit must be completed before entry into the space. These include, but are not limited to:
  - Designating Attendants and Entrants who have been trained and authorized to enter into permit-required confined spaces.
  - Contact the host/owner to determine if there are any known or potential confined space hazards.
  - Specify acceptable entry conditions and test the confined space with a gas monitor to determine if acceptable entry conditions exist before changes to

the natural ventilation are made. Where possible test the atmosphere in the space with a gas monitor before removing the cover.

- Eliminate any conditions that could make it unsafe to remove an entrance cover.
- Provide employees and their representatives the opportunity to observe monitoring and testing of the space; provide them with the results.
- Air monitoring will be conducted before entry and for the duration of the work.
- Employees or their representatives have the right to have the space re-evaluated for atmospheric hazards at any time.
- Eliminate or isolate the permit space and any physical hazards within the permit space.
- Purge, flush, and/or ventilate the permit space as necessary to eliminate or control atmospheric hazards.
- Alert workers of any atmosphere changes and/or if the ventilation system stops working.
- Provide pedestrian, vehicle, or other barriers as necessary to protect workers from external hazards.
- Hold pre-entry briefings to inform all employees who will work in or around the confined space of the hazards and safety conditions of the particular job.
- Verify that conditions in the permit space are acceptable to enter by testing with a gas monitor and through visual observations prior to allowing entry into the confined space.

- Hazards shall be controlled by the following mechanisms:
  - Eliminate or isolate physical hazards and energy sources (lockout, tagout, disconnect, linkage, etc.).
  - Provide appropriate personal protective equipment (PPE).
  - Continuously monitor the atmospheric conditions in the confined space with a gas monitor for the duration of entry operations.
  - Continuously ventilate the confined space for the duration of entry operations.

- Provide an early-warning system that continuously monitors for non-isolated engulfment hazards (such as a flash flood).
- Assign an attendant outside all permit-required confined spaces for the duration of entry operations.

- Supervisors must have the following equipment available and provided where necessary:
  - Gas monitors and other test equipment must be provided, properly calibrated, used, and maintained.
  - Ventilation equipment of the proper size and type must be available, used, and maintained.
  - Where necessary, electronic communications equipment must be available, used, and maintained.
  - Personal protective equipment (PPE) must be provided and used by employees. PPE may include respiratory protection.
  - Lighting must enable employees to see well enough to work and exit safely. If the space has the potential to contain a flammable or combustible atmosphere, intrinsically safe lighting must be provided.
  - Barriers must be provided to guard the opening to the space.
  - Barriers to guard, cover, or make safe any exposed hazards the employee may contact within the space must be erected.
  - Ladder or other safe means for entering and exiting the space must be on hand.
  - Non-entry rescue equipment, such as a tripod, mechanical retrieval equipment, and body harness for non-entry rescue must be present

5.0 Written Permit System

- A permit system must be used for entry into permit-required spaces. Permits must be completed by the Entry Supervisor. All confined space entry permits shall include the date, location, and name and signature of the entry supervisor before entry begins.
- The completed entry permit must be available to entrants or their authorized representative at the time of entry. This may be accomplished by posting the permit at the portal or by any other equally effective means.
- The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit. The entry supervisor must:

- Terminate entry and cancel the permit when the work is complete.
- Suspend or cancel the entry permit and reassess the confined space if an unacceptable entry condition is encountered.
- Cancel the entry permit if a condition that is not allowed arises in or near the confined space.

- Each canceled entry permit shall be retained for at least one year to facilitate the review of the permit-required confined space program. Any problems encountered during an entry operation shall be noted on the pertinent permit so that appropriate revisions to the permit space program can be made.

6.0 Training

- All employees involved in confined space entry operations must receive confined space entry training to ensure they possess the understanding, knowledge, and skills necessary for the safe performance of their assigned duties. Confined space entry training must be provided for all employees who will be assigned as competent persons, entry supervisors, attendants, and entrants.

- Confined space entry training must be provided to each affected employee. The training shall be provided:
  - In both a language and vocabulary the employee can understand.
  - Before the employee is assigned duties.
  - Before there is a change in permit space operations that presents a hazard for which an employee has not previously been trained.
  - Whenever there is reason to believe either that there are deviations from the permit space entry procedures or that there are inadequacies in the employee's knowledge or use of these procedures.

- The training shall establish that the employee understands the hazards, methods, means, and procedures necessary to protect him/herself from the hazards. The employee must also understand his/her assigned duties as listed under Duties and Responsibilities and any other duties they will be expected to perform, such as rescue. However, employees not authorized to perform rescue operations must be informed of the dangers of attempting rescue.

- The safety department shall certify that the training has been accomplished. Training records shall contain each employee's name, the name of the trainer, and the dates of training. The documentation shall be available for inspection by employees and their authorized representatives.

- Only trained entry supervisors, attendants, and authorized entrants shall be authorized to work in and around a permit-required confined space or any other confined space.

7.0 Rescue and Emergency Services

- Where ever possible, the use of non-entry rescue systems or methods shall be used.

- Where non-entry rescue is not possible, the safety department must be notified and will coordinate rescue and emergency services with designated providers. The rescuer service(s) will be invited to the jobsite and made aware of the hazards they may confront when called on to perform rescues. The rescuers shall be responsible to equip, train, and conduct rescue. The Entry Supervisor will provide the rescue service with access to all permit spaces from which rescue may be necessary so that they can develop appropriate rescue plans and practice rescue operations. Work in atmospheres that are immediately dangerous to life or health (IDLH) is not routinely performed by CG Schmidt. If such conditions are identified or anticipated, work shall stop and qualified third-party professionals shall be engaged before entry resumes.

    - Non-entry rescue is the preferred method for rescue of employee(s) from a permit-required confined space. Employees shall not enter a permit space to attempt rescue unless they have been specifically trained and equipped for confined space rescue operations.

    - To facilitate non-entry rescue, retrieval systems or methods shall be used whenever an authorized entrant enters a permit space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant.

    - Non-entry rescue retrieval systems shall meet the following requirements:

        - Each authorized entrant shall use a chest or full body harness, with a retrieval line attached at the center of the entrant's back near shoulder level or other appropriate attachment point.

        - The other end of the retrieval line shall be attached to a mechanical retrieval system or fixed point outside the permit space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device shall be available to retrieve personnel from vertical type permit spaces more than 5-feet deep

        - The entry supervisor will designate and confirm, prior to entry, that emergency assistance would be available in the event non-entry rescue fails.

        - Contact information for emergency rescue services shall be listed on the confined space permit.

        - If the injured entrant is exposed to any substance with a required SDS or similar document, that SDS or document will be made available to the medical provider treating the entrant(s).

- If rescue becomes necessary, the entry supervisor or attendant shall:
  - Notify and summon the rescue team/service
  - Attempt non-entry rescue procedures utilizing the mechanical retrieval system
  - Continue to ventilate the confined space
  - Monitor the situation and be prepared to provide the rescuers with the following information:
    - Number of victims
    - The status of victims
    - The time the incident occurred
    - Existing or potential hazards
    - Gas monitor readings
    - What the victim was doing
    - Names of chemicals that were being used
    - Other applicable information

- When non-entry rescue methods are infeasible or inappropriate for the confined space due to the number of entrants, type of work task, space configuration, or other limiting or restricting situations, the safety department will designate and arrange for rescue and emergency services. Prior to beginning entry operations the safety department shall:
  - Invite the rescue service to the jobsite and provide the prospective rescue team access to the confined space from which rescue may be necessary.
  - Inform the prospective rescue service of the potential hazards.
  - Evaluate the rescuer services ability to respond to a rescue summons in a timely manner.
  - Evaluate the rescue services ability to perform confined space rescue.
  - Evaluate the rescue services capability to respond in a timely manner.
  - Determine if the rescue service is equipped to perform a rescue.

- Determine if the rescue service will notify the entry supervisor when unavailable to perform rescue.

8.0 Alternate Procedures Confined Spaces

- Every confined space is considered to be a permit-required confined space until it is reclassified by the Entry Supervisor. Prior to reclassifying a confined space, the hazards must be evaluated and the atmosphere within the space must be tested with a gas monitor by the Entry Supervisor. Before a space can be reclassified and downgraded to an alternate procedure or non-permit confined space, it must comply with the following.

- Employees who enter a confined space need not comply with the permit-required confined space procedures set forth in the permit-required confined space entry program provided that:

  - It can be demonstrated that all physical hazards in the space are eliminated or isolated through engineering controls so the only hazard posed by the permit space is an actual or potential hazardous atmosphere.

  - It can be demonstrated that continuous forced air ventilation alone is sufficient to maintain the permit space safe for entry and that, in the event the ventilation stops working, entrants can exit the space safely.

  - Monitoring and inspection data are developed that support the previous conclusions.

  - If an initial entry of the permit space is necessary to obtain the data required, the entry is performed according to the procedures set forth in this document concerning entry into a permit-required confined space.

  - The determinations and supporting data required are documented and certified by the Entry Supervisor including the date, location and supervisor's name and signature.

- Employees who enter into confined spaces using the alternative entry methods must implement and comply with the alternative entry procedures established by this Confined Space Entry Program.

- The alternative entry certification shall be made available for review by each employee who enters the space.

- The following requirements apply to entry into permit spaces that meet the conditions set forth in the requirements for Reclassification to Alternate Entry.

  - Any condition making it unsafe to remove the entrance cover must be eliminated before the cover is removed.

- The opening to the confined space must be immediately guarded by a railing, temporary cover, or other temporary barrier.
- The atmosphere in the confined space must be tested and continuously monitored for the duration of entry operations.
- No hazardous atmosphere is permitted within the confined space whenever an employee is inside the space.
- Continuous forced air ventilation must be provided and directed to areas where the employee is performing entry operations.
- If a hazard is detected the employee must leave the space immediately and the space must be evaluated to determine how the hazard developed.
- Measures must be implemented to protect employees from the hazard(s) before reentering the space.
- A safe method for entering and exiting the space must be provided such as a ladder or approved hoisting and retrieval system.
- Where changes in the use or configuration of the space may increase the hazards the space must be reevaluated by the Entry Supervisor.

- Employees who enter a confined space need not comply with the permit-required or alternative entry procedures set forth in the program provided that:
  - It can be demonstrated that the space poses no actual or potential atmospheric hazards and all potential physical hazards within the space are eliminated without entry into the space, the permit space may be reclassified as a non-permit confined space for as long as the non-atmospheric hazards remain eliminated.
  - If it is necessary to enter the permit space to eliminate hazards, such entry shall be performed by following the permit-required confined space procedures. If testing and inspection during that entry demonstrate that the hazards within the permit space have been eliminated or isolated, the permit space may be reclassified as a non-permit confined space for as long as the hazards remain eliminated or isolated.
  - The basis for determining that all hazards in a permit space have been eliminated or isolated has been documented.
  - If hazards arise within a permit space that has been declassified to a non-permit confined space under this section, each employee in the space shall exit the space. The confined space shall then be reevaluated by the Entry Supervisors to determine whether it must be reclassified as a permit space or alternative entry.

- **Note:** Control of atmospheric hazards through forced air ventilation does not constitute elimination of the atmospheric hazards.

- Employees who enter into confined spaces that have been reclassified as non-permit entry need not implement and comply with the permit-required or alternative entry procedures established by this Confined Space Entry Program.

- The non-permit certification shall be made available to each employee who enters the space.

- If a prohibited condition is detected at any time, employees shall immediately exit the space and entry operations shall be reassessed.

9.0 Concluding Entry Operations

- The Entry Supervisor will determine when the entry operations have been completed. The permit space will be checked to verify all workers have exited the confined space and the space shall be closed. If the confined space was permit-required the entry supervisor will cancel the permit with the date, time, and signature at the bottom of the Confined Space Permit.

- Spaces that have been classified alternative entry or non-permit will also be checked to verify all workers have exited the space and the space shall be closed. A notation shall be made on the certification that the space was closed along with the date, time, and signature of the supervisor.

10.0 Program Review and Revision

- The safety department will review entry operations and revise the procedures to correct any deficiencies before subsequent entries are authorized.

- The safety department will also review the program annually to determine if the program can be improved.

ENTRY PERMIT
(Permit valid for 8 hours only)

Circle One: Confined Space Hazardous Area

Site Location and Description	Date:
	Time: AM/PM
Purpose of Entry	Expires: AM/PM

SUPERVISOR(S) IN CHARGE OF CREWS	TYPE OF CREW	PHONE NUMBER

Italic print areas denote minimum requirements to be completed and reviewed prior to entry.

REQUIREMENTS COMPLETED	DATE	TIME	REQUIREMENTS COMPLETED	DATE	TIME
Lockout/De-Energize/Tryout			***Full Body Harness with "D" Ring***		
Line(s) Broken/Capped/Blanked			***Emergency Escape Retrieval***		
Purge/Flush/Vent			***Life Lines***		
Ventilation			Fire Extinguishers		
Secure Area (Post and Flag)			Lighting (Explosive Proof)		
Breathing Apparatus			Protective Clothing		
Resuscitator/Inhalator			Respirator(s) Air Purifying		

Standby/Safety Personnel			Burning and Welding Permit		

Note: Items that do not apply enter N/A in the box.

*Record atmospheric monitoring results at intervals necessary to ensure acceptable entry conditions are maintained.

CONTINUOUS MONITORING TEST(S) RESULTS:	PERMISSIBLE ENTRY LEVEL	TIME:	TIME:	TIME:	TIME:	TIME:	TIME:
Percent of Oxygen (O2)	19.5% - 23.5%						
Lower Exposure Limit (LEL)	Under 10%						
Carbon Monoxide (CO2)	+35 PPM						
Hydrogen Sulfide (H2S)	+10 PPM						
Other							

NOTE: "+" denotes 8-hour time weighted average. Employee can work in area 8 hours (longer with appropriate respiratory protection).

ATTENDANT/GAS TESTER'S	INSTRUMENT USED	MODEL AND/OR TYPE	SERIAL OR UNIT NO.

Attendant Standby Person is Required for all Confined Space Work

NAME OF CONFINED SPACE ENTRANTS(S)	NAME OF CONFINED SPACE ENTRANTS(S)

Supervisor Authorizing Entry: _____

Emergency Phone Number: _____

Module 17 – Excavations
1926 Subpart P - Excavations

1.0 Introduction
2.0 Soil Types
3.0 Before Excavating
4.0 Protective Support Systems
5.0 General Requirements

1.0 Introduction

- This section applies to all excavations made in the earth's surface. Excavations are defined to include trenches.

- Safety Director is responsible for developing and maintaining the written Excavation Procedures.

- Our Excavation Procedures are administered under the direction of CGS / Subcontractor competent person(s), someone capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. CG Schmidt designates a site-specific competent person for excavation activities. Superintendents or Foremen may serve in this role when trained and authorized to identify hazards and take prompt corrective measures.

2.0 Soil Types

- **Stable Rock:** natural solid mineral matter which can be excavated with vertical sides and remain intact while exposed.

- **Type A Soil:** is cohesive with an unconfined compressive strength of 1.5 tons per square foot (tsf). Type A soils include clay, silty clay, sandy clay, clay loam, caliche, hardpan, and sometimes-silty clay loam and sandy clay loam. No soil should be classified as Type A if it is fissured; subject to vibration from traffic, pile driving, or similar effects; previously disturbed; or part of a sloped, layered system where the slope is four horizontal to one vertical or greater.

- **Type B Soil:** is cohesive soil with an unconfined compressive strength greater than.5 tsf but less than 1.5 tsf. Type B soils include granular cohesionless soils like angular gravel, silt, silt loam, sandy loam, and sometimes silty clay loam and sandy clay loam; previously disturbed soils that are not Type C; fissured soils and soils subject to vibration that would otherwise be classified as Type A; dry rock that is not stable; and material that is part of a sloped, layered system where the layers dip on a slope less steep than four horizontal to one vertical.

- **Type C Soil:** is cohesive soil with an unconfined compressive strength of.5 tsf or less. Type C soils include granular soils such as gravel, sand, and loamy sand; submerged soil; soil from which water is freely seeping; submerged rock that is not stable; or material in a sloped, layered system where the layers dip into the excavation at a slope of four horizontal to one vertical or steeper.

3.0 Before Excavating

- A CGS Dig Permit is required to be completed each day prior to any digging and approved by CGS Project Leadership.

- Before beginning an excavation, follow the steps below:
  - Contact the utility companies or property owners and ask the companies or owners to find the exact location of the underground installations in the area.
  - When appropriate, GPRS or other subsurface investigation services shall be used to assist in identifying underground utilities or structures.
  - Using Appendix A to 29 CFR 1926, Subpart P, classify the type of soil and rock deposits at the site as either stable rock, Type A, Type B, or Type C soil. The soil classification is based on the results of at least one visual and at least one manual analysis conducted by a competent person. Details of the acceptable visual and manual analyses are to be found in Appendix A of 29 CFR 1926, Subpart P.
  - The competent person chooses the appropriate method for protective support systems, as necessary.
  - If site conditions change, utilities are discovered, or hazards are identified, excavation work shall stop until the permit is re-evaluated and re-approved.

4.0 Protective Support Systems

- An adequate protective system designed in accordance with OSHA standards is required to protect workers.
- Protective system options include proper sloping or benching of the sides of the excavation; supporting the sides of the excavation with timber shoring or aluminum hydraulic shoring; or placing a shield between the side of the excavation and the work area.
- Protective systems must comply with OSHA tabulated data, manufacturer specifications, or engineered designs as required. Competent persons are not authorized to deviate from these requirements.
- CGS has the following standard operating procedures regarding protective support systems for excavations, in accordance with safe practices and procedures and OSHA excavation regulations:
  - If the excavation is made entirely of stable rock, then no protective system is necessary or used.
  - If the excavation is less than 5 feet in depth and examination of the ground by a competent person provides no indication of a potential cave-in, then no protective system is necessary or used.
  - If the excavation is 20 feet or less in depth, the competent person may select an appropriate protective system in accordance with OSHA tabulated data, manufacturer specifications, or approved engineered systems.

- For excavations over 20 feet in depth a registered professional engineer must design the protective systems for use in that excavation.

- When sloping is used to protect against cave-ins, these options can be chosen for designing sloping systems:
  - If a soil classification is not made, then slope the sides of the excavation to an angle not steeper than one and one-half horizontal to one vertical (34 degrees). A slope of this gradation or less is considered safe for any type of soil.
  - Use Appendices A and B of 29 CFR 1926, Subpart P to determine the maximum allowable slope and allowable configurations for sloping systems. The soil type must be determined in order to use this option.
  - Use other tabulated data approved by a registered professional engineer.
  - Have an engineer design and approve the system to be used.
  - The competent person chooses the best option for sloping for the job at hand.
- When benching is used to protect against cave-ins, these options can be chosen for designing benching systems:
  - Use Appendices A and B of 29 CFR 1926, Subpart P to determine the maximum allowable slope and allowable configurations for benching systems. The soil type must be determined in order to use this option.
  - Use other tabulated data approved by a registered professional engineer.
  - Have an engineer design and approve the system to be used.
  - The competent person chooses the best option for sloping for the job at hand.
- Timber Shoring
  - When trenches do not exceed 20 feet, timber shoring according to OSHA design specifications may be used. Designs for timber shoring in trenches for company work sites are determined by the competent person.
- Aluminum Hydraulic Shoring
  - Determined by the competent person, each design for aluminum hydraulic shoring is based upon the manufacturer's specifications and recommendations.
- Other Support Systems

- Support Systems means a structure such as underpinning, bracing, or shoring, which provides support to an adjacent structure, underground installation or the sides of an excavation.
- Design for our support systems is determined by the competent person.

- Shielding
  - A shield is a structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees within the structure.
  - Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Shields used in trenches are usually referred to as trench boxes or trench shields.
  - Types of trench box shields will be determined by the competent person.

5.0 General Requirements

- The following rules are to be followed at all times by all employees working on, in, or near excavations, as applicable:
  - Employees exposed to public vehicular traffic must wear warning vests or other suitable garments made of reflectorized or high-visibility material.
  - The competent person inspects the excavation and the adjacent areas on a daily basis for possible cave-ins, failure of protective systems and equipment, hazardous atmospheres, or other hazardous conditions. Inspections are also required after the occurrence of any natural (such as rain) or man-made events (such as blasting) that could increase the potential for hazards.
  - Adequate protection is provided to protect employees from falling rock, soil, or other materials and equipment. Protection is provided by placing and keeping such materials or equipment at least 2 feet from the edge of excavations.
  - While the excavation is open, underground installations are protected, supported, or removed as necessary to safeguard employees. Adjacent structures are supported to prevent possible collapse.
  - Employees are not permitted to work in excavations where water has accumulated or is accumulating unless adequate precautions have been taken. Diversion ditches, dikes, or other means are used to prevent surface water from entering an excavation and to provide drainage to the adjacent area. The competent person has authority to prohibit entry or stop work when water accumulation presents a hazard.
  - Before an employee enters an excavation greater than 4 feet in depth where a hazardous atmosphere could reasonably be expected, the competent person must test the atmosphere, the competent person must test the atmosphere where

oxygen deficiency or a hazardous atmosphere could reasonably exist (i.e., excavations in landfill areas or excavations in areas where hazardous substances are stored nearby).

- Sufficient means for exiting excavations 4 feet deep or more are provided and are within 25 feet of lateral travel for employees.

- Guardrail systems must be provided on walkways or bridges crossing over excavations where a fall hazard of 6 feet or more exists.

Module 18 – Fire Protection and Prevention
1926 Subpart F - Fire Protection and Prevention

1.0 Introduction
2.0 General Requirements – Fire Protection Plan
3.0 Housekeeping
4.0 Fire Extinguishers
5.0 Flammable and Combustible Liquids
6.0 Temporary Heating Devices
7.0 LP Gas Containers
8.0 Paints and Painting

1.0 Introduction

- There is more inherent danger from fire during the construction phase of a facility than in the completed facility with full protection in service. As construction progresses, fire hazard conditions constantly change. Accumulation of wooden forms, scaffolding, scrap lumber, straw packing, paper wrapping, and other refuse appear at new locations daily. In addition, many ignition sources are present, such as cutting, welding, temporary heaters, lights and roof tar units, etc. Consequently, the potential for loss due to fire is substantial.

- This section will assist to alleviate and control construction fire hazards through site inspection and ensure compliance with federal and state regulations.

- CG Schmidt, as the controlling employer, is responsible for establishing and enforcing the site fire protection and prevention program. Subcontractors are responsible for complying with this program and for fire hazards associated with their operations.

- As fire hazards occur, there must be no delay in providing the necessary equipment.

2.0 General Requirements – Fire Protection Plan

- The fire prevention program will be reviewed, and site-specific rules developed at the pre-job meeting. For projects with extraordinary hazards, more detailed and specific programs and equipment will be arranged.

- Essential considerations for the Fire Protection Plan must include:

  - Proper site preparation.

  - Availability of private and public fire protection.

  - Safe installation and protection of temporary buildings and other structures.

  - Adequate project fire protection.

  - Minimizing inherent construction fire hazards.

  - Installation of permanent safeguards as construction progresses.

  - Safety orientation of employees.

- Recommended practices and standards of the National Fire Protection Association (NFPA) and other applicable regulations must be followed in the development and application of Project Fire Protection Programs.

- Smoking must be prohibited at or in the vicinity of operations, which constitute a fire hazard and must be conspicuously posted: “No Smoking or Open Flame.”

- The Project Superintendent is responsible for implementing and enforcing the Fire Protection Plan. The Safety Department provides oversight and support. Fire protection measures shall be updated as site conditions and hazards change.

3.0 Housekeeping

- Regular cleanup of scrap material, sawdust, rags, oil, paint, grease, flammable solvents and other residue of construction operations will not only remove or reduce the fire hazard, but will promote general safety at the same time.

- All construction areas and storage yards must be cleared of combustible materials before construction materials are delivered.

- All work areas shall be maintained free of accumulation of debris.

- The Project Superintendent and Foremen have authority to stop work or require corrective action when housekeeping conditions create a fire hazard.

4.0 Fire Extinguishers

- A fire extinguisher rated not less than 10:ABC must be provided for each 3,000 square feet of the protected building area. Travel distance from any point of the protected area to the nearest fire extinguisher must not exceed 100 feet.

- One or more fire extinguishers rated not less than 10:ABC must be provided on each floor. In multi-story buildings, at least one fire extinguisher must be located adjacent to each stairway.

- Where more than 5 gallons of flammable or combustible liquids or 5 pounds of flammable gas are being used, a fire extinguisher rated not less than 10:ABC must be provided within 50 feet.

- There must be maintenance and inspection for fire extinguishers on all company projects. At a minimum, this program will include:

    - The placement of an inspection tag on each fire extinguisher.

    - A monthly inspection of each fire extinguisher.

    - A yearly maintenance inspection including seals, release pins, and pressure gauges.

    - Immediate removal from service of extinguishers not meeting minimum standards.

    - Fire extinguisher inspections and maintenance shall be conducted in accordance with manufacturer requirements and applicable standards.

- Employees shall receive training upon initial assignment and when conditions or responsibilities change.

5.0 Flammable and Combustible Liquids

- Approved safety cans must be used for the handling and use except that this will not apply to those materials, which are hard to pour, which may be used and handled in original shipping containers.

- Flammable or combustible liquids must not be stored in areas used for exits, stairways, or areas normally used for the passage of people or equipment.

- All storage, handling, or use of flammable and combustible substances must be supervised by personnel trained in their safe handling and storage.

- Areas where combustibles are stored, processed or used must not contain heat sources, or if heating is necessary, the materials must be located to prevent overheating. Areas must also be properly ventilated.

- Suitable warning and “No Smoking” signs must be posted in all storage, refueling and service areas containing flammable or combustible liquids or gases. Smoking or the use of open flames within 50 feet of these areas is prohibited.

- Each system must have containers, valves and connectors, manifold valve assemblies and regulators of an approved type.

- Connections to container, except safety relief connections, liquid level gauging devices and plugged openings must have shut-off valves located as close to the container as practicable.

- Welding on gas cylinders is prohibited.

- Every container and every vaporizer must be provided with one or more approved safety relief valves or devices. These valves must be arranged to afford free vent to outer air.

- Shut-off valves must not be installed between the safety relief device and the LP gas container.

6.0 Temporary Heating Devices

- All boilers, stoves, and other temporary heating apparatus must be installed and operated in accordance with any applicable local and national fire codes.

- Use of temporary heating devices in confined or enclosed spaces must comply with the Confined Space Program and ventilation requirements.

- Safe operating procedures for temporary heating devices must be established to assure the following controls:
    - Heaters must not be set directly on combustible material but must rest on suitable heat insulating material.
    - Safe clearance from combustible material.
    - Close surveillance – Salamanders and similar open flame heaters without an automatic shut-off device must be attended to at all times. Other types of heaters must be checked periodically to ensure proper operation.
    - Safe fuel storage and refueling.
    - Proper maintenance.

7.0 LP Gas Containers

- Storage of LP-Gas containers within buildings is prohibited.
- LP-Gas containers of less than a 125-gallon water capacity are allowed next to the building they serve when:
    - Container pressure relief device is at least 5 feet horizontally from building openings below the level of such discharge.
    - Filling connection, relief device, and the vent from liquid-level gauges on ASME LP-Gas containers filled at the point of installation shall not be less than 10 feet from exterior sources of ignition, openings into direct vent (sealed combustion system) appliances or mechanical ventilation air intakes.
- LP-Gas containers shall be located with respect to buildings, public ways, and lot lines of adjoining property that can be built upon:
    - 251 to 500 gallons is 10 feet (3 feet separation between containers)
    - 501 to 2000 gallons is 25 feet* (3 feet separation between containers)
    - *The 25 feet minimum distance from aboveground ASME containers of 501 gallons through 2000 gallons water capacity to buildings, a group of buildings, or the line of adjoining property that can be built upon shall be reduced to 10 feet for a single ASME container of 1200 gallons or less water capacity where such container is at least 25 feet from any other LP-Gas container of more than 125 gallons water capacity.*
- Combustible materials shall not accumulate or be stored within 10 feet of a container.

- An aboveground LP-Gas container and any of its parts shall not be located within 6 feet of a vertical plane beneath overhead electric power lines that are over 600 volts, nominal.

- LP-Gas containers or systems of which they are a part that are installed within 10 feet of vehicular thoroughfares shall be provided with a means of vehicular barrier protection.

    - Located not less than 3 feet from the protected object. Physical barriers shall be a minimum of 36 inches in height and shall resist a force of 12,000 pounds applied 36 inches above the adjacent ground surface.

- Storage locations shall be provided with at least one approved fire extinguisher having a rating of not less than 20 B:C.

- The following applies to use Within Buildings Not Frequented By The Public:

    - Container valves shall be protected by screw-on-type caps or collars which shall be securely in place on all containers stored regardless of whether they are full, partially full or empty. Container valves shall be closed.

    - Shall not be located near exits, stairways, or in areas intended to be used, for the safe egress of occupants.

    - Any cylinder that is in use in a building must be “attended”.

    - Any cylinder that is not “in service” is to be removed from the building.

- For outdoor storage facilities, confirm that the storage area is:

    - At least 10 feet from doorways in buildings with only one means of exit (<6001 pounds).

    - At least 5 feet away in buildings with at least two independent exits (<2501 pounds).

    - Has no trash, chemicals, combustibles or debris within 10 feet.

    - At least 20 feet from any automotive service station fuel dispenser.

    - Minimum of one 40 B:C rating fire extinguisher not more than 30 feet or one 80 B:C within 50 feet from the storage location if more than 720 pounds of propane are stored.

8.0 Paints and Painting

- Containers of paint, varnish, lacquer or other volatile painting materials must be kept tightly closed when not in actual use and stored in accordance with the national fire codes.

Module 19 – Demolition
1926 Subpart T - Demolition

1.0 Introduction
2.0 Preparation Operations
3.0 Chutes
4.0 Demolition
5.0 Mechanical Demolition
6.0 Storage
7.0 Hazardous Materials and Environmental Concerns

1.0 Introduction

- Before the start of every demolition job, the demolition contractor's competent person must take a number of steps to safeguard the safety and health of workers at the jobsite. These preparatory operations involve the overall planning of the demolition job, including the methods to be used to bring the structure down, the equipment necessary to do the job, and the measures to be taken to perform the work safely.

- A site-specific competent person shall be designated for all demolition activities. This individual has authority to identify hazards, require corrective actions, and stop work when unsafe conditions are observed.

2.0 Preparation Operations

- Prior to permitting employees to start demolition operations, an engineering survey shall be made, by a competent person, of the structure to determine the condition of the framing, floors, and walls, and possibility of unplanned collapse of any portion of the structure. Any adjacent structure where employees may be exposed shall also be similarly checked. The employer shall have in writing evidence that such a survey has been performed along with a completed Demolition Plan outlining activity. The demolition contractor shall complete the engineering survey and demolition plan prior to work commencing. The Project Superintendent and Safety Department shall verify the survey and plan are completed and available on site before demolition begins.

- When employees are required to work within a structure to be demolished which has been damaged by fire, flood, explosion, or other cause, the walls or floor shall be shored or braced.

- All electric, gas, water, steam, sewer, and other service lines shall be shut off, capped, or otherwise controlled and verified prior to demolition work starting. In each case, any utility company which is involved shall be notified in advance. If it is necessary to maintain any power, water or other utilities during demolition, such lines shall be temporarily relocated, as necessary, and protected.

- It shall also be determined if any type of hazardous chemicals, gases, explosives, flammable materials, or similarly dangerous substances have been used in any pipes, tanks, or other equipment on the property. When the presence of any such substances is apparent or suspected, testing and purging shall be performed and the hazard eliminated before demolition is started.

- Where a hazard exists from fragmentation of glass, such hazards shall be removed.

- Where a hazard exists to employees falling through wall openings, the opening shall be protected to a height of approximately 42 inches. Fall hazards associated with wall and floor openings shall be addressed in accordance with the Fall Protection Program.

- When debris is dropped through holes in the floor without the use of chutes, the area onto which the material is dropped shall be completely enclosed with barricades not

less than 42 inches high and not less than 6 feet back from the projected edge of the opening above. Signs, warning of the hazard of falling materials, shall be posted at each level. Removal shall not be permitted in this lower area until debris handling ceases above. Any openings cut in a floor for the disposal of materials shall be no larger in size than 25 percent of the aggregate of the total floor area, unless the lateral supports of the removed flooring remain in place. Floors weakened or otherwise made unsafe by demolition operations shall be shored to carry safely the intended imposed load from demolition operations.

- Floor openings shall have curbs or sufficient stops to prevent equipment from running over the edge.

- All floor openings, not used as material drops, shall be covered over with material substantial enough to support the weight of any load which may be imposed. Such material shall be properly secured to prevent its accidental movement.

- Except for the cutting of holes in floors for chutes, holes through which to drop materials, preparation of storage space, and similar necessary preparatory work, the demolition of exterior walls and floor construction shall begin at the top of the structure and proceed downward. Each story of exterior wall and floor construction shall be removed and dropped into the storage space before commencing the removal of exterior walls and floors in the story next below. The competent person has authority to require removal of stored materials when load limits or stability concerns are identified.

- Employee entrances to multistory structures being demolished shall be completely protected by sidewalk sheds or canopies, or both, providing protection from the face of the building for a minimum of 8 feet. All such canopies shall be at least 2 feet wider than the building entrances or openings (1 foot wider on each side thereof), and shall be capable of sustaining a load of 150 pounds per square foot. Public sidewalks, streets, and adjacent properties shall be protected from falling debris and demolition hazards through barricades, canopies, or other engineered controls as necessary.

- Only those stairways, passageways, and ladders, designated as means of access to the structure of a building, shall be used. Other access ways shall be entirely closed at all times.

3.0 Chutes

- No material shall be dropped to any point lying outside the exterior walls of the structure unless the area is effectively protected.

- All materials chutes, or sections thereof, at an angle of more than 45 deg. from the horizontal, shall be entirely enclosed, except for openings equipped with closures at or about floor level for the insertion of materials. The openings shall not exceed 48 inches in height measured along the wall of the chute. At all stories below the top floor, such openings shall be kept closed when not in use.

- A substantial gate shall be installed in each chute at or near the discharge end. A competent employee shall be assigned to control the operation of the gate, and the backing and loading of trucks.

- When operations are not in progress, the area surrounding the discharge end of a chute shall be securely closed off.

- Any chute opening, into which workmen dump debris, shall be protected by a substantial guardrail approximately 42 inches above the floor or other surface on which the men stand to dump the material. Any space between the chute and the edge of openings in the floors through which it passes shall be solidly covered over.

- Where the material is dumped from mechanical equipment or wheelbarrows, a securely attached toe board or bumper, not less than 4 inches thick and 6 inches high, shall be provided at each chute opening.

- Chutes shall be designed and constructed of such strength as to eliminate failure due to impact of materials or debris loaded therein.

4.0 Demolition

- Equipment shall not be used on floors or working surfaces unless such floors or surfaces are of sufficient strength to support the imposed load.

- Material shall not be permitted to fall upon the floors of the building in such masses as to exceed the safe carrying capacities of the floors.

- No wall section, which is more than one story in height, shall be permitted to stand alone without lateral bracing, unless such wall was originally designed and constructed to stand without such lateral support, and is in a condition safe enough to be self-supporting. All walls shall be left in a stable condition at the end of each shift.

- Structural or load-supporting members on any floor shall not be cut or removed until all stories above such a floor have been demolished and removed.

- Steel construction shall be dismantled column length by column length, and tier by tier.

- Any structural member being dismembered shall not be overstressed.

- Walls, which serve as retaining walls to support earth or adjoining structures, shall not be demolished until such earth has been properly braced or adjoining structures have been properly underpinned.

5.0 Mechanical Demolition

- No workers shall be permitted in any area, which can be adversely affected by demolition operations, when balling or clamming is being performed. Only those workers necessary for the performance of the operations shall be permitted in this area

at any other time. The competent person and equipment operator shall establish and enforce exclusion zones during mechanical demolition activities.

- The weight of the demolition ball shall not exceed 50 percent of the crane's rated load, based on the length of the boom and the maximum angle of operation at which the demolition ball will be used, or it shall not exceed 25 percent of the nominal breaking strength of the line by which it is suspended, whichever results in a lesser value.

- The crane boom and load line shall be as short as possible.

- The ball shall be attached to the load line with a swivel-type connection to prevent twisting of the load line, and shall be attached by positive means in such manner that the weight cannot become accidentally disconnected.

- When pulling over walls or portions thereof, all steel members affected shall have been previously cut free.

- All roof cornices or other such ornamental stonework shall be removed prior to pulling walls over.

- During demolition, continuing inspections by a competent person shall be made as the work progresses to detect hazards resulting from weakened or deteriorated floors, or walls, or loosened material. No employee shall be permitted to work where such hazards exist until they are corrected by shoring, bracing, or other effective means.

6.0 Storage

- The storage of waste material and debris on any floor shall not exceed the allowable floor loads.

- Storage space into which material is dumped shall be blocked off, except for openings necessary for the removal of material. Such openings shall be kept closed at all times when material is not being removed.

7.0 Hazardous Materials and Environmental Concerns

- All regulated asbestos-containing materials and other hazardous materials must be identified and properly removed prior to demolition activities that could disturb those materials, in accordance with applicable regulations.

- Proper environmental and personal controls must be in place before burning or cutting coatings containing hazardous materials such as lead, cadmium, zinc, etc. All lines, tanks and equipment must be purged of hazardous materials. Safety Data Sheets must be consulted to identify the action to be taken. Appropriate control measures necessary to prevent injury or exposure to harmful substances will be established.

Module 20 – Concrete and Masonry
OSHA 1926 Subpart Q - Concrete and Masonry

1.0 Introduction
2.0 General Requirements
3.0 Handling of Concrete Products, Formwork, and Associated Components
4.0 Cast-In-Place Concrete
5.0 Precast Concrete
6.0 Lift-Slab Operations
7.0 Poured Concrete Stair Pans
8.0 Masonry Construction

1.0 Introduction

- This section sets forth the practices for erection, placing, and dismantling of concrete formwork, concrete placing, and masonry operations. Personnel are to refer to their Pre-Task Planners, manufacturer's recommendations, and other methods for the intended task.

2.0 General Requirements

- Construction loads must not be placed on a concrete structure or portion of a concrete structure unless the employer determines, based upon information received from a person who is qualified in structural design, that the structure or portion of the structure is capable of supporting the intended loads.

- All protruding reinforcing steel, onto which employees could fall, must be guarded to eliminate the hazard of impalement.

- Employees must not be permitted to be behind the jack during post-tensioning operations except those essential to the operation.

- Signs and barriers must be erected to limit employee access to the post-tensioning area during tensioning operations.

3.0 Handling of Concrete Products, Formwork, and Associated Components

- Concrete products contain caustic material that may burn, dry, or damage skin tissues. Appropriate precautions should be taken.

- Employees engaged in concrete work, forming, and placing operations shall wear appropriate PPE, including eye protection, hand protection, protective footwear, and other protective equipment as required by the task and exposure. Clothing must provide adequate skin protection from contact with wet concrete.

- Concrete buckets are to be inspected prior to each days use for damage to the bucket and all of its components including the lifting apparatus, slings, hooks, cables, etc. If any one of the components is found to be damaged or defective, the bucket is to be removed from service and tagged as "OUT OF SERVICE" or "DO NOT USE" until it is repaired and deemed fit for service. All buckets shall be lifted by ANSI approved domestically made drop forged safety hooks and shackle assemblies. Personnel are not permitted to ride a concrete bucket for any reason at any time. Concrete buckets are not to be flown or suspended over personnel.

- Concrete buggies may only be operated by trained and qualified personnel. Buggies will only be driven to and from drop areas with the operator facing the direction of travel to avoid potential accidents.

- A site-specific competent person shall be designated for concrete and masonry operations. This individual has authority to identify hazards, require corrective action,

and stop work when unsafe conditions exist. Any wall or column form over 6 feet in height shall be provided with an appropriate means of access and fall protection in accordance with the Fall Protection Program. Anchor points must meet applicable strength and design requirements. Continuous wall forms over 6 feet in length and height will have a scaffold on at least one side for erection, pouring, and finishing operations.

4.0 Cast-In-Place Concrete

- General Requirements
  - All form components and/or hardware must be kept clean, and if appropriate, lubricated to ensure proper performance and to allow for proper inspection.
  - All form components must be inspected regularly for damage or excessive wear. Equipment found to be in these conditions must be replaced immediately and not re-used.
  - Field repair of modular formwork components (other than plywood repairs) must not be undertaken without consulting the manufacturer's qualified representative.
  - The forming layout shall be prepared or approved by a person qualified to analyze the loadings and stresses which are induced during the construction process. The layout shall be at the jobsite.
  - Forming installation and pouring procedures must comply with safe practices and with the requirements of the law and governmental regulations, codes, and ordinances.
- Erection of Formwork
  - Do not deviate from layout drawings when erecting formwork without the approval of a qualified designer.
  - Be certain that all wall ties are in place and secured as per manufacturer's recommendations. Do not weld, bend, or otherwise alter wall ties as it may seriously reduce their strength.
  - Adequate temporary bracing must be in place while initially setting formwork. Assure that formwork is properly braced and stabilized against wind and other external forces.
  - Safe working platforms must be installed as per applicable safety standards.
  - When gang forming, lifting devices must be properly spaced and securely attached as per manufacturer's recommendations. Rigging must be arranged so that any one lifting bracket is not overloaded and that lifting cables are not at excessive angles, which will reduce allowable loads. Spreader beams with load equalizers are recommended for all but simple two-point lifts. Follow manufacturer's

recommended procedures concerning capacity and use of lifting hardware and crane.

- A tag line can be used to control movement of crane-handled formwork. Do not allow personnel on or directly under any gang form while it is being moved or suspended in air.
- Do not erect gang forms when jobsite wind conditions prevent safe maneuvering of gangs. Assure that all rigging connections are properly made in accordance with safe practices and procedures.
- Formwork should be adequately braced, re-anchored, or otherwise secured prior to releasing lifting mechanism.
- Wall forms must not be erected so as to support deck concrete loading unless the wall forms are a designed part of the deck support system.

- Bracing
  - Aligners are considered only as alignment devices with not provisions for withstanding concrete pressure or any portion thereof. Maintain forms plumb during pour to ensure that aligners are not supporting or stabilizing concrete pressures.
  - Braces used to withstand concrete pressure must be designed by a qualified formwork designer.
  - Unless specified, wind loading and other external lateral loads are not considered in the manufacturer's layout drawings.
  - The adequacy of stakes, dead-men, sills, anchor-bolts, etc., must be determined to assure safe support of the imposed brace loads. The responsibility for adequate anchorage of braces should be assigned only to those personnel with sufficient experience to assure sound judgement.
  - Before removing braces, assure that the concrete has attained sufficient strength to safely support the imposed load at support locations.
  - Do not exceed the rated load of the braces.
  - Inspect installed braces immediately after installation for correctness of spacing and proper attachment device.

- Walkway Systems
  - All walkway systems must be properly positioned, spaced, and fastened as per manufacturer's specifications and all applicable safety regulations.

- Walkway systems must be in place along the upper level of formwork. Workers must never attempt to walk or stand on top of forms.

- Scaffold brackets must be attached with the manufacturer's recommended connectors. Never use substitutes or make-shift devices. Never hang brackets from wall ties after removal of forms.

- All walkway platforms must utilize at least 2 planks laid side by side, and must overlap their support ledger by not less than 6 inches. Unsupported ends of scaffold planks must not project more than 12 inches past their support ledger.

- Scaffold planks must be minimum 2" x 10" nominal lumber and must be scaffold grade as recognized by approved grading rules for the species of lumber used, or must be of materials having equivalent or greater strength. Scaffold planks must safely support a minimum of 25 pounds per square foot over a maximum span of 8 feet.

- When deemed appropriate by the competent person, scaffold planks must be nailed and clinched, bolted or otherwise positively secured against dislodgement from effects of wind, weather, gang form lifting operations, or the like. Bolt heads and nails must be driven flush with tops of planks to prevent tripping hazards.

- All scaffold bracket platforms must be equipped with guardrails, midrails, and toeboards along all open sides and ends and be maintained secure and in good condition at all times.

- Maximum spacing between scaffold brackets is 8 feet. Never exceed this distance unless the walkway system has been specifically designed for a greater distance. Follow manufacturer's recommendations as to loading and spacing of scaffold brackets. Unless designed otherwise, scaffold brackets are designed to support a maximum load of 25 pounds per square foot when spaced on 8 foot centers. Scaffold brackets are not designed for the additional loads imposed from stacking rebar or placing other equipment on walkways.

- Always brace and/or otherwise secure forms and scaffold from overturning due to attachment and use of scaffold brackets.

- Never allow persons to work on one level of walkways if others are working directly below or overhead unless proper protection is provided.

- It is prohibited for any person to occupy a form walkway while the form is being moved.
- Access ladders or other suitable safe methods must be used to obtain access to walkway platforms. Do not position ladders so that their weight while being used can affect the strength or stability of the scaffold and formwork.

- Do not use form panels as a ladder.

- If using walkway systems is not practical, personnel must be protected against falls by means of personal fall arrest system attached to components having adequate strength to meet or exceed applicable codes or by safety nets or other equivalent protection. Personnel protected by personal fall arrest system must exercise additional care when handling formwork components.

- Special Applications

  - Fasteners for support brackets, friction collars, and other friction devices must be pre-tensioned to the manufacturer's specification during erection and re-checked immediately prior to placing concrete.

  - Assure that anchor brackets are attached properly and with required thread engagement per manufacturer's recommendations. The proper anchor bolts and inserts must be used and be of adequate strength for combined shear and tension loadings. Assure that the concrete has attained sufficient strength to properly allow the designed use of these devices with the required safety factors.

  - Assure that anchor brackets are installed so that they are equally loaded and are installed correctly prior to setting the formwork. Anchor bolts must be tight and brackets level.

  - When erecting forms for battered walls, allowance must be provided for proper anchorage to resist resulting uplift forces.

  - Layouts must be prepared by a qualified formwork designer for all one-sided and cantilevered wall forming applications. Ensure that all anchorages and bracing are installed per layout drawings. Follow manufacturer's recommendations regarding installation and use of anchoring devices.

  - Damaged shoring equipment must not be used. Erected shoring equipment must be inspected immediately prior to, during, and immediately after concrete placement. Shoring equipment that is found to be damaged or weakened after erection must be immediately reinforced.

  - If single-post shores are used one on top of another (tiered), then additional shoring requirements must be met.

    - Designed by a qualified designer and the erected shoring must be inspected by an engineer qualified in structural design.

    - Vertically aligned.

    - Spliced to prevent misalignment.

    - Adequately braced in two mutually perpendicular directions at the splice level. Each tier also must be diagonally braced in the same two directions.

    - Adjustment to raise formwork must not be made after the placement of concrete.

    - Re-shoring must be erected as the original forms and shores are removed, whenever the concrete is required to support loads in excess of its capacity.

- The following requirements must be met for the use of vertical slip forms:

    - The steel rods or pipes on which jacks climb or which the forms are lifted must be specifically designed for that purpose and adequately braced where not encased in concrete.

    - Forms must be designed to prevent excessive distortion of the structure during the jacking operation.

    - Jacks and vertical supports must be positioned in such a manner that the loads do not exceed the rated capacity of the jacks.

    - The jacks or other lifting devices must be provided with mechanical dogs or other automatic holding devices to support the slip forms whenever failure of the power supply or lifting mechanisms occurs.

    - The form structure must be maintained within all design tolerances specified for plumbness during the jacking operation.

    - The predetermined safe rate of lift must not be exceeded.

    - All vertical slip forms must be provided with scaffolds or work platforms where employees are required to work or pass.

- Reinforcing steel for walls, piers, columns, and similar vertical structures must be adequately supported to prevent overturning and collapse.

- Employers must take measures to prevent unrolled wire mesh from recoiling by securing each end of the roll or turning over the roll.

- For all other special applications, for example, jump forms, climbing forms, etc., consult manufacturer.

- Inspection

    - Inspect completed formwork prior to placing concrete to assure proper placement and secure connections of tie and associated hardware. All threaded connectors, such as ties, inserts, anchor bolts, etc., must also be checked for proper thread engagement.

    - Inspect and erect form walkway systems before each use. Assure that bolts, nuts, and other connections are fastened securely.

- Inspect bracing attachments and form alignment after each form cycle. Inspect installed forms and braces immediately prior to pour and during pour.

- The competent person has authority to delay or stop concrete placement when formwork, bracing, walkways, or shoring are found to be unsafe or improperly installed.

- Concrete Placing

  - The contractor must verify prior to and during concrete placing that the method of placement and rate of pour is consistent with formwork design. DO NOT OVERLOAD FORMWORK.

  - Concrete must not be placed in any manner which imposes impact loads that exceed the rated capacity of the form.

  - Instruct personnel on proper vibration. Do not use vibrator to move concrete. Do not vibrate further than one-foot into the previous lift. Avoid vibrator contact with wall ties. External vibrators must not be attached to formwork unless it was designed for their use.

  - Concrete placement shall stop if conditions change or if formwork behavior indicates overstressing or instability.

- Stripping Formwork

  - Follow manufacturer's recommended field procedures – generally, reverse the order of procedures used in erection of formwork. Be certain that concrete has sufficiently set to carry its own weight and any imposed loads prior to stripping formwork.

  - When gang-forming, secure the lifting mechanism prior to removal of ties, anchors, and/or bracing.

  - Use extreme caution for all formwork to assure that any panel, walkway bracket, brace, or other form component is unfastened prematurely.

  - Assure that all disconnects have been made and the bond of the formwork to concrete has been broken prior to lifting of gang form.

  - Personnel must remain clear of suspended or partially released formwork components during stripping operations.

5.0 Precast Concrete

- Precast concrete wall units, structural framing, and tilt-up wall panels must be adequately supported to prevent overturning and to prevent collapse until permanent connections are completed.

- Lifting inserts that are embedded or otherwise attached to tilt-up wall panels must be capable of supporting at least 2 times the maximum intended load applied or transmitted to them; lifting inserts for other precast members must be capable of supporting 4 times the load.

- Only essential employees are permitted under precast concrete that is being lifted or tilted into position.

6.0 Lift-Slab Operations

- Lift-slab operations must be designed and planned by a registered professional engineer who has experience in lift-slab construction.

- Such plans and designs must be implemented by the employer and must include detailed instructions and sketches indicating the prescribed method of erection.

- The plans and designs must also include provisions for ensuring lateral stability of the building/structure during construction.

7.0 Poured Concrete Stair Pans

- Except during stairway construction, foot traffic is prohibited on stairways with pan stairs where the treads and/or landings are to be filled in with concrete or other material at a later date, unless the stairs are temporarily fitted with wood or other solid material at least to the top edge of each pan.

8.0 Masonry Construction

- Whenever a masonry wall is being constructed, a limited access zone must be established prior to the start of construction.

- The limited access zone must be as follows:

  - Equal to the height of the wall to be constructed plus 4 feet and must run the entire length of the wall.

  - On the side of the wall that will be un-scaffolded.

  - Restricted to entry only by employees actively engaged in constructing the wall.

  - Kept in place until the wall is adequately supported to prevent overturning and collapse unless the height of wall is more than 8 feet and unsupported; in which case, it must be braced. The bracing must remain in place until permanent supporting elements of the structure are in place.

Module 21 – Hand and Power Tools
1926 Subpart I - Tools - Hand and Power

1.0 Introduction
2.0 General
3.0 Grinders
4.0 Portable Power Tools
5.0 Guarding
6.0 Stationary Shop Power Tools
7.0 Adjustments, Servicing, and Repairs
8.0 Safe Operating Practice
9.0 Powder Actuated Tools

1.0 Introduction

- All hand, power tools, and similar equipment, whether furnished by the employer or the employee, shall be maintained in a safe condition and properly used.

2.0 General

- Tools and equipment must be in good condition and well maintained.
- Only employees who have received appropriate training may use tools and equipment.
- Tools, guards and protective devices must not be altered.
- Tools are only to be used for their designed purpose.
- All personal tools, as well as, company tools are subject to inspection at any time. Personal tools must conform to the same safety requirements as company-owned tools. Superintendents, Foremen, and the Safety Department have authority to remove unsafe tools from service.
- Impact tools may mushroom. The heads of impact tools are to be regularly dressed to avoid flying shrapnel.
- Employees are to be instructed in the safe use of impact tools and how to use tool holders.
- Cheater bars and tool extenders are not to be used to increase tool capacity.

3.0 Grinders

- Grinding wheels are to have a center hole appropriate for the arbor of the grinder.
- The rpm rating of the grinding wheel is to be greater than that of the grinder.
- Grinding wheels are to be mounted with blotters and flanges.
- Pedestal grinders are to have the tool rest adjusted with no more than a 1/8 inch gap between the grinding wheel and the tool rest.
- Vitrified grinding wheels shall be inspected and ring-tested prior to mounting.

4.0 Portable Power Tools

- All power tools are to be inspected for defects and only plugged into GFCI protected circuits.

- Employees are to wear proper eye protection when working with, on or around power tools. Safety glasses with side shields may be adequate, or in some cases, a full-face shield may be required.

- Defective or damaged tools shall be tagged out of service and repaired or replaced in accordance with company procedures.

- All power sources must be shut off before making tool adjustments. With air tools, be sure to “bleed down” the air before disconnecting.

- Consumable parts, such as grinding wheels and drill bits, are to meet specifications for the power tool, rpm and wheel diameter.

5.0 Guarding

- Approved guards or shields must be installed on all power tools before use.

- Do not use power tools if their guards are not in place.

- Never bypass, modify or remove guards.

6.0 Stationary Shop Power Tools

- Stationary shop power tools shall only be operated by trained and authorized operators.

7.0 Adjustments, Servicing, and Repairs

- Shut down machines and take action to prevent accidental restarting. This may require Lockout/Tagout procedures in accordance with the Lockout/Tagout Program or unplugging the power source, as applicable.

- Replace all guards prior to start-up.

- Remove cranks, keys or wrenches used in servicing.

- Replacement parts must meet required specifications, i.e., grinding wheels must be approved for rpm and wheel diameter, blades must have correct arbor diameter and shape, and cutting bits are appropriate for the material being worked.

8.0 Safe Operating Practice

- Loose clothing, jewelry, or hair that could become caught in moving parts must be secured or controlled.

- Always disconnect the power to any tool or machine before working on it.

- Inspect machinery before start-up and as needed throughout the day.

- Many machines have safety-interlocking devices. Be sure these work and **NEVER BYPASS A SAFETY INTERLOCK**.

- Some machines use both air and electrical power. Before working on this type of equipment, disconnect both air and electricity, and allow the air supply to "bleed down."

- Oil, rags and hot chips are fire hazards and must be controlled to prevent ignition. Know where the fire extinguishers are and what to do in an emergency.

9.0 Powder Actuated Tools

- Only employees who are trained and authorized by their employer in accordance with manufacturer requirements may operate powder-actuated tools.

- Regardless of the make, type or size, all explosive tools can be hazardous.

- The following regulations will govern the use and storage of such tools:

  - Employees are required to be trained in the use and maintenance of the tool they are using.

  - Manufacturer's recommendations must be followed as to inspection, maintenance, replacement parts and ammunition.

  - Tools must not be used in any location where explosives, flammable or combustible gases, vapors or dusts are present.

  - The tool operator and any nearby workers must wear eye and hearing protection when the tool is being used.

  - The utmost care must be exercised to ensure that ammunition, studs, nails, etc., are the proper specification.

Module 22 – Welding and Cutting
1926 Subpart J - Welding and Cutting

1.0 Introduction
2.0 Procedures
3.0 Fire Watch
4.0 Gas Cylinders
5.0 Ventilation
6.0 Planning Hot Work Welding
7.0 Training

1.0 Introduction

- All cutting and welding operations must be performed in compliance with OSHA standards and all other applicable state, local, and client regulations, policies, procedures and standard safe work practices.

- Welding is restricted to areas or situations where adequate fire prevention, welder protection, and passerby protection can be assured.

2.0 Procedures

- This safety standard is intended as a guide to safe practices in welding, burning, brazing, and related operations.

- The precautions and protective measures outlined are recommended minimum requirements.

- Welders should exercise judgment in applying these precautionary measures in such matters as length of work periods, poor ventilation, unusual work locations, and specialized operations.

- Additional protective measures may be required in certain instances.

- If welding/cutting cannot be conducted safely, it shall not be performed.

3.0 Fire Watch

- A Fire Watch is a person specifically trained and assigned to warn others of hazards associated with flammable materials and then capable to prevent incipient stage fires.

- Fire Watch requirements shall be implemented based on the hazards present and permit conditions in accordance with 29 CFR 1926 Subpart J.

- The Fire Watch is responsible for the following:

  - Ensure proper “Hot Work” permit is on site.

  - Ensure permit is signed by all appropriate personnel.

  - Ensure adequate means of access and egress are provided to the work site.

  - Read and understand all permit provisions, and maintain the conditions of the permit at all times.

  - Maintain a fire watch for at least 60 minutes after the hot work operation has been completed.

- Maintain charged dry chemical extinguisher with current inspection tags and be trained in its use.
- Maintain spark containment by using approved fire blankets.
- Determine the exact location of firefighting equipment in the immediate area.
- Ensure proper barricading and warning signs are used.
- Continuously monitor the work area and surrounding area for any unsafe conditions, or potentially hazardous conditions.
- In the event of a hazardous condition, emergency, or changing environment, the fire watch will stop all work until it is safe to resume.
- Never leave the work site unless the work has stopped, or until you are relieved by another employee with equal or greater training and knowledge.
- Know the location of the nearest alarm and how to activate the emergency system.
- Know the evacuation routes and collection points.
- Only trained and qualified personnel may operate or maintain welding, cutting or brazing equipment. Welding, cutting, and brazing equipment shall be operated only by employees who have been trained and are competent in the specific process being performed.
- The Project Superintendent or designated supervisor shall inspect the work area prior to welding or cutting operations and authorize the work. This individual is responsible for verifying that fire prevention measures, equipment condition, and permit requirements are satisfied prior to work beginning.
- Before doing any welding or burning, **outside of an area approved for routine hot work**, be certain the necessary Hot Work Permit has been issued. Hot work permits shall be reviewed and authorized by the Project Superintendent or designee, and coordinated with client requirements when applicable. The crew responsible for the equipment will ensure all is suitable and in good working order. All equipment is inspected prior to beginning of work. Any equipment that is not ready for service or needs repair must be red-tagged and repaired by qualified personnel.
- All hoses, cord and leads and other welding equipment must be maintained in a safe and serviceable condition, with no fraying or exposed copper permitted. They should be deployed in a manner that does not create tripping hazards.
- Whenever practicable, all arc welding and cutting operations must be shielded by a flameproof screen which will protect employees and other persons working in the vicinity from the direct rays of the arc.

- Before each use, hoses must be inspected for leaks, burns, worn places, loose connections, or other defects which may render the hose unfit for service.
- Welding machine ground connects must be made on or as close as possible to the object being worked upon to assure a good ground.
- Precautions shall be taken to protect against electrical shock, including proper grounding, dry work conditions when feasible, and use of insulated equipment.
- All welding rigs must be in safe operating condition and be properly identified.
- All welding rigs must have a fire extinguisher.

4.0 Gas Cylinders

- Compressed gas cylinders are to be shut-off at the bottle when not in use or unattended for short periods of time.
- Cylinder valves shall be closed when cylinders are not in use or are being transported.
- Compressed gas cylinders must have gauges removed and be capped prior to transportation. Cylinders must only be transported or stored in the up position.
- Use approved storage racks or dollies to store compressed gas cylinders. Gas cylinders must always be secured.
- Oxygen and acetylene cylinders must be stored at a distance of 20’ apart or be separated by a fire wall that is 5’ or higher and has a fire rating of 60 minutes or more.
- Keep cylinders away from work so sparks, slag or flame cannot reach them. If cylinders cannot be isolated, fire resistant shields must be provided for them.
- Cylinders must be marked to identify contents.
- Bottles must be opened then closed just prior to attachment of the regulator.
- Torches must be lighted by friction lighters, not matches or other hot work.
- Welders must ensure that lines have been adequately purged prior to working on them.
- Equipment must be inspected for leaks daily. Unserviceable/non-approved equipment may not be used.

5.0 Ventilation

- Ensure that adequate ventilation is provided for employees working with welding and cutting equipment.

- Ensure that contaminated air exhausted from a working space is discharged into the open air or otherwise clear of the source or intake air.

- Ensure that all necessary precautions are taken to prevent the accumulation of gases when cutting torches are used.

- Ventilation controls shall be implemented based on task conditions and applicable OSHA requirements. Qualified third-party professionals shall be engaged when exposure evaluation is required.

6.0 Planning Hot Work Welding

- In planning or carrying out hot work, certain factors should be considered besides the obviously important hot work permit, gas test, and hazard analysis.

- Those factors include, but are not limited to:

  - The base metal and its health effects. The SDS on the metal is available and will address this issue.

  - The welding or burning process to be used and its special health problems, if any.

  - The location of the work: Is the work to be done in the open or in a confined space? When welding or cutting is performed in a confined or enclosed space, work must comply with the Confined Space Program and ventilation requirements.

  - Ventilation required: Is special ventilation equipment needed?

  - Position of the work: Is the work overhead or below? Can it be positioned to allow fumes to be carried away without entering the welder's breathing zone?

  - Presence of other employees near the job: Is eye protection needed against ultraviolet radiation? Are other workers in the path of the welding fumes?

  - Cleanliness of the metal surface: Are harmful or flammable materials present beneath patches or in seams?

  - All moveable fire hazards must be removed from the area.

  - All fire hazards that cannot be moved must be covered with a fire blanket.

7.0 Training

- Employees shall be trained prior to performing welding or cutting operations and retrained when conditions, equipment, or work practices change, or when deficiencies are observed.

- Retraining will be completed for any employee not performing a task appropriately or if a prolonged time frame exists between attending training and performing a task.

Module 23 – Material Handling and Storage
OSHA 1926 Subpart H - Materials Handling, Storage, Use and Disposal

1.0 Introduction
2.0 Mechanical Equipment
3.0 Rigging
4.0 Material Storage
5.0 Housekeeping
6.0 Back Safety
7.0 Ergonomic Risk Factors

1.0 Introduction

- This section includes the use of both manual and mechanical equipment methods used to move material.

2.0 Mechanical Equipment

- Only trained and authorized employees will be allowed to operate any motorized or mechanical equipment.
- Conduct and document daily inspection of equipment.
- Remove from service any equipment that is found defective.
- Inspect your work area and prohibit entry of others. Use caution tape to warn others or danger tape to restrict others.
- A spotter shall be used when the operator's vision is obstructed.
- Never exceed load capacities.
- Never allow anyone underneath a raised load.
- Inspect floor/ground surfaces ensuring the path is level and floor capacities are not exceeded.
- Forks shall be carried as low as practicable while maintaining safe clearance during travel.
- Superintendents, Foremen, and the Safety Department have authority to remove unsafe equipment from service and stop material-handling operations when hazards are identified.

3.0 Rigging

- Only riggers and signal persons who have received appropriate training and authorization shall be permitted to rig loads or direct material movement.
- Inspect all rigging equipment prior to use.
- Remove from service and tag any defective rigging equipment.
- All rigging equipment must be labeled and clearly legible in accordance with manufacturer requirements. Never exceed the weight limits of the equipment.
- Latches shall be in place and in working order for all hooks.

- Use a tag line as needed. Tag lines shall be connected directly to the load, never connect to the rigging.
- Never swing loads over other workers or personnel.
- Never leave a suspended load unattended.
- Never swing loads near electrical lines, maintain at least 20 feet of clearance.
- Remove rigging equipment from the immediate work area when not in use.

4.0 Material Storage

- Storage of material shall not create a hazard. Stacked material should be blocked, interlocked, and limited in height so that it is stable and secure against sliding or collapse.
- Flammable Material Storage – Refer to the Safety Data Sheet for storage requirements. Do not store in areas with other combustibles.
- Hazardous Materials – Refer to the Safety Data Sheet for storage requirements. Do not store incompatible materials together.
- Ensure the pallet rating is not exceeded when stacking pallets.
- All material shall be stored on wheels, when practical, to easily be moved throughout the site.
- A best practice is just in time delivery of material.
- Material shall be stored as per agreed upon location with the site Superintendent.

5.0 Housekeeping

- All storage areas shall be kept free from accumulation of materials that constitute hazards from tripping, fire, explosion, or pests. Vegetation control will be exercised when necessary.
- Aisles and passageways shall be kept clear and in good repair, without obstruction across or in aisles that could create a hazard.
- Clean as you go to avoid accumulation of debris and waste.

6.0 Back Safety

- Lifting is very much a part of our every day jobs. Because it is something we do so often, we tend to do it without thinking.

- Plan the lift by looking at the object to be lifted and the surrounding area.
- If the object is too heavy or too awkward for you, get help or use a mechanical lifting device.
- Clear the area of any items that may interfere with the lifting.
- Plant your feet and lift with your legs. **DO NOT TWIST YOUR BACK.**

7.0 Ergonomic Risk Factors

- There are three main risk factors associated with ergonomics related injuries. Minimizing these risk factors or changing how we approach them can reduce the chance of injury.
    - FORCE – Tasks that require a high level of physical exertion such as heavy lifting are at risk for causing injury.
    - REPETITION – Tasks that require performing the same motion or series of motions continually for an extended period of time are at risk of causing injury.
    - AWKWARD POSTURES – Tasks that require us to assume positions that place stress on the body, such as reaching above the shoulder, squatting, leaning over a counter, or twisting the body while lifting are at risk for causing injury.

Module 24 – Cranes
1926 Subpart CC - Cranes & Derricks in Construction

1.0 Introduction
2.0 Administrative Duties
3.0 Required Prior to Starting
4.0 Competent and Qualified Persons
5.0 Training
6.0 Ground Conditions
7.0 Installation, Assembly/Erecting, and Disassembly/Dismantling
8.0 Inspections
9.0 Maintenance
10.0 Crane Critical Lift Plan
11.0 Hoisting Personnel

1.0 Introduction

- This section establishes uniform requirements designed to ensure that crane safety, training, operation, and maintenance practices are communicated to and understood by affected employees.
- The written Crane Safety Program establishes guidelines to be followed whenever any employee or contracted employee work with or near cranes.
- These requirements are also designed to ensure that procedures are in place to protect the health and safety of all employees.
- It is our intent to comply with the requirements of 29 CFR 1926 Subpart CC for hoisting activities.

2.0 Administrative Duties

- The Safety Director is responsible for developing and maintaining the written Crane Safety Program. This person, acting as the representative of company management, is responsible for all facets of the program and has full authority to make necessary decisions to ensure the success of this program.
- A copy of our Crane Safety Program may be received by employees. It is located at all project job offices.
- A Pre-Task Planner will be completed prior to the start of operations to identify any hazards that may be present including contact with other objects such as power lines.

3.0 Required Prior to Starting

- The most recent copy of the crane's annual inspection.
- A copy of the crane operator's license.
- A lift plan detailing the cranes capacity, maximum required pick, and crane setup locations.
- A rigging plan that identifies the type and capacity of the rigging to be used.
- Qualification cards for riggers and signal person.
- Daily crane inspection log.

4.0 Competent and Qualified Persons

- A competent person means "one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous,

or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them."

- A qualified person means "a person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, successfully demonstrates the ability to solve/resolve problems relating to the subject matter, the work, or the project."

- Competent and qualified persons are designated based on task-specific OSHA requirements. Assignment of one role does not imply authority or responsibility for other crane-related functions unless specifically designated.

5.0 Training

- Training is one of the most important elements in this written program. Our training provisions ensure that our employees have the necessary knowledge and skill to work safely with and around cranes.

- Crane operator qualification or certification. NCCCO or equivalent is required.

- It is the policy of CGS to permit only properly trained, and qualified or certified personnel to operate cranes.

6.0 Ground Conditions

- Equipment must not be assembled or used unless ground conditions are firm, drained, and graded to a sufficient extent so that, in conjunction (if necessary) with the use of supporting materials, the equipment manufacturer's specifications for adequate support and degree of level of the equipment are met.

- In addition, if we are the controlling entity, we will also inform the equipment user and the location operator of known underground hazards (such as voids, tanks, or utilities).

- If the assembly/disassembly director or the equipment operator determines that ground conditions do not meet requirements, these individuals must hold discussions with the controlling entity regarding the ground preparations that are needed so that, with the use of suitable supporting materials or devices (if necessary), the requirements can be met.

7.0 Installation, Assembly/Erecting, and Disassembly/Dismantling

- Failure to adequately address hazards associated with installation, assembly/erecting, and disassembly/dismantling is a significant cause of injuries and fatalities in the U.S. Therefore, CGS follows procedures according to manufacturer's instructions and OSHA standards that address these hazards.

8.0 Inspections

- CGS seeks to prevent injuries caused by equipment failures by establishing an inspection process that identifies and addresses crane safety concerns. The inspections are based on the nature of the critical components of cranes; the degree of their exposure to wear, deterioration, or malfunction; manufacturer specifications; and applicable laws and regulations.

- Initial and Post-assembly/Post-erection Inspections

  - The crane owner inspects and tests all cranes to ensure they are capable of safe and reliable operation per the manufacturer's instructions, when initially set or placed in service. The crane operator is responsible for these inspections and tests.

- Shift Inspections

  - Visual inspection of all cranes, wire rope, and related equipment will be made prior to each shift the equipment will be used to look for apparent deficiencies. This inspection is the responsibility of the crane operator.

- Annual Inspection

  - The annual inspection performed at least once every 12 months promotes safety by ensuring that a thorough, comprehensive inspection of equipment is performed to detect and address deficiencies that might not be detected in a shift or monthly inspection. This inspection must be performed by a qualified person.

- Severe Service Inspections

  - Where the severity of use or conditions are such that there is reasonable probability of damage or excessive wear (such as loading that may have exceeded rated capacity, shock loading that may have exceeded rated capacity, prolonged exposure to a corrosive atmosphere), use of equipment will stop and a qualified person must:

    - Inspect the equipment for structural damage to determine if the equipment can continue to be used safely.

    - Determine whether any items or conditions listed in 1926.1412(f) need to be inspected, and, if so, inspect those items or conditions.

- Power Line Safety Procedures

  - Any overhead power line must be considered energized unless and until the utility owner/operator indicates that it has been and continues to be de-energized and visibly grounded at the worksite.

- If equipment, assembly/erecting, disassembly/dismantling, travel, or hoisting activities are to be performed within 20' of overhead power lines, the following applies before these activities are started:
  - Safety Director must be notified that these activities are to be performed near overhead power lines; and
  - Project Superintendent will make arrangements to ensure that:
    - The lines are de-energized and visibly grounded at the point of work; or
    - Safe clearances (as specified in the regulations) between the lines and any crane, conductive materials, tools, equipment, or any part of an employee's body are maintained, along with proper means of preventing encroachment or electrocution; or
    - Other compliant alternative safety measures and procedures are used where the other options are not feasible. See 1926.1410 for more information on compliant alternatives.
  - With few exceptions found in the regulations, crane, assembly, disassembly, or operations are prohibited below a power line, unless Project Superintendent has confirmed that the utility owner/operator has de-energized and (at the worksite) visibly grounded the power line, except where one of the exceptions in paragraph 1926.1408(d)(2) applies.
  - In addition to the above, equipment (with no load) traveling under or near a power line on a construction site is subject to the boom/mast position clearance specifications, speed and terrain considerations, spotter provisions, and poor visibility precaution requirements provided at 1926.1411.

- Signaling Procedures
  - Hand, voice, audible or other signals are used, and a "qualified" signal person (as specified at 1926.1428) is provided in the following situations: the load or the direction of travel is not in full view of the operator, the operator or the person handling the load determines signaling is necessary, etc. Signal charts are posted in the job trailer.
  - Prior to beginning operations, the operator, signal person, and lift director (if there is one) must agree on the signals that will be used. Only one person may give signals to a crane operator at a time, unless anyone becomes aware of a safety problem and must give the stop or emergency stop signal to the operator.

- Work Area and Clearance Area Procedures
  - To prevent employees from entering the hazard areas of a crane, the swing radius will be protected in accordance with 1926.124.

- If an employee must enter a hazard area of a crane, the employee or someone instructed by that employee must ensure the operator is informed that he or she is going to that location. In such situations for cranes with a rotating superstructure, the operator must not rotate the superstructure until the operator is informed that the employee is in a safe position.

- Where any part of a crane is within the working radius of another crane, the project superintendent will ensure that the controlling entity institutes a system to coordinate operations.

- Safe Work Practice Procedures

  - Safe work practices are hazard control methods that reduce the likelihood of exposure to occupational hazards by addressing the manner in which a task is performed. Crane operations call for a number of safe work practices to prevent exposure to struck by, crushing, amputation, electrocution, slipping and falling, and other hazards. Safe work practices would involve fall protection, fire protection, machine guarding, prohibitions for hoisting personnel, stopping an operation whenever there is a safety concern.

  - The crane operator has the authority to stop and refuse to handle loads whenever a safety concern is present.

  - All manufacturer procedures applicable to the operation of the equipment shall be complied with

  - This documentation is to be readily available in the cab at all times.

  - Crane lifts are prohibited above 90% crane capacity.

9.0 Maintenance

- Any crane, or component deficiencies determined to constitute a safety hazard must be serviced, adjusted, or repaired, or defective parts are replaced, promptly and before continued use. No modifications or additions that affect the capacity or safe operation of the equipment may be made.

- The crane operator is responsible for ensuring the cranes, prior to use, are inspected, tested, and found to be capable of safe and reliable operation after any repair or adjustment that relates to safe operation. This qualified person must determine if the repair or adjustment meets manufacturer equipment criteria or alternative criteria specified at 1926.1412(b)(1)(ii). Equipment may not be used until this qualified person, through inspection, can demonstrate that the repair or adjustment meets the manufacturer equipment criteria or the alternative.

- If a safety device listed at 1926.1415 is not in proper working order, the equipment will be taken out of service and tagged out, and operations may not resume until the device is again working properly.

- Similarly, if an operational aid listed in 1926.1416 is not in proper working order, the equipment must not be operated until the aid is again working properly. However, the equipment with a defective operational aid may be operated where an aid is being repaired and we use the "temporary alternative measures" specified by the equipment manufacturer, if any. Operational aid repairs must be completed within the timeframes specified in 1926.1416.

- In addition, we ensure that an accessible fire extinguisher is on equipment to help eliminate small fires quickly and lessen any damage.

10.0 Crane Critical Lift Plan

- A Crane Critical Lift Plan is required to be completed for the following picks:
  - Lifting greater than 75% of the rated capacity
  - Lift involving more than one crane
  - Lift over occupied structures or tight quarters
  - Blind lift (out of the view of the operator)
  - Lift near power lines
  - Hoisting personnel
  - Lift involving non-routine rigging techniques
  - Lift where the center of gravity may change
  - Lifting high value, hazardous, or explosive loads

11.0 Hoisting Personnel

- The use of equipment to hoist employees is prohibited except where the employer demonstrates that the erection, use, and dismantling of conventional means of reaching the work area, such as personnel hoist, ladder, stairway, aerial lift, elevating work platform, or scaffold, would be more hazardous, or is not possible because of the project's structural design or worksite conditions.

- When personnel will be hoisted all requirements of 1926.1431 – Hoisting Personnel shall be followed.

- The CGS Safety Director must approve the hoisting of employees.

- The total load (with the platform loaded, including the hook, load line, and rigging) must not exceed 50 percent of the rated capacity for the radius and configuration of the equipment, except during proof testing.

- The equipment must be uniformly level, within one percent of level grade, and located on footing that a qualified person has determined to be sufficiently firm and stable.

- Equipment with outriggers or stabilizers must have them all extended and locked. The amount of extension must be the same for all outriggers and stabilizers and in accordance with manufacturer procedures and load charts.

- The following is the criteria for personnel platforms:

    - Must be manufactured and designed for the hoisting personnel from a crane.

    - A qualified person familiar with structural design must design the personnel platform and attachment / suspension system used for hoisting personnel.

    - The system used to connect the personnel platform to the equipment must allow the platform to remain within 10 degrees of level, regardless of boom angle.

    - The suspension system must be designed to minimize tipping of the platform due to movement of employees occupying the platform.

    - The personnel platform itself excluding the guardrail system and personal fall arrest system anchorages, must be capable of supporting, without failure, its own weight and at least five times the maximum intended load.

    - All welding of the personnel platform and its components must be performed by a certified welder familiar with the weld grades, types and material specified in the platform design.

    - The personnel platform must be equipped with a guardrail system and must be enclosed at least from the toeboard to mid-rail with either solid construction material or expanded metal having openings no greater than ½ inch. Points to which personal fall arrest systems are attached must meet the OSHA anchorage requirements.

    - A grab rail must be installed inside the entire perimeter of the personnel platform except for access gates/doors.

    - If installed, access gates / doors of all types must not swing outward, and be equipped with a device that prevents accidental opening.

    - Headroom must be sufficient to allow employees to stand upright in the platform.

    - In addition to the use of hard hats, employees must be protected by overhead protection on the personnel platform when employees are exposed to falling objects.

    - The weight of the platform and its rated capacity must be conspicuously posted on the platform with a plate or other permanent marking.

- The number of employees and weight of contents must not exceed the maximum the platform is designed to hold. Materials and tools must be evenly distributed within the confines of the platform and secured to prevent displacement.

- All hooks and other detachable devices must be closed and locked when attached. Shackles used in place of hooks must be of the alloy anchor type with either a bolt, nut and retaining pin, in place or of the screw type, with the screw pin secured from accidental removal.

- A trial lift with the unoccupied personnel platform loaded at least to the anticipated lift weight must be made from ground level, or any other location where employees will enter the platform, to each location at which the platform is to be hoisted and positioned. Where there is more than one location to be reached from a single set-up position, either individual trial lifts for each location, or a single trial lift, in which the platform is moved sequentially to each location, must be performed; the method selected must be the same as the method that will be used to hoist the personnel. The trial lift must be performed immediately prior to each shift in which personnel will be hoisted. In addition, the trial lift must be repeated prior to hoisting employees in each of the following circumstances:

    - The equipment is moved and set up in a new location or returned to a previously used location.

    - The lift route is changed, unless the competent person determines that the new route presents no new factors affecting safety.

- The competent person must determine the following:

    - Safety devices and operational aides are activated and functioning properly.

    - Nothing interferes with the equipment or the personnel platform in the course of the trial lift.

    - The lift will not exceed 50 percent of the equipment's rated capacity at any time during the lift.

    - The load radius to be used during the lift has been accurately determined.

    - Immediately after the trial lift, the competent person must conduct a visual inspection of the equipment, base support or ground, and personnel platform, to determine whether the trial lift has exposed any defect or problem or produced any adverse effect. Confirm that, upon the completion of the trial process, the test weight has been removed.

- Immediately prior to each lift, the platform must be hoisted a few inches with the personnel and materials / tools on board and inspected by a competent person to ensure that it is secured and properly balanced. The competent person continues to ensure everything is in good working order.

- Any condition found during the trial lift and subsequent inspections that fail to meet a requirement of this policy or otherwise creates a safety hazard must be corrected before hoisting personnel.

- At each jobsite, prior to hoisting employees on the personnel platform, and after any repair or modification, the platform and rigging must be proof tested to 125 percent of the platform's rated capacity. The proof test may be done concurrently with the trial lift. The platform must be lowered by controlled load lowering, braked, and held in a suspended position for a minimum of five minutes with the test load evenly distributed on the platform. After proof testing, a competent person must inspect the platform and rigging to determine if the test has passed. Personnel hoisting must not be conducted until the competent person determines that the platform and rigging have successfully passed the proof test.

- When the occupied personnel platform is in a stationary working position, the load and boom hoist brakes, swing brakes, and operator actuated secondary braking and locking features or automatic secondary brakes must be engaged.

- Hoisting of personnel platform must be performed in a slow, controlled, cautions manner, with not sudden movements of the equipment or the platform.

- Platform occupants must keep all parts of the body inside the platform during raising, lowering, and horizontal movement. Occupants must not stand, sit on, or work from the top or intermediate rail or toe board, or use any other means/device to raise their working height. Occupants must not pull the platform out of plumb in relation to the hoisting equipment.

- Tag lines must be used to control the platform.

- Before employees exit or enter a hoisted personnel platform that is not landed, the platform must be secured to the structure where the work is to be performed, unless the employer can demonstrate that securing to the structure would create a greater hazard. If the platform is tied to the structure, the operator must not move the platform until the operator receives confirmation that it is freely suspended.

- The operator must be at the controls at all times when the personnel platform is in use.

- The platform operating manual must be in the platform or on the equipment.

- When wind speed (sustained or gusts) exceeds 20 mph at the personnel platform, a qualified person must determine if, considering the wind conditions, it is not safe to lift personnel. If it is not, the lifting operation must not begin or if already in progress, must be terminated.

- A qualified person must determine if, in light of indications of dangerous weather conditions, or other impending or existing danger, it is not safe to lift personnel. If it is not, the lifting operation must not begin or if already in progress, must be terminated.

- Employees being hoisted must remain in direct communication with the operator.

- Except over water, employees occupying the personnel platform must be provided and use a personal fall arrest system. The system must be attached to a structural member within the personnel platform. When working over or near water, the requirements of 1926.106 apply. The fall arrest system, including the attachment point used to comply must meet the requirements of 1926.502.

- Hoisting of employees while the equipment is traveling is prohibited unless approved by CGS Safety Director and 1926.1431(k)(12) are followed.

- A Pre-Lift Meeting must be held to review the applicable requirements of this policy and the procedures that will be followed. The equipment operator, signal person, employees to be hoisted, the person responsible for the task to be performed, and CGS Superintendent must be in attendance. The Pre-Lift Meeting must be held prior to the start of the trial lift and must be repeated for any employees newly assigned to the operation.

- Hoisting personnel within 20 feet or above power lines is prohibited.

Module 25 – Heavy Equipment
OSHA 1926 Subpart O - Motor Vehicles, Mechanized Equipment, and Marine Operations
OSHA 1926 Subpart W - Rollover Protective Structures; Overhead Protection
OSHA 1910 Subpart N - Powered Industrial Trucks

1.0 Introduction
2.0 Heavy Equipment
3.0 Operator Responsibility
4.0 Training

1.0 Introduction

- The safe operation and proper maintenance of heavy equipment shall be the overall responsibility of the contractor, whether contractor owned, leased, or rented
- Heavy equipment includes the following:
  - Forklifts
  - Powered Industrial Vehicles
  - Loaders
  - Excavators
  - Similar heavy equipment
- Only trained and authorized employees may operate heavy equipment.
- Personnel are to refer to their Pre-Task Planners, manufacturer's recommendations, and other methods for the intended task.

2.0 Heavy Equipment

- Heavy equipment shall be inspected daily or at the start of each shift by the operator. Defective equipment shall be removed from service until repaired.
- Seat belts shall be used when provided and required by the equipment manufacturer.
- Audible back up alarms shall be used at all times. If audible back up alarms are not used, a spotter must be in place.
- Minimum approach distances from energized power lines shall be maintained in accordance with applicable OSHA requirements based on voltage.
- Use of personal electronic devices that distract from safe operation is prohibited while operating heavy equipment.
- Employees shall remain clear of operating heavy equipment unless required by the task and coordinated with the operator.

3.0 Operator Responsibility

- Operators are responsible for pre-use inspections and reporting defects. Supervisors are responsible for ensuring equipment is removed from service and repaired when deficiencies are identified.

- Required annual inspections shall be completed and documented in accordance with manufacturer and regulatory requirements.
- Manufacturer rated load capacities, recommended operating speeds, and special warnings or instructions shall be posted inside the heavy equipment.
- The daily inspection shall include the information posted on the appropriate daily equipment inspection form.
- Ensure that routine maintenance is performed, along with necessary repairs.
- Refuse to lift any loads that are not safely loaded, supported, rigged, or any other condition.
- When the operator is not at the controls, the following shall be in place:
  - Ignition shut off and keys are removed.
  - Forks, buckets, and/or blades in the down position.
- Operator must be at the controls when a load is applied to the heavy equipment.
- Each operator shall ensure that good housekeeping is maintained inside their equipment.
- The operator shall assist in overseeing the safety of the people around them in compliance with OSHA standards.

4.0 Training

- Only trained employees will operate heavy equipment.
- The training will be conducted by a qualified trainer.
- Training and evaluation shall be conducted initially and as required by OSHA, manufacturer guidance, or when unsafe operation is observed.
- The training will include safe operating instructions, use of controls, capacity, and stability of equipment.
- Operators will be re-trained if an incident occurs while operating or if an unsafe operation is observed.

Module 26 – Steel Erection
1926 Subpart R - Steel Erection

1.0 Introduction
2.0 Responsibilities
3.0 Requirements
4.0 Steel Erection Assembly Safety Responsibility
5.0 Employee Training
6.0 Special Training
7.0 Fall Protection
8.0 Weather Conditions

1.0 Introduction

- Steel erection accidents are preventable through cooperation between contractors, training, safe work practices, and pre-work coordination with the fabricator. Proper job set up, scheduling, and coordination between CGS, engineer of record, the steel fabricator, the erector, and concrete-testing companies can drastically affect jobsite safety.

2.0 Responsibilities

- Competent and qualified persons are designated based on task-specific OSHA requirements. Competent persons are responsible for hazard recognition, enforcement of safety requirements, and authority to stop work when unsafe conditions exist. Qualified persons are responsible for engineering, design, load, and structural determinations. Assignment of one role does not imply authority for the other unless explicitly designated.
- Shop Drawings and Approvals:
    - CGS Project Manager and the Steel Fabricator shall review architectural/shop drawings to ensure compliance with 1926.750, including the following:
        - Double connections require seats or off sets.
        - All column splices are 42” higher than the finish decks.
        - Perimeter columns pre-punched web holes for fall protection.
- Schedule Considerations:
    - CGS Superintendent must consider concrete testing requirements 1926.752 (a) within schedule development:
        - All concrete piers, walls, footings and foundations must reach at least 75% of intended compression strength before structural steel is placed upon them.
        - ASTM testing methods must be used to test the concrete cylinders.
        - Written notification of test results shall be provided to steel erector before erection commences.
- CGS Responsibilities:
    - Prior to steel erection CGS shall provide for a Pre-Work Meeting. The meeting will include the Project Manager, Superintendent, and the steel subcontractor to review, coordinate, and formalize the expectations of all parties involved. Topics may include the following:

- Staging areas
- Delivery sequence
- Work sequence
- Critical lifts
- Site logistics
- Fall protection
- Temporary bracing
- Lay down areas
- Training Requirements for connectors, deckers, riggers, operators, and others involved within steel erection.

3.0 Requirements

- Written Steel Erection Safety Plan
  - A written steel erection safety plan will be submitted by the steel subcontractor at the pre work meeting.
  - The subject matter may include but is not limited to:
    - Staging Areas.
    - Deliveries.
    - Crane lift schemes.
    - Bracing.
    - Stabilizing.
    - Employee training records.
    - Fall protection.
    - Wind loading and high wind suspension.
  - This plan must be reviewed by CGS to verify compliance with project requirements prior to work commencing.

- Approval to Begin Steel Erection
  - Before the commencement of steel erection, CGS will provide written authorization to the steel erector ensuring:
    - Concrete in footings, piers, and walls have cured to a level that will provide adequate strength to support any forces imposed during steel erection.
    - Anchor bolt repairs, placements, and modifications were done with prior approval of the project structural engineer of record (EOR). All changes and field modifications will be forwarded to the EOR in a timely fashion and must also be available at the project site.
- Site Layout
  - CGS, as the controlling contractor, will ensure that the following is provided:
    - Adequate access roads to and through the site for the safe delivery and movement of cranes, trucks, and the material to be erected.
    - Means and methods for vehicular control (within the site).
    - Adequate space for equipment and materials.
    - This space must be firm, properly graded, drained and readily accessible to work.
- Falling Object Protection
  - The controlling contractor must bar other construction below the steel erection unless overhead protection is provided. Signage will identify areas with overhead hazards and will be provided by the selected steel subcontractor. Signs should read “Danger- People Working Overhead”.
  - When pouring concrete in conjunction with steel erection the following applies:
    - The level above the pour must be completely decked and detailed.
    - Two levels above the pour must be completely decked. Detailing may occur if sparks and debris don’t fall to the floor being poured.
    - No steel is to be flown or erected above concrete operations.
- Perimeter cable installation
  - Shall be provided by the steel erector and shall remain in place.

- Shall be minimum of ¼" wire rope
- Shall have a minimum of 3 U-bolt shackles (Crosby clamps) at all terminations
- All ends of wire shall terminate at a column, angle iron, or turn buckle. At no point shall a wire rope connect with another wire rope
- Top rail shall be installed at 42" above finished floor
- Maximum span between support terminations shall be 90'

- Cranes & Rigging
  - CGS Superintendent shall obtain the following from the steel subcontractor:
    - The most recent copy of the crane's annual inspection.
    - A copy of the crane operator's hoisting/hydraulic license.
    - A lift plan detailing the cranes capacity; maximum required pick and crane set up locations.
    - A rigging plan that identifies the type and capacity of the rigging to be used on site.
    - Qualification cards for riggers and signal person.
    - Daily crane inspection log.

4.0 Steel Erection Assembly Safety Responsibility

- Cranes and Rigging: Primary safety responsibility falls to the steel subcontractor and crane operator with CGS overseeing operations to ensure regulatory compliance.
- Crane operators:
  - Must be responsible for those under their direct control.
  - The operator has the authority to stop all hoisting activities and refuse to handle loads until safety has been assured.
  - Deactivation of safety latches is permitted only when specifically allowed by Subpart R and controlled under a site-specific erection plan.
- Rigging
  - All riggers shall be appointed by the steel erection contractor

- All riggers shall be qualified
- ANSI-B30 Standards for wire rope sling removal:
  - Ten randomly distributed broken wires in one rope lay.
  - Five broken wires in one strand.
  - Severe localized abrasion or scraping.
  - Kinking, crushing, bird caging or any other damage resulting in distortion of the rope structure.
  - Evidence of heat or corrosion.
  - End attachments that are cracked, deformed, or worn to the extent that the strength of the sling is substantially affected.

- Crane Inspection:
  - Prior to each shift, crane operators shall perform required inspections. Periodic and annual inspections shall be performed by a qualified person in accordance with regulatory and manufacturer requirements.
  - The inspection points must include:
    - All control mechanisms for wear and contamination
    - Safety devices
    - Hooks and latches
    - Hydraulic system
    - Tires
    - Ground conditions – Firm, dry, and, a compacted solid surface.
    - If any deficiency is determined to be a hazard the crane must be removed from service.

- Anchor Bolts
  - Approval by the EOR and the CGS Superintendent is required before anchor bolts can be:

    - Repaired
    - Replaced, or
    - Field modified

- Plumbing Up
    - Must be installed when a qualified person deems it necessary to ensure the stability of the structure, and
    - In place before the structure is loaded with joists, bundles of deck or bridging.
    - May be removed only with the approval of the qualified person.
- Columns
    - Must be evaluated by a qualified person to determine if guying or bracing is needed.
    - Must have minimum of 4 anchor bolts per column.
    - Can be set on level finished floors, pre-grouted leveling plates, leveling nuts or shim packs to adequately transfer the load.
- Beams & Columns
    - During the placing of structural members, the load shall not be released until:
        - The members are secured by at least 2 bolts, per connection.
        - The bolts should be drawn up wrench tight.
        - Or the equivalent has been installed.
        - A qualified person must determine if more than 2 bolts are needed to ensure structural stability of cantilevered members.
- Non-Bolted Connections
    - Must be installed per engineered drawing before released from support.

- Temporary erection bolts shall be installed during steel fabrication, where possible.
- If loads are to be temporary support before final detail is complete there will be an engineered stamped drawing showing this temporary detail.

- Diagonal Bracing
  - Solid web structural members used as diagonal bracing must be secured by:
    - At least one bolt per connection
    - Or the equivalent as specified by the EOR
- Multiple Lift Rigging – Requires the following:
  - A maximum of three members per lift
  - A minimum of 7 ‘ between members
  - A 5:1 safety factor on all components
  - All loads must be rigged by a qualified rigger
  - Controlled load lowering must be engaged on all hoisting equipment
- Double Connections
  - Beam seats or off set connections are required on double connections.
  - The use of half pins on double connections is no longer allowed.
  - Special training is required for connectors making double connection.
- Walking-Working Surfaces
  - Shear connectors, reinforcing bars, deformed anchors or threaded studs shall not be attached to the top flanges of the beams, joists, or beam attachments until the decking has been installed.
- Metal Buildings Fall Protection

- Purloins and girders shall not be used as an anchorage point for a fall arrest system unless they are set in place and capable of withstanding a 5000-pound point load.

- Open Web Steel Joists
  - Where constructability does not allow a steel joist to be installed at the column:
    - An alternate means of stabilizing joists must be installed on both sides near the column, and it must:
    - Provide equivalent stability to a steel joist field-bolted at the column.
    - Be designed by a qualified person.
    - Be shop-installed.
    - Be included in the erection drawings.
  - Where steel joists at or near columns span more than 60':
    - The joists need to be set in tandem with all bridging installed
    - An alternative method of erection may be used, provided it:
    - Provides equivalent stability to the steel joist
    - Is designed by a qualified person
    - Is included in the site-specific erection plan

- Steel Joist Modification
  - Any modification that affects the strength of a steel joist or steel-joist girder must be made with the approval of the project structural engineer of record (EOR).

- Bolted Diagonal Bridging
  - When bolted diagonal erection bridging is required, the following will apply:

        - The bridging must be indicated on the erection drawing.
        - The erection drawing must be the exclusive indicator of the proper placement of this bridging.

- Placing Loads on Joists
    - During the construction period, the employer placing a load on steel joists must ensure that the load is distributed so as not to exceed the carrying capacity of any steel joist.
    - No bundle of decking may be placed on steel joists until all of the following conditions are met:
        - The employer has first determined that the structure or portion of the structure is capable of supporting the load.
        - The bundle of decking is placed on a minimum of three steel joists.
        - The joists supporting one bundle of decking are attached at both ends; at least until bridging is installed and anchored.
        - The total weight of the bundle of decking does not exceed 4,000 pounds and placement of the bundle of decking is within 1 foot of the bearing surface of the joist end.

5.0 Employee Training

- Steel Erection Training:
    - The steel erection subcontractor shall furnish steel erection training to all employees. Employee training must be provided by a qualified person and furnished to the controlling contractor upon request.
    - All employees exposed to fall hazards must be trained and instructed in the following areas:
        - The recognition and identification of fall hazards in the work area.
        - The use and operation of protective systems such as guardrail systems, personal fall-arrest systems, positioning-device systems, fall-restraint systems, safety net systems, and other protection to be used.

- The correct procedures for erecting, maintaining, disassembling and inspecting the fall protection systems to be used.
- Procedures for protection from falls to lower levels and into holes and openings in walking/working surfaces and walls.
- All the fall protection requirements of subpart R&M.

6.0 Special Training

- The employer must also provide specialized training to employees involved in the following activities and furnish records of training to the general contractor upon request:
  - Multiple-lift rigging operations, including:
    - Multiple lift hazards.
    - Proper procedures and equipment required to perform multiple lifts.
  - Connecting
  - Connecting hazards
  - The establishment, access, proper connecting techniques and required work practices.

7.0 Fall Protection

- Fall protection is required at 6' for all steel erection activities.
- All fall arrest equipment shall be designed and included in the steel erection safety plan. Fall distances shall be addressed and proper equipment designed and used for each site.
- All fall arrest equipment shall be clearly marked showing manufacturer and inspected daily before use.
- Final deck attachments and installation of shear studs shall not be done in the CDZ; fall protection must be completed first.
- Floor and roof openings:
  - Roof and floor holes shall be decked over.
  - Where large openings do not allow for continuous decking, guardrails or other type systems must be installed immediately to ensure worker protection.

8.0 Weather Conditions

- Weather conditions shall be monitored, and steel erection activities suspended when conditions create a hazard to workers or the public, as determined by the competent person. Wind is of primary concern. Anemometers will be considered for establishing the hazards. Metal decking and all other sheathing will be secured at the end of all workdays and additional intermittent steps may be needed when conditions require it.