GRANGER

ADVANCE THE ART OF BUILDING

SAFETY

the tool for all trades

Safety & Health Program

SF010WI Safety Program - 08/01/18 - v7

GRANGER
ADVANCE THE ART OF BUILDING

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A.1. Introduction

Safety: The Tool for All Trades

The purpose of the Granger Construction Company Safety Policy is to minimize the hazards and risks associated with construction operations. Our objective for all Granger Construction Company projects is **0** incidents.

In order to accomplish these objectives, participation by every member is essential. This manual has been created to ensure that the Granger Construction Company Safety and Loss Prevention policies and procedures are understood and implemented at every phase.

Granger employees and subcontractors have an obligation to adhere to the guidelines in this manual. In addition to these guidelines, all trade standards apply. These standards are outlined in Michigan Occupational Safety and Health Administration (MIOSHA)/(OSHA) Federal Occupational Safety & Health Administration and American National Safety Institute (ANSI) directives. **Neglect of the Granger Safety and Loss Prevention policy may result in suspension or termination.**

The Granger Construction Company Safety Policy has been completely rewritten as of August 1, 2018 and should be read in its entirety. A Policy Acknowledgment and Acceptance (PC130FR) form can be found on the last page and must be signed by the project manager and site supervisors and returned to the Granger field office before commencing work.

Other forms referenced in this manual are included as exhibits in the Appendix or are available through Granger on-site personnel.

A.2. Safety & Health Mission Statement

People are our most important resource. Employees are our most important asset. Personal safety and health are essential and integral to our operations and our overall success as a company and as members of a team. Safety and Health are, therefore, our highest priorities, a primary responsibility, not to be compromised.

We will provide a safe and healthful workplace free from recognized hazards where our employees can feel secure and proud performing quality work. We will establish and insist on safe work methods and practices at all times. Our goal is zero accidents and zero defects, and we will strive for continuous improvement to achieve and maintain our performance in these areas.

We are a team, and each of us will have an absolute commitment to safety as our fundamental focus. We will all be genuinely involved in this endeavor at all times, and we will each do our parts. In so doing we will be a leader in our industry, and we will all be safe and successful together. We owe this to ourselves, to each other, to our families, to our customers, and to our community.

We have established our Safety and Health Program to eliminate work related injuries, illnesses, and accidents.

We expect to improve operations and reduce personal and financial losses. This should decrease costs, increase productivity and raise employee morale. The ultimate result will be greater overall satisfaction for all principals, personnel and customers of our company.

All personnel, at all levels, have the right to be safe, have the responsibility to work safely, and have a duty to be involved in safety and health operations. Our Safety and Health Policy mandates, as a job requirement, that every individual exercise these rights and responsibilities with genuine commitment. Our Program provides a structure within which all personnel have assigned responsibilities so they can function effectively to carry out this mandate.

Management shall develop and maintain an effective Safety and Health Program. We will do this with ongoing employee involvement. Our Company Safety Director, in conjunction with our Safety Team shall inform employees of applicable safe practices, rules and regulations, and shall coordinate safety communications, employee training, team meetings, authorized inspections, procedures for corrective actions, reports of injuries, illnesses, incidents and observed hazards, accident investigations, recommendations, actions and advice. He will be assisted by employees and our Safety Teams.

All Employees shall immediately report all accidents, injuries and hazards, whether serious or minor, to their Supervisor who shall inform the Safety Team Leader. They shall also inform him of any safety information and ideas they may have. We have an Open-Door Policy and we encourage communication with the Safety Director on any safety matter. All Employees are personally responsible for preventing accidents and hazard exposures in operations and work areas that they control. This includes following safe work practices, obeying company rules and directives and using proper personal protective equipment. Employee performance in this regard will be measured along with their overall performance.

Safety inspections and evaluations shall be conducted on a regular basis. Inspections shall evaluate the actual hazards and operations of each job considering the probability of an accident, release or exposure and the severity of potential injury and illness. The safety supervisor in charge of inspections shall use our Jobsite Safety Audit Form.

Safety Team meetings and discussions shall be conducted monthly or as conditions and situations merit. They shall involve all Safety Team members when practical. When we identify various hazards, potential hazards and safety issues applicable to our operations, we will promptly determine the appropriate action and pursue it.

We will determine adequate and suitable corrective actions and implement them by means of:

1. Written Action Plans and Operating Procedures
2. Training of Employees and Enforcement of Compliance
3. Obtain and Implement use of Means and Materials for Control and Protection

Many of the potential hazards identified are routinely controlled or protected against so that there is no serious hazard exposure and some written plans exist and have been implemented. In these cases, we will review performance and revise plans as needed.

This Safety and Health Program will be a fundamental and integral part of our daily operations. Each of us must support it fully, be genuinely involved at all times and do our parts. We are all responsible, as individuals and as a company, to succeed in this and in our overall business. We owe this to ourselves, to each other, to our families, to our customers, and to our community.

Glenn D. Granger
President

A.3. MIOSHA/OSHA Compliance Policy and Procedure Directive

It is our policy to comply with all applicable Standards and Rules of the Michigan Occupational Safety and Health Act (MIOSHA) (PA 154), Federal Occupational Safety Health Administration (OSHA), and amendments and orders pursuant thereto. We shall do this as part of our overall Safety and Health Program. In the process, we shall from time to time write and implement individual Plans, Programs and Operating Procedures to identify and control specific hazards, to ensure safe work practices, to inform, train and protect personnel, and to generally provide for safe working conditions.

Where an individual Plan, Program or Operating Procedure is written, the applicable MIOSHA/OSHA Standards and Rules will be attached to it and made part thereof. We shall also include available On-Site Consultation Abatement Advice (OSC), Occupational Health Advice (OH) or BSR/CET publications or guidance there from, and Operating Procedures to implement the Plan or Program. Nothing in any Plan, Program or Operating Procedure shall be intended to conflict with the Standard, and nothing shall be construed to authorize or allow violation of the Standard.

Where a Plan is not individually written in whole or in part, the applicable MIOSHA/OSHA Standards and Rules along with this Directive and any OSC or OH we possess shall become our Program and shall be used. A list of these Standards, Rules, OSC, OH and BSR/CET publications is attached to this Directive. Also included is a list which classifies safety and health issues and correlates applicable Standards, Rules, OSC and OH with each issue. Consult this Safety and Health Issues Classification matrix and the referenced documents and use them as a Program.

Managers shall ensure that this Directive and all MIOSHA/OSHA Standards and Rules, and all applicable Plans, Programs and Operating Procedures are kept on file, up to date and readily available in each Workplace which they manage. They shall designate specific Supervisors and Safety Team personnel to oversee and implement them. Designated responsible personnel shall be familiar with them and ensure their implementation. All personnel shall follow them and related instructions, and they shall seek direction where needed.

A master copy of all these materials shall be kept on file in the Corporate Office Safety department electronically. They are available to copy or review as needed. A copy of any applicable item will be made available upon request to an employee for relevant work-related purposes.

We shall also comply with requirements of, and may implement use of materials from, other programs and policies of our organization.

A.4. Safety and Health Program Organization

All personnel, at all levels, have the right to be safe, have the responsibility to work safely, and have a duty to be involved in safety and health operations. Our Safety and Health Policy mandates, as a job requirement, that every individual exercise their rights and perform their responsibilities with genuine commitment. Our Program provides a structure within which all personnel have assigned responsibilities so they can function effectively to carry out this mandate.

Examples of duties are as follows:

1. Management shall develop and maintain an effective Safety and Health Program and
   a. Establish policies and procedures which will effectively eliminate, control or protect employees from recognized hazards in the workplace.
   b. Provide financial and personnel resources to accomplish approved policies.
   c. Ensure implementation of engineering, education and enforcement measures.
2. Safety Director shall implement, supervise and maintain the Program and
   a. Guide and coordinate the Safety Team and/or direct employees on safety issues as needed.
   b. Ensure maintenance of records, reports, documents, and compliance with regulations.
   c. Be familiar with applicable safety and health laws, rules, standards, and practices.
   d. Act to prevent serious injury or damage to property or the environment.
   e. Acquire materials and services and allocate employee time as needed.
   e. Enforce safety rules and evaluate performance of Program and personnel.
   f. Liaison with outside entities including regulatory agencies.
3. Safety Team and/or specified Members or Employees shall perform as directed and
   a. Inform and train employees on safety practices, rules and regulations.
   b. Investigate accidents, near misses and employee complaints & file reports.
   c. Perform inspections and hazards analyses, and recommend corrective actions.
   d. Report to the Safety Director and assist with designated responsibilities.
   e. Project Managers have direct responsibility for enforcement of our safety Program.
   f. Superintendents/Foremen shall ensure performance of all day-to-day job site safety activities.
4. All Employees shall work safely and avoid hazards to themselves or others, and
   a. Learn and follow all safety rules, both general and specific to their job.
   b. Use only safe work practices; before acting, learn the safe way and do it.
   c. Report accidents, hazards and unsafe situations to their supervisor.
   d. See the Safety Director with serious concerns if needed.
   e. Reckless or willful endangerment of oneself, of others, or of property may be cause for severe discipline including dismissal and possible prosecution.
5. All Subcontractors shall work safely and avoid hazards to themselves or others, and
   a. Comply with the General Contractor's safety program, MIOSHA/OSHA and trade standards
   b. Comply with all requirements in our Notice to Contractors and Subcontractors.

A.5. Safety Team Organization and Assignment of Responsibilities

We have developed a Safety and Health Program with the involvement of employees who are knowledgeable and dedicated to ensuring a safe and healthful work environment. Such employees, including Job-site Safety Leaders will form a Safety Team. They will assist the Safety Director to implement and maintain the effectiveness of our Program on an ongoing basis.

The Safety Director and the Safety Team shall inform employees of applicable safe practices, rule and regulations and coordinate their safety communication and training. They shall conduct safety meetings, inspections and accident investigations, recommend corrective actions, keep reports of injuries, illnesses, incidents and observed hazards, and consider employee complaints, reports and suggestions seriously.

We are dedicated to workplace safety and health and we will promote it diligently. Every employee must support the Program and be genuinely involved. Each person is individually responsible for preventing accidents and hazard exposures in their operations and work areas. This includes the assignments below.

Companywide responsibility for supervision is as follows:

Designee/Coordinator: Safety and Health Issues or Hazards

Brian Goodman: Safety Director

Lori Lombardi-Davis: Safety Administrator; Reports of Accident, Inspections, Man-hours, TBTs, Work Comp Coordination

Job Site Safety Leader: Ensure compliance with all safety issues at their job site. The Project Engineer or Superintendent shall be the Job Site Safety Leader unless another person is specifically assigned.

Every Employee and Contractor: Follow rules and safe practices and use protective equipment. Report and avoid hazards. Communicate. Never endanger anyone.

A.6. Hazard Communication and Safety Training

Hazard communication and safety training shall be provided to all Granger Construction Company employees and shall include the following:

1. Safety Inspections
2. Accident Investigations
3. Hazardous Materials
4. Flammables and Compressed Gasses
5. Personal Protective Equipment, Clothing and Respirators
6. Hand and Power Tool Safety
7. Confined Space Entry
8. Lock Out and Electrical Safety
9. Back and Joint Injury Prevention (proper lifting techniques)
10. Scaffolds, Ladder Safety and Fall Prevention
11. Emergency Response and First Aid
12. Fire Prevention, Protection and Extinguishing
13. Guarding of Machines and Equipment
14. Welding and Torching
15. Safety Program Review and General Safety Rules
16. Health Hazards, Asbestos and Lead
17. Mobile Equipment and Forklifts
18. Driving Safety
19. Material Handling, Storage, Lifting and Moving
20. Excavation, Trenching and Shoring
21. Walking and Working Areas, Signals, Signs and Tags
22. Silica Standard
23. Tunnels, Shafts, Cofferdams, Caissons
24. Masonry Walls and Concrete, Steel and Precast Erection, Hazwoper, Demolition & Blasting

Weekly Tool Box Talks shall also be done on a wide variety of issues. These shall routinely be conducted weekly by the foreman of each job at the job site and will be provided electronically. They shall have all employees on their jobsite enter their names on the attendance roster and return the roster to the corporate office.

A.7. Enforcement of Safety Rules and Disciplinary Procedures

The measures outlined below constitute the *minimum* acceptable disciplinary procedure for enforcement of safety rules.

Assault, reckless endangerment of oneself or others, or willful destruction of property is cause for *immediate termination* and possible legal action. Other violations and hazardous actions are cause for the following minimum disciplinary procedures:

1. **First Violation**: Verbal and Written warning with copy for personnel file. Use Safety Violation Warning (SF075FR).
2. **Second Violation**: Written warning with copy for personnel file and 1-3-day suspension without pay, pending severity of infraction.
3. **Third Violation**: Written warning, copy for personnel file, and termination.

Serious misbehavior and aggravating factors may warrant more severe discipline. The number of persons placed at risk, the severity of injury and/or property damage that can be expected and repeated violations or apparently willful disregard for safety or safety rules will be considered when determining discipline. The extent of discipline is at the sole discretion of management.

Granger Safety Director shall be responsible for enforcement of the disciplinary program.

A.8. Job Site Safety Administration

INSPECTIONS AND CORRECTIONS - The job-site Safety Leader, Foreman or a designee will tour each job site, communicate and coordinate with others as needed to observe and control hazards as follows:

1. Identify and record safety and health hazards, their severity and probability.
2. Determine the corrective and protective actions necessary to safeguard personnel and prevent accidents, injuries and illnesses.
3. Determine the parties responsible or assign designated employees to carry out corrective actions, and instruct or communicate with them or perform action necessary to correct the hazardous situation.
4. Follow up to ensure timeliness and adequacy of corrections.

ACTION PLANS should include methods of correction in the following order of preference:

1. Eliminate the hazard by removing it or substituting a non-hazardous alternative.
2. Control its exposure potential by effective guarding, shielding or engineering.
3. Protect persons from exposure by providing and enforcing use of personal protective equipment.
4. Train workers in safe work practices and methods.
5. Reduce exposures and protect others by coordinating contractors and employees work periods, areas, methods, communications and means of protection.

A GENERAL JOB-SITE SAFETY INSPECTION or evaluation and action plans for corrections shall be done:

1. Before a job commences and should be done in consultation with our Safety Director.
2. Jobsite Safety Audits shall be conducted bi-weekly and a record of safety actions shall be made.
3. Weekly for new or continuing items introduced at the weekly or other safety meetings.
4. Daily for specific items requiring daily checks and for identification of new hazards.

HAZARD COMMUNICATION, SAFETY TRAINING AND INSTRUCTION - When a serious potential hazard exists, and is not eliminated or adequately controlled:

1. Affected workers must be informed of
    a. The hazard, its type and seriousness,
    b. The planned corrective actions
    c. The means and methods for their personal protection and precautions
    d. Their personal responsibility to use protections, precautions and safe work practices as trained and instructed.
2. Training and instruction must be provided adequately and appropriately for the seriousness and type of hazard and work practices required to prevent injury.

REGULAR SAFETY MEETINGS shall be held for routine training, reporting and discussion including communication of hazards and coordination of operations among contractors and employees. These shall include:

1. Daily Safety huddles be conducted prior to start of work shift for all employees on site. Weekly Tool Box Talks should be coordinated as applicable with activities for each week. Attendance rosters should be completed and returned to the corporate office.
2. More extensive and companywide safety meetings quarterly or as needed. Topics shall be arranged periodically, e.g. annually and include issuance of our Program to all employees.

A.9. Subcontractor Management

All Subcontractors shall be under strict enforcement when it comes to safety. Safety plans, training documents, and safety statistics will be reviewed to determine if a contractor is qualified.

Some jobsites may require each sub-contractor to submit their safety statistics for Granger review. Jobsites require each contractor to submit their companies EMR, RIR, DART, fatality rate, and OSHA 300 Log before they are allowed on site. These jobsites have a maximum rate established for each safety category. If each contractor does not meet the safety requirements, they will not be allowed to work on Granger Projects Granger shall conduct a post job safety performance review. This review is designed to create “learning lessons” for any safety related issues on the job. Sub-contractors that have not been compliant with all Granger safety procedures may not be allowed to contract with Granger on future jobs.

A.10. Equal Employment Opportunity and Affirmative Action Policy

Granger Construction Company is committed to exercising and promoting fairness, honesty and integrity in all business and employment practices. We are also committed to compliance with all applicable laws, standards and regulations promulgated by governing authorities. Authorities considered in the development of this policy include the Equal Employment Opportunity Commission, Office of Federal Contract Compliance Programs, and Michigan Department of Civil Rights. This policy is intended to comply with applicable provisions of the Civil Rights Act of 1964 of the United States of America, Executive Order 11246, Section 503 of the Rehabilitation Act of 1973, the affirmative action provisions of VEVRAA, the Immigration Reform and Control Act of 1986 (IRCA), Title I of the Americans with Disabilities Act of 1990 (ADA), 42 USC, Chapters 21 and 126 and part 1981, 29 USC parts 206, 621-624, and 791 and Public Act 453 of the State of Michigan.

In this spirit, we are committed to providing work, a workplace and work environment with equal employment opportunity for all people without illegal harassment or discrimination. We will not discriminate, and we will not tolerate discrimination in any of our personnel practices against any qualified individual based on occupationally irrelevant prohibited factors. These factors include an individual's race, color, religion, sex, national origin, ethnicity, disability, veteran's status and sexual orientation as specified and applicable under the governing regulations. We will also employ affirmative action to ensure equal employment opportunity.

We will make our policy known to the sources from which we receive employee applicants including trade unions, and coordinate with them to ensure compliance with this policy. Furthermore, we will inform our employees, management, staff, agents, contractors and other associated personnel of this policy and their rights and responsibilities, and we will provide them a copy of this policy where appropriate.

With respect to discrimination based on these factors, we will not:

a. fail or refuse to hire or to discharge any individual, or otherwise to discriminate against any individual with respect to his compensation, terms, conditions, or privileges of employment, nor

b. separate or classify employees or applicants for employment in any way which would deprive or tend to deprive any individual of employment opportunities or otherwise adversely affect his status as an employee, nor

c. discriminate in admission to, or employment in, any program established to provide apprenticeship or other training.

Exceptions to the practice of non-discrimination are legally allowable and may be made in certain specific instances. Exceptions include those certain instances where religion, sex, or national origin is a bona fide occupational qualification reasonably necessary to the normal operation of that particular business or enterprise, and also instances where such discrimination is imposed upon us in the interest of national security of the United States.

We may apply different standards of compensation, or different terms, conditions, or privileges of employment pursuant to a bona fide seniority or merit system, or a system which measures earnings by quantity or quality of production or to employees who work in different locations, provided that such differences are not the result of an intention to discriminate because of race, color, religion, sex, or national origin.

We may also give and act upon the results of any professionally developed ability test provided that such test, its administration or action upon the results is not designed, intended or used to discriminate because of race, color, religion, sex or national origin.

We may differentiate upon the basis of sex in determining the amount of the wages or compensation paid or to be paid to employees if such differentiation is authorized by the provisions of section 206(d) of title 29 [section 6(d) of the Fair Labor Standards Act of 1938, as amended].

We are not required to grant preferential treatment to any individual or to any group because of the race, color, religion, sex, or national origin of such individual or group on account of an imbalance which may exist with respect to the total number or percentage of persons.

We will not discriminate against an individual because he has opposed any unlawful employment practice, or because he has made a charge, testified, assisted, or participated in any manner in an investigation, proceeding, or hearing regarding the civil rights cited herein.

We will not print or publish or cause to be printed or published any notice or advertisement relating to employment, indicating any preference, limitation, specification, or discrimination, based on race, color, religion, sex, or national origin, unless this is specifically designed as an affirmative action and done in compliance with all governing authorities.

We will keep certain records (I-9 forms) for the U.S. Immigration and Naturalization Service which verify our employees' eligibility to work in the U.S. (i.e. proof of citizenship or authorization to work.

Any employee who believes that he or she has been harassed or discriminated against has the right, and is encouraged to register his or her complaint giving notice of the offense and requesting resolution. All such allegations will be investigated and appropriate remedial action will be taken. Persons over whom we have control and who are found responsible for such discrimination will be held responsible.

In an effort to resolve complaints quickly and satisfactorily, an aggrieved employee is encouraged to register the complaint in writing with each of the following persons in sequence allowing each an opportunity to take action, and then proceed to the next person if dissatisfied with the results:

1. the offending person
2. your direct supervisor
3. your department manager
4. the company President

If it is too uncomfortable to register the complaint at any of these levels, then that level should be skipped.

Each person who receives a complaint should take the complaint seriously. He or she should make diligent effort to determine the facts, and assess the facts to determine if a violation of company policy, a collective bargaining agreement, and/or employment law has occurred. If it has, the exact nature of the violation should be determined along with the type of remedial action that is appropriate and satisfactory. Then steps should be taken to implement the remedial action including steps to prevent future violations. At all stages, documentation and records should be made, and higher company authority should be consulted as appropriate. In all cases, we will comply with all employment laws, then with binding collective bargaining agreements and then with this and other company policies.

A.11. Harassment Prevention Policy

Overview

Harassment will not be tolerated. As required by applicable laws, the Granger Construction Company prohibits harassment of our employees, and the employees of our contractors, clients and suppliers, in any form. Our intent is to create and maintain an environment that promotes respect and dignity for all individuals and is free of harassment and unduly offensive behavior. Harassment, as defined in various forms below, is in conflict with a harmonious and productive work environment**.** Violation of this harassment policy may result in severe disciplinary penalties, including immediate discharge.

In order to ensure our company is free of harassment, Granger Construction Company has implemented *Preventing Sexual Harassment* training. This training is mandatory for all Company employees. Sexual Harassment training will be an ongoing process and must be successfully passed every two years by all employees. The results of the training will be tracked and recorded in your personnel file. You will be contacted within the first month of your employment to execute the training.

Sexual and Gender Harassment

Sexual harassment is defined by law to include any unwelcomed sexual advance or touching, request for sexual favors, or other verbal, nonverbal, or physical communication of a sexual nature if:

1. submission to such conduct is a term or condition of employment or continued employment, whether explicitly or implicitly; or
2. submission to or rejection of such conduct is used as a factor in decisions affecting the individual's employment; or
3. such conduct or communication substantially interferes with the individual's employment or creates an intimidating, hostile, or offensive work environment.

Examples

Examples of prohibited sexual harassment would include the following:

1. offensive sexual flirtations
2. suggestive comments
3. sexual innuendo
4. jokes about sexual topics
5. use of sexually degrading words or humor
6. insults of verbal abuse of a sexual nature
7. graphic verbal commentaries about an individual's body
8. display of sexually suggestive objects or pictures
9. vulgar words of sexual nature
10. non-verbal, suggestive, or sexually insulting actions
11. such as leering, whistling, suggestive sounds, and obscene gestures
12. repeated requests or pressure for "dates"
13. advances and propositions
14. unwanted physical contact
15. unwelcomed touching of a sexual nature including grabbing and pinching

16. intentional brushing of the body
17. sexual assault
18. coerced sexual acts

Gender Harassment is actions or behaviors that are based on a person's sex or gender and create an intimidating, hostile, or offensive work environment. Gender harassment would include, among other conduct, the following:

1. sexist comments or slurs
2. offensive communications, insinuations and innuendo based on gender
3. jokes about gender-specific traits
4. insults or verbal abuse based on gender
5. offensive stereo-type characterizations
6. sexist or gender-degrading jokes or humor
7. threats based on gender
8. other offensive or insulting conduct based on gender

Racial/Ethnic/Religious Harassment

Racial/ethnic/religious harassment is prohibited and is defined to include, among other conduct, communications, threats, insinuations, innuendo, racial, ethnic, or religious slurs, demeaning jokes, or humor, offensive stereo-type characterizations, or other offensive statements or conduct based upon race, religion, or ethnicity directed at an individual or a racial, ethnic, or religious class or group. The terms "ethnic" and "ethnicity" are broadly defined to include any reference to a person's national origin, ancestry, relations through blood or marriage, etc.

Personal and Other Kinds of Harassment

Harassment based upon any status or class protected by law is prohibited, including, but not limited to, harassment based on age, disability, handicap, past or present medical condition, pregnancy, personal characteristics or mannerisms, height, weight, student status, citizenship, veteran/military status, marital status and sexual orientation. Prohibited conduct includes, but is not limited to, offensive communications, verbal abuse, threats, insinuations, innuendo, slurs, jokes, or humor or other conduct based upon a person's status or class that is protected by law or directed at an individual or members of such status or class.

Personal Harassment, i.e., harassment that cannot necessarily be attributed to a particular status or class protected by law, is also prohibited. Personal harassment would include any unduly offensive, excessively rude, or injurious behavior or communication directed at an individual, including, but not limited to, assault, physical, emotional, or verbal abuse, threats of violence or other undue threats, stalking, insults, invasion of privacy, spreading of false or malicious rumors or gossip about an individual, use of vulgarity/profanity directed at an individual, etc.

Harassment Away from Work

Although the Company does not wish to interfere with employees' personal lives, conduct outside the workplace can affect the work environment. Accordingly, the type of conduct and communication prohibited in the above definitions apply to unwanted, offensive contacts outside the workplace, even during non-working hours, when such is committed by any Company employee or the employee of a contractor, client, or supplier or other contact from work (whether it is conducted directly or indirectly, via telephone, or other electronic communication, through the mails or delivery service or in person). Such harassment is prohibited if it substantially interferes with an individual's employment or creates an intimidating, hostile, or offensive work environment.

Duty to Report Harassment

Any employee who experiences or witnesses any kind of harassment, as broadly defined in this policy, shall immediately report such harassment to the Safety Director and Human Resource Manager.

Although employees are obligated to report violations of the harassment policy to the Company, employees are not prevented or discouraged from reporting harassment or alleged harassment to law enforcement agencies where criminal conduct appears to be involved.

Investigation of Harassment Complaints

Upon receipt of any report or complaint of alleged harassment, the Company will promptly investigate and take appropriate remedial measures. The Company will take reasonable measures to treat complaints discreetly and respect the personal privacy rights of the person making the complaint and any accused party.

Retaliation Protection

No retaliation or reprisals shall be taken against any individual because s/he has filed a harassment complaint or report, participated in a harassment investigation, or otherwise opposed unlawful harassment. No employee shall be disciplined or subject to reprisal because s/he reports or complains about harassment act(s) that are not substantiated.

Sanctions and Penalties

Any employee, who is found to have violated this policy, may be subject to discipline as determined by the Company. Discipline may include, but is not limited to, reprimand, suspension, involuntary transfer, demotion and/or immediate discharge. A person suspected of serious offenses of this policy also may be subject to an investigatory suspension, pending the outcome of the investigation.

Anyone who deliberately makes a false statement or who fraudulently submits false evidence concerning harassment may be subject to severe disciplinary penalties, including immediate discharge.

A.12. Violence Prevention Policy

Granger Construction Company is committed to providing a safe work environment for its personnel. This includes maintaining a work environment free from violence, threats of violence, harassment, intimidation and other disruptive behavior.

Such behavior will not be tolerated and all reports of incidents will be taken seriously and dealt with appropriately. In addition to openly aggressive behavior, unacceptable behavior can include oral or written statements, gestures or expressions that communicate a direct or indirect threat of physical harm. Individuals who commit such acts may be removed from the workplace and may be subject to disciplinary action, criminal penalties or both.

Any employee who believes that he or she has been harassed or threatened, or who believes he or she observes harassing or threatening behavior, is encouraged to report it immediately. All such reports will be investigated and appropriate action will be taken. Persons over whom we have control and who are found responsible for such behavior will be held responsible.

Victims and/or witnesses of threats or assaults requiring immediate action should be immediately reported to on-site security personnel and/or police and/or EMS as appropriate, and then report it to the victim's supervisor and/or department manager. Supervisors and managers should immediately act to: 1 – Determine the status of alleged victims and ensure appropriate emergency action if needed, 2 – Determine and assess the facts and take special protective or preventive measures if needed, 3 – Contact HR and/or the Safety Director and/or President to determine and implement appropriate investigative and follow-up measures. At all stages, documentation and records should be made, and compliance with all civil and employment laws should be ensured.

Supervisors should also be aware of, and take appropriate action regarding warning signs of violence. These include:

1. Threats of harm to self or others
2. Any aggressive behavior
3. Numerous conflicts
4. Statements indicating desperation and contemplation of harm to self or others
5. Drug and/or alcohol abuse
6. Extreme changes in behavior.

If warning signs are observed, ensure that appropriate action is determined and taken in consultation with company authorities.

Weapons Policy

Employees are prohibited from unlawfully bringing or possessing weapons of any kind onto Company property while on duty. This prohibition of weapons also applies to unlawfully having weapons in personal or Company vehicles while on Company property or while on duty.

A.13. Drug-Free Workplace Policy

Purpose and Goal

Granger Construction Company is committed to protecting the safety, health and wellbeing of all employees and other individuals in our workplace. We recognize that alcohol abuse and drug use pose a significant threat to our goals. 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 policy recognizes that employee involvement with alcohol and other drugs can be very dangerous and disruptive, adversely affect the quality of work and performance of employees, pose serious health risks to users and others, and have a negative impact on productivity and morale.

This organization has no intention of interfering with the private lives of its employees unless involvement with alcohol and other drugs off the job affects job performance or public safety.

As a condition of employment, this organization requires that employees adhere to a strict policy regarding the use and possession of drugs and alcohol.

This organization encourages employees to voluntarily seek help with drug and alcohol problems, and will provide information to assist any employee who requests it.

Covered Workers

Any individual who conducts business for the organization, is applying for a position or is conducting business on the organization's property is covered by our drug-free workplace policy. Our policy includes, but is not limited to executive management, managers, supervisors, full-time employees, part-time employees, and off-site employees.

Applicability

Our drug-free workplace policy is intended to apply whenever anyone is representing or conducting business for the organization. Therefore, this policy applies during all working hours, whenever conducting business or representing the organization, while on call, paid standby, and while on organization property.

Prohibited Behavior

It is a violation of our drug-free workplace policy to use, possess, sell, trade, offer for sale and/or be under the influence of alcohol, illegal drugs or intoxicants.

Prescription and over-the-counter drugs are not prohibited when taken in standard dosage and/or according to a physician's prescription. Any employee taking prescribed or over-the-counter medications will be responsible for consulting the prescribing physician and/or pharmacist to ascertain whether the medication may interfere with safe performance of his/her job. If the use of a medication could compromise the safety of the employee, fellow employees or the public, it is the employee's responsibility to use appropriate personnel procedures (e.g., call in sick, use leave, request change of duty, notify supervisor, notify company doctor) to avoid unsafe workplace practices.

The illegal or unauthorized use of prescription drugs is prohibited. It is a violation of our drug-free workplace policy to intentionally misuse and/or abuse prescription medications. Appropriate disciplinary action will be taken if job performance deterioration and/or other accidents occur.

Notification of Convictions

Any employee who is convicted of a criminal drug violation in the workplace shall notify the organization in writing within five calendar days of the conviction. The organization will take appropriate action within 30 days of notification. Federal contracting agencies will be notified when appropriate.

Drug Testing

To ensure the accuracy and fairness of our testing program, all testing will be conducted according to DHHS/SAMHSA guidelines where applicable and will include a screening test; a confirmation test; the opportunity for a split sample; review by a Medical Review Officer, including the opportunity for employees who test positive to provide a legitimate medical explanation, such as a physician's prescription, for the positive result; and a documented chain of custody. Our Medical Review Officer is named in our Emergency Contacts List.

All drug-testing information will be maintained in separate confidential records.

Each employee, as a condition of employment, will be required to participate in pre-employment, random, post-accident, reasonable suspicion, return-to-duty and follow-up testing upon selection or request of management.

The substances that will be tested for are amphetamines, cannabinoids (THC), cocaine, opiates, phencyclidine (PCP) and alcohol. Examples of drugs include but are not limited to marijuana, heroin, opium, codeine, “ice”, “uppers”.

Testing for the presence of alcohol will be conducted by analysis of breath, saliva and/or blood. Testing for the presence of the metabolites of drugs will be conducted by the analysis of urine, blood and/or hair follicles.

Any employee who tests positive will be immediately removed from duty, suspended without pay for a period of 30 days and terminated unless the employee makes acceptable arrangements with the company. The employee may request to be referred to a substance abuse professional for assessment and recommendations. The employee may be required to successfully complete recommended rehabilitation including continuing care, required to pass a Return-to-Duty test and sign a Return-to-Work Agreement, subject to ongoing, unannounced, follow-up testing for a period allowed by law and regulations and terminated immediately if he/she tests positive a second time or violates the Return-to-Work Agreement. Associated costs may be covered by the employee’s benefit plan or other insurance. However, the ultimate financial responsibility belongs to the employee.

An employee will be subject to the same consequences of a positive test if he/she refuses the screening or the test, adulterates or dilutes the specimen, substitutes the specimen with that from another person or sends an imposter, will not sign the required forms or refuses to cooperate in the testing process in such a way that prevents completion of the test.

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 are serious.

In the case of applicants, if he or she violates the drug-free workplace policy, the offer of employment can be withdrawn. The applicant may reapply after one year and must successfully pass a pre-employment drug test.

If an employee violates the policy by bringing or possessing banned or illegal substances on the jobsite or refusing to be tested, he or she will be terminated from employment.

Return-to-Work Agreements

Following a violation of the drug-free workplace policy, an employee may, at the employer’s discretion 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

Granger Construction Company 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 policy:

1. Encourages employees to seek help if they are concerned that they or their family members may have a drug and/or alcohol problem.

2. Encourages employees to utilize the services of qualified professionals in the community to assess the seriousness of suspected drug or alcohol problems and identify appropriate sources of help.
3. Will provide available information on file regarding professional assistance and resources upon employee request.

Treatment for alcoholism and/or other drug use disorders may be covered by the employee's benefit plan or other insurance. However, the ultimate financial responsibility for recommended treatment belongs to the employee.

Confidentiality

All information received by the organization through the drug-free workplace program is 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.

All employees are required to not report to work or be subject to duty 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:

1. Be concerned about working in a safe environment.
2. Support fellow workers in seeking help.
3. Report dangerous behavior to their supervisor.

It is the supervisor's responsibility to:

1. Inform employees of the drug-free workplace policy.
2. Observe employee performance.
3. Investigate reports of dangerous practices.
4. Clearly state consequences of policy violations.

Communication

Communicating our drug-free workplace policy to both supervisors and employees is critical to our success. To ensure all employees are aware of their role in supporting our drug-free workplace program:

All employees will receive a written copy of the policy.

The policy and assistance programs will be reviewed at safety meetings.

Every supervisor will receive training to help him/her recognize and manage employees with alcohol and other drug problems.

Drug and Alcohol Testing Program

This document contains procedures to be utilized to implement a Drug/Alcohol Testing Program for Granger Construction Company employees, in accordance with Granger Construction Company's policy regarding illegal drugs, substances and alcohol. These procedures shall apply to all employees, effective immediately.

Circumstances for Testing

A Urine Drug Screen and/or Alcohol Test shall be administered under the following circumstances:

1. *Post-Offer/Pre-Employment Drug Screening* – All potential employees of Granger will be required to submit a urine drug screen. Post-offer/Pre-employment drug screening will test for the presence of illegal drugs and substances only. This screen will not include an alcohol test. Any potential employee refusing to submit to this test will not be permitted to work for Granger Construction Company. A potential employee who has presented proof that he/she has passed a drug screen test administered under procedures substantially similar to those contained herein within the ninety (90) days prior to his/her first day of employment with Granger shall not be required to submit to a post-off/pre-employment drug screen.

2. *Employees Returning from Lapse of Employment* – Any employee who is returning to work from any lapse in time exceeding ninety (90) days will be required to submit a urine drug screen prior to returning to work (i.e., layoff, leave of absence, etc.). Drug screening will test for the presence of illegal drugs and substances only. This screen will not include an alcohol test. Any employee refusing to submit to this test will not be permitted to return to work at Granger. An employee who has presented proof that he/she has passed a drug screen test administered under procedures substantially similar to those contained herein within ninety (90) days prior to his/her return to employment with Granger shall not be required to submit to a drug screen prior to returning to work.

3. *Existing Employees of Granger* – All employees in this classification will not be required to submit a urine drug screen at the onset of this policy. However, all employees will be subject to all other parameters of this policy.

4. *Testing for Cause* – All employees may be tested for cause when a reasonable suspicion exists that the employee appears to be under the influence of illegal drugs or substances and/or alcohol.

5. *Post-Accident* – All employees involved in an on-duty accident may be required to submit drug and/or alcohol testing.

Testing Procedures

1. Drug Screening of Applicants for Employment/Return from Lapse of Employment.

    a. All applicants upon post-offer/pre-employment or individuals returning to work from a lapse of employment (as defined above) will ***proceed initially to facility specified by Granger for drug screening***.

    b. On a preprinted, itemized form furnished by Granger, each applicant/individual will be asked to identify any medication he/she is or has taken during the thirty (30) days preceding the test.

    c. A formal chain of custody will be established for every drug test.

    d. A split sample consisting of two urine collection containers sealed in a plastic container will be furnished to the applicant/individual. The containers must contain an amount of urine sufficient for one EMIT test and two specified tests, but in no event less than two (2) ounces per container. Each applicant's/individual's urine specimen will be collected and temperature tested for verification. The second container will be used in the event the first container has become contaminated.

    e. Before the specimen ever leaves the application's/individual's sight, the urine container will be sealed with security tape, which has been initialed by the applicant/individual.

    f. A portion of the sample will be tested using the Enzyme Medical Immunoassay Test (EMIT) and, if positive, another portion will be tested for verification using the Gas Chromatography Mass Spectrometry Test (GC/MS).

g. The remainder of the urine specimen will be maintained at the laboratory for thirty (30) days following the date of the test.

h. The applicant/individual will then be given a form stating that he/she has consented to and given a urine sample for drug screening and is available for employment. The attending medical personnel and a supervisor of his/her employer will sign this form.

i. Any applicant/individual who refuses to take a drug test will not be eligible for employment.

j. The results of the drug test will be received in the employer's office within 72 hours. If the applicant/individual is tested positive, the individual will not be eligible for employment for thirty (30) days continent on a negative drug screen. If later hired by Granger, such employee may be tested periodically without notice for a period of one (1) year from the date of the most recent positive test. The individual will be given a copy of positive test results. There will be no rehabilitation offered by Granger for new employees.

k. If any individual who has tested positive wishes to confirm the results of the specified test, he/she may do so at his/her option by having a specified test performed on the remainder of the previously collected urine specimen at a certified NIDA laboratory of his/her choice. The specimen will be shipped directly from the employer's laboratory to the laboratory of the employee's choice. The costs of this test will be borne by the applicant/individual. If the results of this test are negative, the individual will be hired and will be reimbursed for the cost of the test. The individual must exercise the option of a second specified test within twenty-four (24) hours of being notified of the positive test results.

l. Post-offer/Pre-employment drug screens will include testing for the following:

   i. Amphetamines
   ii. Barbiturates
   iii. Benzodiazepine
   iv. Cocaine
   v. Methadone
   vi. Opiates
   vii. Phencyclidine (PCP)
   viii. Propoxyphene (Darvon)
   ix. THC (Marijuana/Canabinoids)
   x. Methaqualone

2. Drug Screening for Cause - Circumstances

a. Existing employees working at Granger may be tested for illegal drugs, substances and alcohol if there exists a reasonable suspicion that the employee to be tested is under the influence of alcohol or illegal substances identified above in Paragraph 12.

b. For the purpose of the Program, the term "reasonable suspicion" shall be defined as aberrant or unusual on-duty behavior of an individual employee who:

   i. Is observed on-duty by either the employee's immediate supervisor, higher ranking employee or other managerial personnel of the contractor who has been trained to recognize the symptoms of drug abuse, impairment or intoxication, which observations shall be documented by the observer(s).

   ii. Exhibits the type of behavior which shows accepted symptom(s) of intoxication or impairment cause by controlled substances or alcohol or addiction to or dependence upon said controlled substances.

iii. Such conduct cannot reasonably be explained as resulting from other causes, such as fatigue, lack of sleep, side effects or prescription or over-the-counter medications, illness, reaction to noxious fumes or smoke.

c. Drug testing of this type will not be conducted without the written approval of the designated manager. The designated manager must document, in writing, who is to be tested and why the test was ordered, including the specific objective facts constituting reasonable suspicion leading to the test being ordered and the name of any source(s) of all of this information. One (1) copy of this document shall be given to the employee before he/she is required to be tested and one (1) copy shall immediately be provided to the Union Steward, if required by the employee. After being given a copy of the document, the affected employee shall be allowed enough time to be able to read the entire document. Failure to follow any of these procedures shall result in the elimination of the test results as if no test had been administered. The test results shall be destroyed and no disciplinary action shall be taken against the employee.

d. When a supervisor, higher ranking employee or other managerial personnel has reasonable suspicion to believe that an employee is using, consuming or under the influence of an alcoholic beverage, non-prescribed controlled substance (other than over-the-counter medication), and/or non-prescribed narcotic drug while on duty, that person shall notify the designated manager for the purpose of observation and confirmation of the employee's condition. The employee will be offered an opportunity to give an explanation of his condition, such as reaction to a prescribed drug, fatigue, lack of sleep, exposure to noxious fumes, reaction to over-the-counter medication or illness. A Union Steward shall be presented if appropriate and requested ruling such explanation and shall be entitled to confer with the employee before the explanation is requested. If after this explanation the designated manager, after observing the employee, also has reasonable suspicion to believe that the employee is using, consuming and/or under the influence of an alcoholic beverage, non-prescribed controlled substances, or non-prescribed narcotic while on duty, then, by a written order signed by the designated manager, the employee may be ordered to submit to a drug and alcohol screen. Refusal to submit to this testing after being ordered to do so may result in disciplinary action up to and including discharge.

3. Drug Screening for Cause – Procedures

1. Employee's drug screening for cause will include testing for the same drugs as the post-offer/pre-employment screening test.

2. Each employee will read and execute the attached Drug Screen Consent Form prior to any test being administered.

3. Reasonable suspicion testing shall be performed at an off-site clinic. A designated manager must accompany the individual to an off-site clinic. A split sample consisting of two urine collection containers sealed in a plastic container will be furnished to the employee. A minimum sample of two (2) ounces per container must be collected. All other security procedures as listed in the post-offer/pre-employment screening shall be followed, including chain of custody and listing of any medication the employee has used in the last thirty (30) days.

4. The Union Steward, if appropriate and requested by the employee, may witness the sample sealing procedure at the medical facility.

5. The EMIT test and, if positive, a confirming specified test will be performed on the sample. The remainder of the sample will be stored at the laboratory for thirty (30) days.

6. If the employee's test is positive, he/she will be eligible for an unpaid leave of absence as specified in the Substance Abuse Policy and will be referred to Granger's Employee Assistance Program (EAP) provider. The employee will be presented with a copy of the results of the drug screen. The employee will have the option to have a portion of the remainder of the sample tested at his own expense at a NIDA certified

laboratory of his own choice. If this test is negative, the employee will be reinstated with full back pay and benefits and will be reimbursed for the cost of the test by the employer. The individual must exercise the option of a second specified test within twenty-four (24) hours of being notified of the positive test results.

7. Any employee whose test is positive will not be eligible to return to work for thirty (30) days, contingent on a negative drug screen and proof that counseling has been sought.

8. Any employee whose test is positive and who returns to work after testing negative may be tested periodically by Granger without notice of r a period of one (1) year after the date of return.

9. Alcohol – If an employee's test results indicate that he/she has consumed any level of alcohol (at or above the State limit) he/she may be subject to discipline up to and including discharge. Alcohol detection will be based on a Breathalyzer.

4. Post-Accident Drug and Alcohol Screening – Conditions

   a. Any employee involved in an on-duty accident may be required to submit to drug and/or alcohol testing.

   b. Drug testing of this type will not be conducted without the written approval of the designated manager. The designated manager must document, in writing, who is to be tested and why the test was ordered. One (1) copy of this document shall be given to the employee before he/she is required to be tested and one (1) copy shall immediately be provided to the Union Steward, if required by the employee. After being given a copy of the document, the affected employee shall be allowed enough time to be able to read the entire document. Failure to follow any of these procedures shall result in the elimination of the test results as if no test had been administered. The test results shall be destroyed and no disciplinary action shall be taken against the employee.

   c. Refusal to submit to this testing after being ordered to do so may result in disciplinary action up to and including discharge.

5. Post-Accident Drug and Alcohol Screening – Procedures

   a. Employee's drug screening for post-accident will include testing for the same drugs as the post-offer/pre-employment screening test.

   b. Post-accident testing shall be performed at an off-site clinic. A designated manager must accompany the individual to an off-site clinic. A split sample consisting of two (2) urine collection containers sealed in a plastic container will be furnished to the employee. A minimum sample of two (2) ounces per container must be collected. All other security procedures as listed in the post-offer/pre-employment screening shall be followed, including chain of custody and a listing of any medication the employee has used in the last thirty (30) days.

   c. The Union Steward, if appropriate and requested by the employee, may witness the sample sealing procedure at the medical facility.

   d. The EMIT test and, if positive, a confirming specified test will be performed on the sample. The remainder of the sample will be stored at the laboratory for thirty (30) days.

   e. If the employee's test is positive, he/she will be eligible for an unpaid leave of absence as specified in the Substance Abuse Policy and will be referred to Granger's Employee Assistance Program (EAP) provider. The employee will be presented with a copy of the results of the drug screen. The employee will have the option to have a portion of the remainder of the sample tested at his own expense at a NIDA certified laboratory of his own choice. If this test is negative, the employee will be reinstated with full back pay and benefits and will be reimbursed for the cost of the test by the employer. The individual must exercise the option of a second specified test within twenty-four (24) hours of being notified of the positive test results.

f. Any employee whose test is positive will not be eligible to return to work for thirty (30) days, contingent on a negative drug screen and proof that counseling has been sought.

g. Any employee whose test is positive and who returns to work after testing negative may be tested periodically by Granger without notice for a period of one (1) year after date of return.

h. Alcohol – If an employee's test results indicate that he/she has consumed any level of alcohol (at or above the State limit) he/she may be subject to discipline up to and including discharge. Alcohol detection will be based on a Breathalyzer.

6. General Information

a. All results of tests included in the Program shall be considered medical records and held confidential to the extent permitted by law. However, this information may be divulged for grievances, arbitration and/or litigation with respect to these matters.

b. The National Institute on Drug Abuse (NIDA) certifies the testing laboratory for this Program.

A.14. Emergency Plans

Emergency Action & Process Safety Management Plans

1. Develop suitable site Emergency Action Plans (EAPs) and Process Safety Management plans (PSMs). Refer to MIOSHA CS Part 91 and OSHA §1910.119 and sample plans in SP-1 (for Construction), Supporting Items and EMD-PUB-602 Emergency Planning Guide. Specifications in EMD-PUB-602 include:
2. The Site Emergency Team (SET) is initially comprised of the Safety Director, the Job Site Superintendent and the site supervisors for each contractor. The regular members will be designated after the first safety awareness training session and they will be listed on the Emergency Contacts list.
3. SET assignments include: Site Emergency Coordinator (SEC), Unit Emergency Coordinator(s) (UECs), Emergency Warning/Communications Coordinator (EWCC), Emergency Assessment Coordinator (EAC), Emergency Information Coordinator (EIC), Emergency Maintenance Coordinator (EMaC), Emergency Medical Coordinator (EMeC), and Emergency Security Coordinator (ESC). Duties are described in pages 1-3 of EMD-PUB-602. A Contractor Unit Emergency Coordinator (CUEC) shall be assigned for each contractor.
4. Emergencies Hazard Analysis (EHA) will be conducted including Process Hazard Analysis (PHA); these shall be ongoing and whenever a change in a process or hazard occurs and shall consider the degree of: a) Probability and b) Impact of emergencies from: Tornadoes & Wind storms, Hurricanes, Blizzards & Severe weather, Heavy rains, Lightening, Earthquake, Fire, Flooding, Utility problems, Transportation accidents, Bomb threats, Workplace violence, Civil unrest, Enemy attack, Release of hazardous Chemicals or Energy (including Radiation or Explosion) from workplace processes.
5. A Response Capability Assessment (RCA) will determine the resources available and needed including employee skills, equipment, local response capability and facilities.
6. Facilities we will consider as they become feasible include an Emergency Control Center (ECC), a Media Center (MC), Evacuation Assembly Areas (EAA), Tornado Shelters (TS). Facilities may change, may be designated informally and communicated verbally with changing job site conditions and relatively small site size.
7. A Vital Records Preservation Program (VRPP) may be developed to determine what information is vital, which records contain that vital information, and the best method and means of protecting them. Most records on site are duplicates of originals already preserved at other locations.
8. Procedures shall be developed for specific emergencies, and means and materials will be provided. These may include Communications and warning systems and procedures, Maps/diagrams of the site, Evacuation routes, Shelters, Assembly areas and other relevant information.
9. The EAP will be implemented with training, and with an annual EAP update.
10. Training for employees and contractors shall include: a) How to evacuate the structure and grounds to a safe distance, and where to report; b) Location of fire alarms, fire extinguishers, and tornado shelter; c) How employees and contractors will be alerted and notified of what protective action to take, and how they will be notified if they should not report to work; d) How to contact fire and police departments; and e) Hazards, processes, controls, work practices, procedures, actions, rules, equipment, facilities and resources required to safely perform each job; and also f) those items in 10e required for emergency action. Training shall be documented with name, date and verification of understanding.
11. All Contractors shall ensure their employees are trained as required in Item 10.

Emergency Action Plan

Ensure training and drills at least every 6 months.

1. Regularly check and maintain facility, equipment, personnel and ensure preparedness for emergency actions. At minimum, ensure proper shelters, escape routes, firefighting, communications & auxiliary lights & power
2. Continuously monitor conditions and maintain awareness of emergency conditions and emergent incidents
3. Identify emergencies, threat type, location & level; immediately decide and initiate the preferable response
4. Warn and instruct affected persons (Verbally) and lead and assist them with the requisite actions; ensure safety
5. Notify & communicate with police, fire, EMS, other authorities, the Agency Supervisor & others as appropriate
6. Ensure Medical, Maintenance, Security and all other appropriate actions are performed properly

Evacuation Plan for on-site hazards as best: Fires, Gas leaks, Floods, Violence, Bombs, Chemical release and any hazard for which personal safety is best served by moving outside the facility or to another area within the facility.
The Site Supervisor shall ensure:

1. Escape Procedures & Route Assignments & Maintenance of Equipment & of Routes as unobstructed and passable
2. Procedures for Remaining Personnel to Safely Perform Critical Operations & prevent greater tragedy
3. Post-evacuation Personnel Accounting Procedures
4. Rescue & Medical Duties
5. Means of Reporting Fires and other Emergencies
6. Security, Maintenance and other vital actions
7. For Further Information Contact the Agency Supervisor

Shelter Plan if feasible and best for Tornadoes, Earthquake and for near site hazards for which personal safety is best served by sheltering people within the facility. Consider relocation if preferable.
The Site Supervisor shall ensure:

1. Shelter Procedures, Route Assignments & Maintenance of Equipment & of Routes as unobstructed & passable
2. Procedures for Remaining Personnel to Safely Perform Critical Operations & prevent greater tragedy
3. Post-shelter Personnel Accounting Procedures
4. Rescue & Medical Duties
5. Means of Reporting Emergencies
6. Security, Maintenance and other vital actions
7. For Further Information Contact the Agency Supervisor

Relocation Plan, if feasible and best for impending Severe Weather, Civil Unrest, Enemy Attack, Utility outage or other hazard for which personal safety is best served by relocating or people or sending them away. Consider shelter if preferable

The Site Supervisor shall ensure:

1. Relocation Procedures & Route Assignments & Maintenance of Equipment & of Routes
2. Procedures for Remaining Personnel to Safely Perform Critical Operations & prevent greater tragedy
3. Post-relocation Personnel Accounting Procedures
4. Rescue & Medical Duties
5. Means of Reporting Emergencies
6. Security, Maintenance and other vital actions
7. For Further Information Contact the Agency Supervisor

Emergency Evacuation & Take Shelter Procedures

In the event of a fire or other hazardous situation, a fire alarm or three long blasts with an air horn will be activated. All employees are to evacuate the building or take cover by following the steps outlined below.

NOTIFICATION

In the event of a fire drill/test, an appropriate announcement will be made prior to the test/drill over the intercom system.

If no announcement was made, you must assume the alarm was sounded for an actual emergency. In the event of an actual emergency, everyone should immediately stop whatever they are doing, remain calm, and leave their work area. If time allows, turn off all electrical equipment before leaving your work area and secure any personal valuables. Under any and all circumstances, please remember that safety should always come first.

RESPONSE

Each department will have a designated primary and alternate team leader whose responsibility it will be to see that all employees leave the building promptly and safely.

All employees should leave the building by way of the nearest exit and follow to the outside. If the nearest exit is blocked by smoke, proceed to another exit. **DO NOT USE THE ELEVATOR**. It is the responsibility of all able staff to assist any persons with disabilities in exiting the building in a safe and quick manner

Follow the exit signs to exit the building and quickly proceed away from the building to the designated gathering area People who exit the building first must position themselves far enough away from the building to enable everyone to stand clear of emergency vehicles in the area.

Before leaving the building, the On-Site Safety Manager will call the fire department (911) and leave all doors unlocked to allow easy access to the area.

Once outside the building, a senior level staff member should designate someone to:

1. Confirm with site emergency coordinator that the fire department has been called.
2. Congregate all employees in the designated gathering area and confirm with team leaders that all employees and visitors are out of the building.
3. Make sure that team leaders take a headcount of employees in their assigned departments.
4. Designate someone to meet the fire department to provide additional information.

Staff members trained in CPR should survey the individuals outside to determine if anyone is in need of first aid. Appropriate aid should then be given.

Once outside, no one is to re-enter until the building is declared safe by the Fire Department and you are informed to do so by the most senior level staff member.

Practice drills will be conducted on an annual basis.

Severe Weather Procedures

Granger's Severe Weather Policy states that in the event of any severe weather event, the following protocols must be adhered to:

1. Take cover in trailers, cars or designated shelter areas.
2. When lightning strikes…
    a. Shut down site, including all equipment.
    b. Wait 30 minutes after the last lightning strike before returning to work.
    c. Site Foreman will dictate when work can resume.

The National Weather Service is responsible for issuing weather warnings to the public. A tornado watch means that conditions are right for tornadoes to develop. A tornado warning means that a tornado has been sighted in the area.

See Tornado Shelter Diagram and Evacuation Routes posted throughout the building.

NOTIFICATION AND WARNING

Notification of a tornado warning is received via commercial radio, television, NOAA Weather Radios, cell phones, etc.

When a tornado watch is issued, or when severe or threatening weather conditions exist, the Site Emergency Coordinator dispatches personnel to serve as weather spotters and assigns emergency tasks to work units.

GENERAL RESPONSE

When a tornado watch is issued, the Site Emergency Coordinator will partially activate the ECC to monitor weather conditions and assign emergency tasks.

If a tornado warning is issued, personnel should seek protective shelter immediately. See Tornado Shelter Diagram for location(s) of shelter areas, also posted in work areas.

Unit Emergency Coordinators will check their work areas (if possible) before seeking shelter to ensure that all persons have received the warning notice and have gone to the shelter.

Unit Emergency Coordinators will account for their personnel at the tornado shelter and will report this information to the Site Emergency Coordinator.

When the tornado warning is canceled, or downgraded, the Site Emergency Coordinator will determine if continued weather monitoring is advisable and take the appropriate steps as necessary.

Personnel should remain in the tornado shelter until the all-clear notice is given.

If the site has received damage, the ECC will be activated to coordinate recovery efforts and report and request help from the appropriate site emergency providers.

Reference (SF095FR and/or SF096FR) Jobsite Emergency & Safety Contacts List.

A.15. First Aid

Emergency Medical Treatment Procedures

In preparation consult and follow OH Rules 4401 and 325.70001-.70018 and OH advice # 820-823 and 951 and our Bloodborne Infectious Disease Exposure Control Plan or procedures and Emergency Action Plan.

1. The Employee involved (Victim) must report any accident, injury, sudden illness or hazard to his supervisor immediately. If that employee is obviously unwilling or unable to immediately report, or if incapacitated or apparently in danger or in need of emergency assistance, all other employees who are aware of the situation must report it to the supervisor immediately.
2. The Supervisor, or alternatively an available competent coworker, should assess the scene for hazards and eliminate or avoid them preventing exposure to oneself and others. Then immediately assess the injury or illness to determine if additional assistance is needed and if so, obtain and/or render it accordingly.
3. Employees shall avoid Exposure and use Universal Precautions (prevent contact with blood/OPIM as if they were infectious). This is required unless doing so threatens the life or safety of a patient or employee. First Aid volunteers are Good Samaritans whose services are incidental and collateral to their jobs, and should not sacrifice themselves.
4. If the Victim's condition appears potentially life threatening, disabling, or if injury is suspected to the head, neck spine, a bone, or a joint, assign specific employees to immediately:

   a. Summon professional emergency medical services (EMS).

   b. Meet EMS at the entrance, direct them to the victim and provide them needed information.

   c. Attend or watch the Victim.

   d. Summon available trained First Aid personnel for emergency treatment.

   e. If the incident involves a hazardous material, obtain applicable SDS for EMS if needed.

   Do not move the Victim unless it is essential to prevent further serious injury, reassure him that medical assistance is being obtained, and keep him calm.
5. If the Victim requires medical assistance, summon designated Emergency Responders or other available trained First Aid personnel. Use employee emergency call, paging, public address or other appropriate means. Ensure that notification clearly communicates that "Immediate response is needed for a medical emergency at [the designated location of the Victim]".
6. If Victim must be elevated from an excavation or other area, trained persons should extricate with EMT supervision:

   a. Securely strap Victim into a lift-capable basket stretcher which should be on site.

   b. An experienced equipment operator shall affix an adequate sling to the lifting equipment.

   c. Lower the sling directly over the Victim and attach it to the stretcher at 2 or more points.

   d. Slowly and carefully hoist the Victim up and out of the area and gently lower him to safe solid ground.
7. All injuries other than minor first aid cases should be evaluated by qualified medical personnel, preferably consulting physicians, infirmaries or clinics with whom prior arrangements are made. An Authorization for Health Care Service or Treatment of Injury or Illness should be sent with the Victim, completed by attending medical providers and used for recordkeeping.
8. All injured employees sent out for treatment will be transported so that no further harm or accident occurs. This may require an ambulance, or 2 other persons including First Aid personnel or simply a driver depending on the condition of the Victim and other factors in transit.

9. The Supervisor, Manager or designated competent safety personnel will initiate an accident investigation and complete an injury report promptly.

FOR OTHER EMERGENCIES SEE SPECIFIC EMERGENCY PROCEDURES PLANS

Basic Adult First Aid Summary

This summary is not a substitute for training in first aid and CPR. Moving victims, incorrect chest compressions and other techniques can cause serious unnecessary injury. Prepare yourself by becoming trained and practiced in basic First Aid and CPR at a minimum. Do not do CPR or first aid procedures you are not trained to perform.

1. Check for hazards and ensure the safety of yourself and others before rushing to aid others. Protect yourself from your patient's blood and OPIM using at least gloves and a mouth barrier.
2. Check your patient's level of responsiveness by tapping on his collarbone and calling, "Are you OK? My name is _____. I am trained in first aid (if true). I'll take care of you." If they are clearly responsive and object, don't touch them. If they are not clearly responsive or if they are obviously injured or ill, activate EMS and obtain an AED a first aid kit and emergency oxygen unit; have others do this if possible while you or a trained person attends to the patient. If the patient does not respond, assess and care for their Circulation, Airway and Breathing. Note - Always care for priorities, specifically CABs in order, then bleeding, then shock then other injuries and illnesses as indicated. If patients clearly respond, stay with them and care for bleeding, shock etc.
3. If patients are not responsive and if you are trained, immediately determine if a patient is breathing normally open the airway with a head tilt and chin lift, be especially gentle if you suspect head or spinal injury. Look, listen and feel for breathing for 5 – 10 seconds.
    a. If not breathing, give 30 chest compressions and if you have a rescue breathing barrier give 2 slow rescue breaths (5 cycles in 2 minutes). If breaths do not go in the patient, re-tilt the head and try again; if breaths don't go in this time, sweep visible solid matter out of the mouth before each attempt to give breaths and continue CPR. If you have no breathing barrier or otherwise can't or won't give rescue breaths, give compression only CPR.
    b. If breathing, maintain an open airway and monitor the patient and proceed to assess and treat bleeding, then shock then other injuries and illnesses as indicated.
4. Chest compressions should be between the nipples on the lower sternum 1 ½-2" above the xyphoid process. For adults compress the chest at least 2"; for children compress about 2"; for infants compress about 1". Rate should be at least 100 compressions per minute (30 in 18 sec.). Complete 5 cycles of 30 compressions and 2 breaths in about 2 minutes. Repeat this process until the patient recovers (begins breathing – stay alert for this), a person of equal or higher training takes over, you are too exhausted to continue or the scene becomes unsafe.
5. Treat bleeding using direct pressure over the wound layering absorbent dressings
6. Treat shock by keeping the patient comfortably warm, usually with blankets, jackets or similar coverings. Position patient comfortably, normally supine; feet up only if no injury or heart problem. Give emergency oxygen if available and you are trained.
7. You may place a stabilized, uninjured patient in the recovery position on their side (preferably left side) with their hand or arm under their head. Be sure the jaw is slightly forward so the tongue does not block the airway and the mouth slightly down so fluids will drain out. Continue monitoring your patient.
8. Do not move a patient unless necessary. If they have possible injuries, move them only enough to remove them from imminent danger, and do so carefully.
9. Stabilize the head and neck as a unit if there is any reason to suspect head or neck injury.
10. Proceed to assess and treat injuries and illnesses as indicated.

Heat Stress Safety

1. Heat Stress Factors: Conditions like high temperature, low/poor air flow, radiant heat and high humidity e.g. direct sunlight, hot or humidifying items like black asphalt, fire, steam, enclosed spaces; Activities like use of respirators, coveralls or other heat accumulating clothing, all physically strenuous work and long periods of exposure to heat stress; Personal factors of heat strain like age, weight, health, fitness, acclimatization, intake of food, drink & medicine, rest and stress.
2. Engineering Controls shall be implemented as feasible including air conditioning, in areas for rest/recovery such as a motor vehicle. These may include spot cooling, (intake, exhaust &/or recirculating) ventilation, shading, use of equipment, machinery &/or other means to reduce muscular demand.
3. Administrative Controls shall be implemented as feasible including performing the most stressful tasks at the coolest times of day, increasing the number of workers, rotating workers among stressful and less stressful tasks, ensuring rest periods, providing cool water and/or electrolyte solutions. Stressors include factors in item 4.
4. Acclimatization – Workers who have not worked under high heat stress for 2 weeks or longer shall be acclimatized to heat stress over at least 5 of 7 consecutive days by gradually increasing their workload and time and intensity of heat stress exposure from 50% on day 1 to 100% of the normal on day 5.
5. Monitoring – Workers shall be monitored for signs & shall check for symptoms of heat strain. They shall “buddy up” and be aware of other workers’ signs. They shall notify apparently affected workers immediately and if signs continue or reappear they shall notify the supervisor. They shall report symptoms to their supervisor being especially vigilant if they have relevant medical conditions or medicines affecting cardiovascular, respiratory, renal, sweat or body temperature regulation function or high blood pressure or diabetes or have not yet acclimatized.
6. Signs include weight loss, extreme and/or prolonged sweating especially if followed by lack of sweating, hot and/or flushed skin, disorientation or loss of coordination, clear speech or ability to work normally. Symptoms include faintness, headache, dizziness, nausea, exhaustion, difficulty breathing, pounding heartbeat, unreasonable irritation or panic, malaise, chills and hot, dry skin, lips or mouth.
7. Personal Practices – Workers shall be trained and reminded to avoid alcohol, excess caffeine and sugar, to drink cool water every 20 minutes (typically 4 to 6 ounces), to salt foods moderately if sweating heavily, to wear breathable, light weight, light colored clothing and sunscreen as appropriate especially in sunlight, and to rest 5 minutes every hour when temperatures are above 85oF using ventilated, shaded and/or air-conditioned areas as needed. They should also maintain good physical conditioning and healthy lifestyles.
8. First Aid – Measures shall be used according to training including use of fast cooling means such as air conditioning, quick drenching and fanning and immediately calling an ambulance if heat stroke signs appear.
9. Additional information and guidance may be obtained from MIOSHA/OSHA, ACGIH, ISO, and CIHs.

Cold Stress Safety

1. Cold Stress Factors: Environmental Conditions include low temperature, high wind speed, wet conditions (especially pooled water in trenches or other low points), precipitation, contact with metal (especially compressed gas tanks and fittings), inadequate clothing or footwear, sedentary activities, Personal Factors include low body fat, poor physical condition, age, or poor diet.
2. Engineering Controls shall be implemented as feasible including heating in areas for rest/recovery such as a motor vehicle or break room with temporary/permanent heating and ventilation, wind breaks such as fabric installed on perimeter fences, covering exterior wall openings with tarps or other temporary/permanent measures, or temporary heaters throughout job site.
3. Administrative Controls shall be implemented as feasible including performing outdoor tasks at the warmest times of day, ensuring workers perform warm-up stretches and activities prior to starting their work shifts, increasing the number of workers, rotating workers between more and less stressful tasks, ensuring rest periods in a heated room, providing warm drinks and/or electrolyte solutions. Stressors include factors listed in item 4 above.
4. Monitoring – Workers shall be monitored for signs and shall check for symptoms of cold stress. They shall "buddy up" and be aware of other workers' signs. They shall notify apparently affected workers immediately and if signs continue or reappear they shall notify the supervisor. They shall report symptoms to their supervisor being especially vigilant if they have relevant medical conditions or medicines affecting cardiovascular, respiratory, renal, sweat or body temperature regulation function or high blood pressure or diabetes.

   Signs include loss of color or a blue hue in the skin, shivering especially if followed by lack of shivering, disorientation or loss of coordination, clear speech or ability to work normally. Symptoms include burning or itching sensations especially of exposed skin and loss of feeling in extremities.
5. Personal Practices – Workers shall be trained and reminded to avoid alcohol, excess caffeine and sugar, to drink warm beverage, to wear layered clothing including polypropylene close to the skin to wick away moisture and wool outer layers which retain insulation even when wet, to wear appropriate footwear that is insulated and waterproof, and to rest 5 minutes every hour using ventilated and heated areas as needed. They should also maintain good physical conditioning and healthy lifestyles.
6. First Aid – Measures shall be used according to training including immediate drying of wet skin, removal of affected person from job site to warm room, drinking warm liquids, removing wet clothes and covering with blankets, avoiding rubbing or walking on frost bite affected extremities.
7. Additional information and guidance may be obtained from MIOSHA/OSHA, ACGIH, ISO & CIHs.

Bloodborne Infectious Diseases Exposure Control Plan (BBID-ECP)

This Exposure Control Plan is prepared by and for Granger Construction Company, Lansing, MI. It is based upon provisions of the OSHA Act of 1970, MIOSHA Act (PA 154) of 1974 and amendments, and MIOSHA requirements including Health Rules Part 554 incorporated herein by reference. It is intended to comply with all applicable regulations, and nothing herein shall be allowed to conflict with or violate them. MIOSHA OH Part 554 does not apply to construction industry.

PURPOSE AND SCOPE: This Plan is intended to establish procedures to protect employees from exposure to blood or other potentially infectious materials (OPIM). Hazards could include infection with HIV, HBV, HCV and other blood-borne pathogens. We have or may have employees who could be potentially exposed to such hazards. We therefore intend to ensure that all affected employees are adequately informed, trained and protected, and that the hazards or the potential for exposure is eliminated or controlled where feasible. We will also comply with applicable regulations and meet accepted standards and safe practices. This Plan is available for review by all employees in the office of the Safety Director.

APPLICATION: Hazardous exposures to blood & OPIM should be prevented by use of universal precautions, engineering controls, safe work-practices, housekeeping, and personal protection. This will be done in accordance with MIOSHA/OSHA standards and procedures in this Plan. Only employees who are trained, authorized and operating in full compliance with this Plan are allowed to perform job duties where exposure exists. All others are strictly prohibited unless they are acting strictly as Good Samaritan volunteers. Hepatitis B vaccinations will be provided to employees whose jobs involve exposure.

IMPLEMENTATION: Wherever possible, we are implementing the use of information, procedures and forms from MIOSHA/OSHA and/or other sources including those we may have created. Our basic Plan Summary outlines our minimum requirements. It is posted and/or copies distributed during employee training. Failure to use Universal Precautions is a serious violation of safety rules and Supervisors shall enforce compliance. We will provide appropriate engineering controls, protective equipment, facilities and procedures, train, certify and retrain authorized employees when needed.

COMPLIANCE METHODS: We employ methods and means for eliminating, reducing or controlling exposure, for protecting employees, for ensuring required care and treatment and for complying with occupational regulations including those enumerated in the appendices. Methods include Universal Precautions, Engineering Controls and Work Practices, Work Area Restrictions such as prohibiting items

REPORTING, RECORDS & REVIEW: Employees shall report exposure incidents immediately to their supervisor. The supervisor shall immediately contact the Safety Director, forward him/her the incident report and he will arrange for a timely post-exposure evaluation and follow-up with a qualified health care provider. The Safety Director or President will review all incident reports and activities and review this Plan at least annually and revise it as needed.

Bloodborne Pathogens Exposure Control Plan Summary

1. The Safety Director established the BBPECP incorporating MIOSHA Health Rules Part 554 R325.70001-18, 333.13801-31 and OH 154, 820-23, 841, 982. All employees may refer to, get copies and use it.
2. Employees shall avoid Exposure and use Universal Precautions (prevent contact with blood/OPIM). Consider all body fluids as infectious unless clearly differentiated from OPIM. Consider sewage contamination as OPIM. First Aid is a voluntary Good Samaritan service incidental and collateral to employees' job duties; avoid Exposure.
3. Engineering Controls are provided in PPE kits or job vehicles as feasible and shall be combined with Work Practices. Items include rakes, brooms, dust pans, tongs, vacuum cleaners, sharps containers, red biohazard bags, barrier materials, duct tape, hand washing facilities with soap, antiseptic cleanser and towelettes. Hand washing or even full body and head showering is required as needed to cleanse any body area which contacted or may have contacted blood or OPIM.
4. Employees shall use prescribed Work Practices including at minimum:
    a. Use Engineering Controls and Personal Protective Equipment (PPE) when performing any activity with potential exposure including clean-up of Biohazards or any suspicious materials, and First Aid (See #3).

b. Follow all precautions in training and manuals including those for CPR-First Aid, Housekeeping, and Cleaning etc.

c. Promptly remove and red bag contaminated PPE and clothing before leaving the work area; bag laundry separately

d. Place all contaminated materials in sealed Biohazard Bags, Canisters or Sharps Containers

e. Wash hands and all potentially exposed body areas thoroughly and immediately after removing PPE and after potential biohazard contact scrubbing with soap or antiseptic cleanser and water

f. Flush exposed mucous membranes and eyes immediately with copious amounts of water

g. Keep all items which may contact eyes, nose, mouth or mucous membranes safely away from all areas with sewage, blood or OPIM; these items include food, drink, gum, tobacco, cosmetics, and contact lenses.

5. Employees shall don, use, doff, and care for required PPE and clothing as in 1st Aid & Infection Control Kits items & all:

   a. Gloves (disposable, utility, and puncture resistant types) for all potential exposure (multi-glove with multiple hazards)

   b. Goggles, Safety glasses, Face masks for splash, splatter or spray, Face shields as needed

   c. Coveralls, Aprons, Foot covers to prevent soaking

   d. Mouthpieces, Pocket masks for CPR

   Clean PPE immediately after use; place it in disposable bags; decontaminate & place in clean bags; replace it in kits. The employer will provide, clean and replace required PPE (decontaminate reusable PPE only) at no cost to employees.

   Employees' incentives may be reduced if company property including PPE is abused or missing.

6. Housekeeping procedures/schedules are:

   a. Cover surfaces and isolate contaminated areas with disposable plastic if contamination is anticipated

   b. Flush sewage, liquid blood and OPIM down a sanitary sewer, or solidify and seal in red bags

   c. Clean up contaminated sharps mechanically (rake, brush, tongs, vacuum etc.), not with hands

   d. Contain contaminated materials in sealed Biohazard bags, canisters or sharps containers and label or tag if not marked

   e. Clean and decontaminate all surfaces and areas immediately after contamination or as soon as possible

   f. Use fresh bleach and water (1:10) or EPA registered tuberculocidal germicide for decontamination

   g. Examine equipment and decontaminate or document infeasibility and label before shipping or service

   h. Transfer bags and sharps containers to a sanitary landfill or licensed incinerator

   i. Dispose of all regulated waste according to local, state and federal regulations; ensure public and client safety

   j. Decontaminate reusable sharps immediately before and after each use, then rinse

   k. Needles are not used for job tasks. Employees using personal needles shall dispose of them in sharps containers.

7. If an Exposure Incident occurs (a specific eye, mouth, mucous membrane, non-intact skin or parenteral job-duty contact with blood or OPIM):

   a. Exposed employees shall wash immediately and report the incident immediately to their supervisor and Company Safety Director.

b. Safety Administrator shall arrange for same or next day post-exposure medical evaluation and follow-up and shall consult and comply with R325.70013 and post-exposure prophylaxis to HIV shall be made available as appropriate.

8. Signs and Labels, Recordkeeping, and Information and Training shall follow R325.70014-16.

Job Exposure Classification, PPE Requirements and Assigned Responsibilities

1. Jobs shall be classified by exposure risks and employees performing the jobs in this category have reasonably anticipated occupational exposure and are covered by the Plan
2. Personal Protective Equipment (PPE) is provided and is to be used in these Tasks/Activities
3. Personnel listed are assigned the following responsibilities: A - Exposure Determination B - Exposure Incident records and reports C - Authorizing HBV vaccination, post-exposure evaluation and follow-up D - Reviewing and evaluating program effectiveness E - Authorizing and recording employee training, use of SOPs, PPE and Controls

Standard Operating Procedures (SOPs) & Contingency Plans

SOPs to be developed if tasks with exposure are identified.

Contingency Plan – If any SOP is infeasible use all available means and methods to ensure safety and health.

Attempt to eliminate hazards, then isolate or guard from contact with remaining hazards, reduce level and severity of hazards, and if hazard exposure potential still exists, personally protect employees using equipment, means and methods designed and approved for protection of the type and level commensurate with the hazards so that employees are safe. Use all suitable Engineering Controls and Work Practice Controls.

Should any exposure occur, immediately provide thorough washing and first aid. Then report the exposure incident to Safety Director, request that it be recorded, investigated and that post exposure medical evaluation and follow-up be arranged and done timely.

Exposure Response Procedures

Post-Exposure Evaluation and Follow-Up

This follow-up with a qualified and licensed physician or health care practitioner will include the following:

1. Documentation of the route of exposure and the circumstances related the incident.
2. If possible, the identification of the source individual and, if possible, the status of the source individual. The blood of the source individual will be tested (after consent is obtained) for HIV/HBV infectivity.
3. If and in such manner as allowed by local, state and federal laws, results of testing of the source individual will be made available to the exposed employee with the exposed employee informed about the applicable laws and regulations concerning disclosure of the identity and infectivity of the source individual.
4. The employee will be offered the option of having their own blood collected for testing of their HIV/HBV serological status. The blood sample will be preserved for at least 90 days to allow the employee to decide if the blood should be tested for HIV serological status. However, if the employee decides prior to that time that testing will be conducted then the appropriate action can be taken and the blood sample discarded.
5. The employee will be offered post exposure prophylaxis in accordance with the current recommendations of the U.S. Public Health Service in consultation with a licensed physician treating the exposed employee.
6. The employee will be given appropriate, confidential counseling concerning precautions to take during the period after the exposure incident such as counseling on risk reduction and the risks and benefits of HIV testing in accordance with state law. The employee will also be given information on what potential illnesses to be alert for and to report any related experiences to appropriate personnel.

7. Safety Director is designated to assure that the policy outlined here is effectively carried out as well as to maintain records related to this policy.

Interaction with Health Care Professionals

Granger Construction Company shall ensure that the health care professional who is responsible for the hepatitis B vaccination is provided with a copy of MIOSHA Occupational Health rule 325.70001-70018 and appendices and a description of the PPE used or to be used. Employees must receive appropriate counseling with regard to medical risks and benefits before undergoing any evaluations, procedures, or vaccinations. A written opinion shall be obtained from the health care professional who evaluates employees of this facility. Written opinions will be obtained in instances:

1. When the employee is sent to obtain the Hepatitis B vaccine.
2. Whenever the employee is sent to a health care professional following an exposure incident.

Health care professionals shall be instructed to limit their written opinions to:

1. Whether the Hepatitis B vaccine is indicated and if the employee has received the vaccine, or for evaluation following an incident;
2. A statement that the employee has been informed of the results of the evaluation, and;
3. A statement that the employee has been told about any medical conditions resulting from exposure to blood or other potentially infectious materials. (Note: The written opinion to the employer is not to reference any personal medical information).
4. Any limitations on the employee's use of personal protective clothing or equipment.

Recordkeeping, remedial, corrective and preventive actions will be performed as in this and other policies.

Recordkeeping and Training Requirements

Recordkeeping
This company shall establish and maintain a record for each employee with occupational exposure to include:

1. The name and social security number of the employee.
2. A copy of the employee's hepatitis B vaccination status, including the dates administered and medical records relating to the employee's ability to receive a vaccination as required by R 325.70013.
3. A copy of the medical history and all results of physical examinations, medical testing, and follow-up procedures as they relate to either of the following:

   The employee's ability to wear protective clothing and equipment and receive vaccination.

   Post-exposure evaluation after an occupational exposure incident.
4. The employer's copy of the physician's written opinion.
5. A copy of the information provided to the physician as required by R 325.70013(6).

The employer shall keep a record of serious work-related injuries and illnesses. Minor injuries requiring first aid only do not need to be recorded.

Each February through April, employers must post a summary of the injuries and illnesses recorded the previous year. If requested, copies of the records must be provided to current and former employees, or their representatives.

Employer is required to submit their completed Forms 300, 300A and 301 information electronically to the OSHA Injury Tracking Application (ITA) website by March 2nd following each tracking year.

The employer shall ensure record confidentiality and shall keep records for duration of employment plus 30 years.

Training Records

1. Date(s)
2. Summary of Contents
3. Names and qualifications of trainers
4. Names and job titles of all trainees
5. Maintain records for three (3) years

Training

Training for all Category A employees will be conducted prior to initial assignment to tasks where occupational exposure may occur. Training will include the following and an explanation of:

1. The MIOSHA standard OH Part 554 for Bloodborne Infectious Disease
2. Epidemiology and symptomatology of bloodborne diseases
3. Modes of transmission of bloodborne pathogens
4. This Exposure Control Plan, (its points, lines of responsibility, how implemented, access, procedures)
5. Job tasks and procedures which might cause exposure to blood or other OPIM.
6. Control methods, engineering and PPE used and its limitations to control job exposure to blood or OPIM
7. Personal protective equipment available to employees and who should be contacted concerning its use.
8. Post Exposure evaluation and follow-up
9. Signs and labels used at the facility
10. Hepatitis B vaccine program at the facility

Activities: Discussion, answering of questions by a knowledgeable trainer, demonstration and supervised practice.

Material: videotape, written material, MIOSHA OH Part 554 and information from CDC & other sources.

Frequency: Retraining annually; supplementary training will occur and with new tasks, procedures or deficiencies.

HBV Vaccination Declination Waiver Statement

I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease. If in the future I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with hepatitis B vaccine, I can receive the vaccination series at no charge to me.

A.16. Chemical Hazard Communication Policy (CHCP)

Chemical Hazard Communication Program (CHCP)

PURPOSE & SCOPE: We, as a responsible employer, have determined that we have or may have employees who are potentially exposed to known hazards of chemicals in our workplace. We therefore intend to ensure that all affected employees are adequately informed, trained, and protected regarding these chemicals, and that the potential for exposure is eliminated or controlled. We will also comply with applicable regulations and meet accepted standards and safe practices. This program is available for review and copying upon the request of any employee. It is in the office of the Safety Director.

HAZARD DETERMINATION: Chemical manufacturers or importers shall evaluate chemicals they produced or import to classify the chemicals in accordance with the revised Hazard Communication Standard. Effective June 1, 2015 - For each chemical, the chemical manufacturer or importer shall determine the hazard classes, and where appropriate, the category of each class that apply to the chemical being classified. This information will be placed in the (material) safety data sheets (SDS) and on the product label. We will rely on (material) safety data sheets (SDS) from suppliers to meet determination requirements. The Hazard Communication Coordinator (HCC) shall assess potential exposure and determine actual harmful exposures and releases, and shall seek timely assistance from the Safety Director to whom he shall report all relevant information.

LABELS, WARNINGS, D.O.T. MARKINGS, PLACARDS AND LABELS: Any employee who receives materials or who brings them into our workplace shall notify the Hazard Communication Coordinator (HCC) and under his/her supervision shall inspect all containers before they enter and ensure that they are properly labeled. Labels shall contain at least the a) Identity b) Hazards and c) Name and address of responsible party (e.g. manufacturer or importer) of the contents of containers. By 06/01/2015, labels shall contain a) Product Identifier b) Signal Word c) Hazard Statement(s) d) Pictograms e) Precautionary Statement(s) and d) Name, address and phone of the Responsible Party. All employees shall obtain permission and instructions from their Supervisor before they bring in any personal property containing hazardous materials. Labeling materials are available from the office.

PORTABLE (SECONDARY OR TRANSFER) CONTAINERS: Each employee who is a product user or who transfers a hazardous material into another container shall ensure that the container is of a proper type and is labeled with the material's identity and hazard warning (by 06/01/2015 with its appropriate product identifier and the words, pictures and/or symbols of its specific physical and health hazards). Labeling is not required if the quantity is small (e.g. a single use portion) and it is used immediately and entirely by the employee transferring it.

TRANSPORT CONTAINERS: Materials receivers shall retain all Department of Transportation (DOT) required markings, labels and placards and maintain them readily visible on the package freight container, rail freight car, motor vehicle or transport vehicle. They shall instruct the subsequent user to do the same and remind them that no employee shall remove them without authorization and verification that residues are cleaned, vapors are purged and all potential hazards are removed.

SAFETY DATA SHEETS (SDS): The Hazard Communication Coordinator (HCC) shall:

a. Compile and maintain the master SDS file;

b. Acquire all needed SDS and seek assistance from MIOSHA/OSHA after 2 unfulfilled written requests for SDS to the supplier;

c. Obtain, post and update required MIOSHA/OSHA Right-to-Know employee posters and postings on an employee safety bulletin board; these will identify the person responsible for maintaining SDS, the location of SDS, and new or revised SDS (within 5 days of receipt, promptly updating files),

d. Keep an SDS file in the office readily accessible to all employees in their work areas and available for their review during while working. Copies will be available upon request.

EMPLOYEE INFORMATION AND TRAINING: The Safety Director or designated record keeper shall coordinate and maintain records of training conducted for employees. The Safety Director or Hazard Communication Coordinator will provide or conduct the training, with attendance documents and records being taken and kept. Before initial work assignment, all new employees will receive Hazard Communication Training.

Information and training will include:

a. All operations in each employee's work area with hazardous chemicals;

b. Hazards of these chemicals including physical, health, simple asphyxiation, combustible dust and pyrophoric gas hazards, as well as hazards not otherwise classified concentrating on those with the highest potential for exposure and severe effects;

c. Methods and observations to detect their presence or release;

d. Measures we have taken and that employees should take to reduce or prevent exposure and to protect them; these may include air monitoring, ventilation, respirators, attendants and emergency procedures and other measures;

e. Procedures to follow if they are exposed to, or spill or release hazardous chemicals;

f. Procedures for safe use, handling and storage of chemicals;

g. How to read and interpret labels, pictograms, SDS;

h. Details of the Hazard Communication Program including an explanation of the GHS label elements [product identifier; signal word; hazard statement(s); pictogram(s); and, precautionary statement(s)] on shipped containers and the workplace labeling system used; the SDS format (16 sections);

i. Where to locate this Hazard Communication Program, the list of hazardous chemicals and the SDS and how to obtain copies at work, or alternatively seek assistance from MIOSHA 517 322-1831 or -1856;

j. How to use hazard information;

k. Rights and responsibilities of employer and employees and employer prohibition from discharging or discriminating against employees who exercise their rights; and

l. The MIOSHA/OSHA Hazard Communication Standard.

Before any new hazardous chemical is introduced into the workplace, each employee will be given information in the same manner as during the safety class.

HAZARDOUS NON-ROUTINE TASKS: Employees shall not enter a hazardous confined space or perform a hazardous non-routine task without first obtaining written permission from the task Supervisor. Permission shall not be given unless employees are adequately informed, trained and equipped for the task. This must be at least comparable to that described in part V. Confined Space Entrants and involved personnel must complete our Permit Required Confined Space Program. Painters and all Respirator Users must complete our Respiratory Protection Program. See your Supervisor or Safety Director with any questions.

INFORMING CONTRACTORS: The Hazard Communication Coordinator (HCC) shall provide outside contractors with the following information if their employees will be exposed to our hazardous materials:

a. Identity of any hazards of chemicals

b. Measures to reduce exposure risks, and

c. Location of SDS and means to review them and get copies, and

d. Our onsite container and pipe labeling system.

The HCC shall request comparable information from contractors (who are obligated to give it) and obtain it if our employees will be exposed to their hazardous materials. See Contractor's Notice.

PIPES AND PIPING SYSTEMS: Information on the hazardous contents of pipes and piping shall be identified by a label, sign, placard, written operating instructions, process sheet, batch ticket or a substance identification system that conveys the same information required to be displayed on labels. Pipes to be identified include those with natural gas, steam and compressed air over 25 psig. Identification information will be kept with the SDS files. ANSI A13.1-1981 recommends the following colorations: Blue with white letters for gas or gaseous admixture, low-medium pressure oxygen and compressed air; Yellow with black letters for flammable or explosive, chemically

active or toxins, extreme temperatures or pressures, or radioactives including variable-high pressure oxygen, compressed air, acetylene and natural gas; Green with white letters for liquid or liquid admixture; Red with white letters for water, foam, carbon dioxide or halon.

LISTS OF HAZARDOUS CHEMICALS: New, revised and/or supplemental lists of hazardous chemicals shall be dated and attached to this program. The initial list is titled Appendix A. Materials which can be purchased by the ordinary household consumer, and which are used for the intended purpose and amount as by the ordinary household consumer, are not required to be included in this list. (A separate list of "consumer use" materials may be developed)

PAINTING AND SPRAYING: Most of the materials used for painting, spraying and seal coating produce vapors that are flammable, combustible and/or toxic. Many of these products are irritants and can burn the eyes, lungs and/or skin.

a. A respirator is required for all paint spraying activities.
b. Perform mixing and thinning operations outside the area to be painted.
c. Inspect ventilation system and filters before painting.
d. Know the location of the fire extinguishers in the area.
e. No smoking in areas where paint is being sprayed or is in the process of drying.
f. The use of solvent resistant gloves is required.
g. Safety goggles must be worn when spraying.
h. Painter must be fully covered by clothing to protect all exposed skin.
i. Fully wash hands, arms, face and neck immediately after each shift of spraying.
j. Extra attention and caution shall be paid toward polyurethane painting.

The Safety Director is responsible for overseeing the Hazard Communication Coordinator and for performing his/her duties in his/her absence.

CHCP Right-To-Know Program Summary

The Safety Director determined the needs of the Company and established our CHCP Program to identify hazardous chemicals, inform employees, and ensure hazard control and employee protection.

Designated personnel have or shall identify, inventory and list all hazardous chemicals, obtain, index and catalogue their most current SDS, update posters and make them available for employee use at each work site.

Receivers of materials shall ensure that SDS accompany all containers of hazardous materials, and that containers are labeled using HCS pictograms or compliant HMIS, NFPA methods, incoming DOT placards etc., pipes are labeled or color coded. Where needed charts and interpretive information have been provided, and posted throughout the facility.

Supervisors shall ensure that employees receive information and training before they perform a job with potential exposure to or use of a hazardous chemical. This includes: MIOSHA/OSHA Standards, operations with hazardous chemicals, location and availability of CHCP and SDS, methods to detect chemicals, their hazards, protective measures by employer and employees, understanding and using labels and SDS.

Employees shall consult the available information, labels, SDS etc. before using any chemical or hazardous material. They shall follow all applicable precautions, protections, procedures, directions and instructions regarding use, handling, storage, disposal, spills, emergencies, first aid etc. They shall use their information and training to prevent hazardous exposures, and to protect themselves and others.

Employees shall label any secondary containers. Small single use portions need not be labeled if they are used entirely during the immediate work shift and is continuously observed and controlled by the employee who dispensed them.

The Safety Director or designated plant personnel shall inform Contractors of chemical and other hazards they may encounter, applicable measures of hazard control and protection, and location of SDS. Contractors shall in turn provide the Safety Director with the same type of information regarding their operations, and shall coordinate them with him accordingly.

Painters, Confined Space personnel and all employees involved in a potentially hazardous or non-routine task must first obtain written permission from the task Supervisor or Safety Director. They shall be properly informed, trained, and equipped and otherwise protected before permission is given.

All employees shall be trained to know and safely handle the materials which they shall use. Training should include information and instructions on: Hazardous materials in general and those specific to each employee's workplace; The materials' hazards and the operations in which they are encountered; Their detection, symptoms, precautions, protective measures, procedures for safe handling, storage, use and disposal; Procedures to follow in the event of a spill or exposure including first aid and emergency response; and Locations, availability, reading, use and understanding of labels, placards, pictograms, SDS, this Program (CHCP) and the MIOSHA/OSHA standard.

Pipe Labeling and Identification

Pipe Labeling Guidelines

Information on the hazardous contents of pipes and piping systems will be identified by a label, sign, placard, written operating instructions, process sheet, batch ticket, or a substance identification system that conveys the same information required to be displayed on a label by the standard (29 C.F.R 1910.1200/Michigan Right to Know Law - Part 42, 92 and 430. Hazard Communication Standard) incorporated by reference in Section 14a of Act 154.

HazCom Piping Classes				
PIPE SYSTEM	POTENTIAL HAZARD	PROTECTIVE EQUIPMENT	HAZARD TYPE	COMMENTS
Sanitary Sewer	Biological contamination	Skin & eye protection	Biological	Wash skin if contacted, decon with bleach
Hot Water Supply/Return	Thermal burns	Skin and eye protections	Physical Haz	
Natural Gas	Explosion and asphyxiation	Eye protection Fire extinguisher	Flammable gas	Prevent sparks, may fill confined space, ventilate
Compressed Air	Particulate impact damage	Eye protection	Physical Haz	Do not use to clean clothing
Steam and Steam Condensate	Thermal burns	Skin and eye protection	Physical Haz	
High Pressure Steam	Thermal burns	Skin and eye protection	Physical Haz	
Oxygen	Fire, hyperoxia	Fire extinguisher	Oxidizer (accelerates flammability)	High concentrations may cause fire, ventilate

Identification of Contents by Color Coding

1. Information on the hazardous contents of pipes and piping shall be identified by a label, sign, placard, written operating instructions, process sheet, batch ticket or a substance identification system that conveys the same information required to be displayed on labels.
2. Pipes to be identified include those with natural gas, steam and compressed air over 25 psig.
3. Identification information will be kept with the SDS files.
4. ANSI A13.1-1981 recommends the following colorations:
    a. Blue with white letters for gas or gaseous admixture, low-medium pressure oxygen and compressed air;
    b. Yellow with black letters for flammable or explosive, chemically active or toxins, extreme temperatures or pressures, or radioactives including variable-high pressure oxygen, compressed air, acetylene and natural gas;
    c. Green with white letters for liquid or liquid admixture;
    d. Red with white letters for water, foam, carbon dioxide or halon.

GHS / Hazard Communication: Safety Data Sheets Summary

As in OSHA publication 3493.

The Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDSs) to communicate the hazards of hazardous chemical products. As of June 1, 2015, the HCS will require new SDSs to be in a uniform format, and include the section numbers, the headings, and associated information under the headings below:

Section 1, Identification includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

Section 2, Hazard(s) identification includes all hazards regarding the chemical; required label elements.

Section 3, Composition/information on ingredients includes information on chemical ingredients; trade secret claims.

Section 4, First-aid measures includes important symptoms/effects, acute, delayed; required treatment.

Section 5, Fire-fighting measures lists suitable extinguishing techniques, equipment; chemical hazards from fire.

Section 6, Accidental release measures lists emergency procedures; protective equipment; proper methods of containment and cleanup.

Section 7, Handling and storage lists precautions for safe handling and storage, including incompatibilities.

Section 8, Exposure controls/personal protection lists OSHA's Permissible Exposure Limits (PELs);

Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).

Section 9, Physical and chemical properties lists the chemical's characteristics.

Section 10, Stability and reactivity lists chemical stability and possibility of hazardous reactions.

Section 11, Toxicological information includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.

Section 12, Ecological information*

Section 13, Disposal considerations*

Section 14, Transport information*

Section 15, Regulatory information*

*Note: Since other Agencies regulate this information, OSHA will not be enforcing Sections 12 through 15 (29 CFR 1910.1200(g)(2)).

Section 16, Other information, includes the date of preparation or last revision.

Employers must ensure that SDSs are readily accessible to employees.

See Appendix D of 29 CFR 1910.1200 for a detailed description of SDS contents.

Note: This may be done in many ways. For example, employers may keep the SDSs in a binder or on computers as long as the employees have immediate access to the information without leaving their work area when needed and a back-up is available for rapid access to the SDS in the case of a power outage or other emergency. Furthermore, employers may want to designate a person(s) responsible for obtaining and maintaining the SDSs. If the employer does not have an SDS, the employer or designated person(s) should contact the manufacturer to obtain one.

GHS / Hazard Communication Standard: Safety Data Sheets Contents

As in OSHA publication DSG BR 3514.

The Hazard Communication Standard (HCS) (29 CFR 1910.1200(g)), revised in 2012, requires that the chemical manufacturer, distributor, or importer provide Safety Data Sheets (SDSs) for each hazardous chemical to downstream users to communicate information on these hazards.

This brief provides guidance to help workers who handle hazardous chemicals to become familiar with the format and understand the contents of the SDSs. The SDS includes information such as the properties of each chemical; the physical, health, and environmental health hazards; protective measures; and safety precautions for handling, storing, and transporting the chemical. The information contained in the SDS must be in English (although it may be in other languages as well). In addition, OSHA requires that SDS preparers provide specific minimum information as detailed in Appendix D of 29 CFR 1910.1200. The SDS preparers may also include additional information in various section(s).

Sections 1 through 8 contain general information about the chemical, identification, hazards, composition, safe handling practices, and emergency control measures (e.g., firefighting). This information should be helpful to those that need to get the information quickly.

Sections 9 through 11 and 16 contain other technical and scientific information, such as physical and chemical properties, stability and reactivity information, toxicological information, exposure control information, and other information including the date of preparation or last revision. The SDS must also state that no applicable information was found when the preparer does not find relevant information for any required element.

The SDS must also contain Sections 12 through 15, to be consistent with the UN Globally Harmonized System of Classification and Labeling of Chemicals (GHS), but OSHA will not enforce the content of these sections because they concern matters handled by other agencies.

A description of all 16 sections of the SDS, along with their contents, is presented below:

Section 1: Identification

This section identifies the chemical on the SDS as well as the recommended uses. It also provides the essential contact information of the supplier. The required information consists of:

1. Product identifier used on the label and any other common names or synonyms by which the substance is known.
2. Name, address, phone number of the manufacturer, importer, or other responsible party, and emergency phone number.
3. Recommended use of the chemical (e.g., a brief description of what it actually does, such as flame retardant) and any restrictions on use (including recommendations given by the supplier).

Section 2: Hazard(s) Identification

This section identifies the hazards of the chemical presented on the SDS and the appropriate warning information associated with those hazards. The required information consists of:

1. The hazard classification of the chemical (e.g., flammable liquid, category1). 1 Chemical, as defined in the HCS, is any substance, or mixture of substances.
2. Signal word.
3. Hazard statement(s).
4. Pictograms (the pictograms or hazard symbols may be presented as graphical reproductions of the symbols in black and white or be a description of the name of the symbol (e.g., skull and crossbones, flame).
5. Precautionary statement(s).
6. Description of any hazards not otherwise classified.
7. For a mixture that contains an ingredient(s) with unknown toxicity, a statement describing how much (percentage) of the mixture consists of ingredient(s) with unknown acute toxicity. Please note that this is a total percentage of the mixture and not tied to the individual ingredient(s).

Section 3: Composition/Information on Ingredients

This section identifies the ingredient(s) contained in the product indicated on the SDS, including impurities and stabilizing additives. This section includes information on substances, mixtures, and all chemicals where a trade secret is claimed. The required information consists of:

Substances

1. Chemical name.
2. Common name and synonyms.
3. Chemical Abstracts Service (CAS) number and other unique identifiers.
4. Impurities and stabilizing additives, which are themselves classified and which contribute to the classification of the chemical.

Mixtures

1. Same information required for substances.
2. The chemical name and concentration (i.e., exact percentage) of all ingredients which are classified as health hazards and are:
    a. Present above their cut-off/concentration limits or
    b. Present a health risk below the cut-off/concentration limits.
3. The concentration (exact percentages) of each ingredient must be specified except concentration ranges may be used in the following situations:
    a. A trade secret claim is made,
    b. There is batch-to-batch variation, or
    c. The SDS is used for a group of substantially similar mixtures.
4. Chemicals where a trade secret is claimed
5. A statement that the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret is required.

Section 4: First-Aid Measures

This section describes the initial care that should be given by untrained responders to an individual who has been exposed to the chemical. The required information consists of:

1. Necessary first-aid instructions by relevant routes of exposure (inhalation, skin and eye contact, and ingestion).
2. Description of the most important symptoms or effects, and any symptoms that are acute or delayed.
3. Recommendations for immediate medical care and special treatment needed, when necessary.

Section 5: Fire-Fighting Measures

This section provides recommendations for fighting a fire caused by the chemical. The required information consists of:

1. Recommendations of suitable extinguishing equipment, and information about extinguishing equipment that is not appropriate for a particular situation.
2. Advice on specific hazards that develop from the chemical during the fire, such as any hazardous combustion products created when the chemical burns.
3. Recommendations on special protective equipment or precautions for firefighters.

Section 6: Accidental Release Measures

This section provides recommendations on the appropriate response to spills, leaks, or releases, including containment and cleanup practices to prevent or minimize exposure to people, properties, or the environment. It may also include recommendations distinguishing between responses for large and small spills where the spill volume has a significant impact on the hazard. The required information may consist of recommendations for:

1. Use of personal precautions (such as removal of ignition sources or providing sufficient ventilation) and protective equipment to prevent the contamination of skin, eyes, and clothing.
2. Emergency procedures, including instructions for evacuations, consulting experts when needed, and appropriate protective clothing.
3. Methods and materials used for containment (e.g., covering the drains and capping procedures).
4. Cleanup procedures (e.g., appropriate techniques for neutralization, decontamination, cleaning or vacuuming; adsorbent materials; and/or equipment required for containment/clean up).

Section 7: Handling and Storage

This section provides guidance on the safe handling practices and conditions for safe storage of chemicals. The required information consists of:

1. Precautions for safe handling, including recommendations for handling incompatible chemicals, minimizing the release of the chemical into the environment, and providing advice on general hygiene practices (e.g., eating, drinking, and smoking in work areas is prohibited).
2. Recommendations on the conditions for safe storage, including any incompatibilities. Provide advice on specific storage requirements (e.g., ventilation requirements).

Section 8: Exposure Controls/Personal Protection

This section indicates the exposure limits, engineering controls, and personal protective measures that can be used to minimize worker exposure. The required information consists of:

1. OSHA Permissible Exposure Limits (PELs), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available.
2. Appropriate engineering controls (e.g., use local exhaust ventilation, or use only in an enclosed system).
3. Recommendations for personal protective measures to prevent illness or injury from exposure to chemicals, such as personal protective equipment (PPE) (e.g., appropriate types of eye, face, skin or respiratory protection needed based on hazards and potential exposure).
4. Any special requirements for PPE, protective clothing or respirators (e.g., type of glove material, such as PVC or nitrile rubber gloves; and breakthrough time of the glove material).

Section 9: Physical and Chemical Properties

This section identifies physical and chemical properties associated with the substance or mixture.

The minimum required information consists of:

Appearance (physical state, color, etc.)	Upper/lower flammability or explosive limits
Odor	Vapor pressure
Odor threshold	Vapor density
pH	Relative density
Melting point/freezing point	Solubility(s)
Initial boiling point and boiling range	Partition coefficient: n-octanol/water
Flash point	Auto-ignition temperature
Evaporation rate	Decomposition temperature
Flammability (solid, gas)	Viscosity

The SDS may not contain every item on the above list because information may not be relevant or is not available. When this occurs, a notation to that effect must be made for that chemical property. Manufacturers may also add other relevant properties, such as the dust deflagration index (Kst) for combustible dust, used to evaluate a dust's explosive potential.

Section 10: Stability and Reactivity

This section describes the reactivity hazards of the chemical and the chemical stability information. This section is broken into three parts: reactivity, chemical stability, and other.

The required information consists of:

Reactivity

1. Description of the specific test data for the chemical(s). This data can be for a class or family of the chemical if such data adequately represent the anticipated hazard of the chemical(s), where available.
2. Chemical stability
3. Indication of whether the chemical is stable or unstable under normal ambient temperature and conditions while in storage and being handled.
4. Description of any stabilizers that may be needed to maintain chemical stability.
5. Indication of any safety issues that may arise should the product change in physical appearance.

Other

1. Indication of the possibility of hazardous reactions, including a statement whether the chemical will react or polymerize, which could release excess pressure or heat, or create other hazardous conditions. Also, a description of the conditions under which hazardous reactions may occur.
2. List of all conditions that should be avoided (e.g., static discharge, shock, vibrations, or environmental conditions that may lead to hazardous conditions).
3. List of all classes of incompatible materials (e.g., classes of chemicals or specific substances) with which the chemical could react to produce a hazardous situation.
4. List of any known or anticipated hazardous decomposition products that could be produced because of use, storage, or heating. (Hazardous combustion products should also be included in Section 5 (Fire-Fighting Measures) of the SDS.)

Section 11: Toxicological Information

This section identifies toxicological and health effects information or indicates that such data are not available. The required information consists of:

1. Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact). The SDS should indicate if the information is unknown.
2. Description of the delayed, immediate, or chronic effects from short- and long-term exposure.
3. The numerical measures of toxicity (e.g., acute toxicity estimates such as the LD50 (median lethal dose)) - the estimated amount [of a substance] expected to kill 50% of test animals in a single dose.
4. Description of the symptoms. This description includes the symptoms associated with exposure to the chemical including symptoms from the lowest to the most severe exposure.
5. Indication of whether the chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest editions) or found to be a potential carcinogen by OSHA.

Section 12: Ecological Information (non-mandatory)

This section provides information to evaluate the environmental impact of the chemical(s) if it were released to the environment. The information may include:

1. Data from toxicity tests performed on aquatic and/or terrestrial organisms, where available (e.g., acute or chronic aquatic toxicity data for fish, algae, crustaceans, and other plants; toxicity data on birds, bees, plants).
2. Whether there is a potential for the chemical to persist and degrade in the environment either through biodegradation or other processes, such as oxidation or hydrolysis.
3. Results of tests of bioaccumulation potential, making reference to the octanol-water partition coefficient (Kow) and the bioconcentration factor (BCF), where available.
4. The potential for a substance to move from the soil to the groundwater (indicate results from adsorption studies or leaching studies).
5. Other adverse effects (e.g., environmental fate, ozone layer depletion potential, photochemical ozone creation potential, endocrine disrupting potential, and/or global warming potential).

Section 13: Disposal Considerations (non-mandatory)

This section provides guidance on proper disposal practices, recycling or reclamation of the chemical(s) or its container, and safe handling practices. To minimize exposure, this section should also refer the reader to Section 8 (Exposure Controls/Personal Protection) of the SDS.

The information may include:

1. Description of appropriate disposal containers to use.
2. Recommendations of appropriate disposal methods to employ.
3. Description of the physical and chemical properties that may affect disposal activities.
4. Language discouraging sewage disposal.
5. Any special precautions for landfills or incineration activities.

Section 14: Transport Information (non-mandatory)

This section provides guidance on classification information for shipping and transporting of hazardous chemical(s) by road, air, rail, or sea. The information may include:

1. UN number (i.e., four-figure identification number of the substance)
2. UN proper shipping name
3. Transport hazard class(s)
4. Packing group number, if applicable, based on the degree of hazard
5. Environmental hazards (e.g., identify if it is a marine pollutant according to the International Maritime Dangerous Goods Code (IMDG Code)).
6. Guidance on transport in bulk (according to Annex II of MARPOL 73/78 3 and the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (International Bulk Chemical Code (IBC Code)).
7. Any special precautions which an employee should be aware of or needs to comply with, in connection with transport or conveyance either within or outside their premises (indicate when information is not available).

Found in the most recent edition of the United Nations Recommendations on the Transport of Dangerous Goods.

MARPOL 73/78 means the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, as amended.

Section 15: Regulatory Information (non-mandatory)

This section identifies the safety, health, and environmental regulations specific for the product that is not indicated anywhere else on the SDS. The information may include:

1. Any national and/or regional regulatory information of the chemical or mixtures (including any OSHA, Department of Transportation, Environmental Protection Agency, or Consumer Product Safety Commission regulations).

Section 16: Other Information

This section indicates when the SDS was prepared or when the last known revision was made. The SDS may also state where the changes have been made to the previous version. You may wish to contact the supplier for an explanation of the changes. Other useful information also may be included here.

Hazard Communication Standard: Labels and Pictograms

Labels for a hazardous chemical must contain:

1. Name, Address and Telephone Number
2. Product Identifier
3. Signal Word
4. Hazard Statement(s)
5. Precautionary Statement(s)
6. Pictogram(s)

Label Elements

The HCS now requires the following elements on labels of hazardous chemicals:

1. **Name, Address and Telephone Number** of the chemical manufacturer, importer or other responsible party.
2. **Product Identifier** is how the hazardous chemical is identified. This can be (but is not limited to) the chemical name, code number or batch number. The manufacturer, importer or distributor can decide the appropriate product identifier. The same product identifier must be both on the label and in section 1 of the SDS.
3. **Signal Words** are used to indicate the relative level of severity of the hazard and alert the reader to a potential hazard on the label. There are only two words used as signal words, “Danger” and “Warning.” Within a specific hazard class, “Danger” is used for the more severe hazards and “Warning” is used for the less severe hazards. There will only be one signal word on the label no matter how many hazards a chemical may have. If one of the hazards warrants a “Danger” signal word and another warrants the signal word “Warning,” then only “Danger” should appear on the label.
4. **Hazard Statements** are statements assigned to a hazard class and category that describe the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard. For example: “Causes damage to kidneys through prolonged or repeated exposure when absorbed through the skin.” All of the applicable hazard statements must appear on the label. Hazard statements may be combined where appropriate to reduce redundancies and improve readability. The hazard statements are specific to the hazard classification categories, and chemical users should always see the same statement for the same hazards no matter what the chemical is or who produces it.
    a. Hazard class - The nature of the physical, health or environmental hazard, e.g., flammable solid carcinogen, oral acute toxicity.
    b. Hazard category - The division of criteria within each hazard class, e.g., oral acute toxicity includes five hazard categories and flammable liquids includes four hazard categories. These categories compare hazard severity within a hazard class and should not be taken as a comparison of hazard categories more generally.

5. **Precautionary Statements** describe recommended measures that should be taken to minimize or prevent **adverse** effects resulting from exposure to the hazardous chemical or improper storage or handling. There are four types of precautionary statements: prevention (to minimize exposure); response (in case of accidental spillage or exposure emergency response, and first-aid); storage; and disposal.

   For example, a chemical presenting a specific target organ toxicity (repeated exposure) hazard would include the following on the label:

   "Do not breathe dust/fume/gas/mist/ vapors/spray. Get medical advice/attention if you feel unwell. Dispose of contents/container in accordance with local/regional/national and international regulations." A forward slash (/) designates that the classifier can choose one of the precautionary statements. In the example above, the label could state, "Do not breathe vapors or spray. Get medical attention if you feel unwell. Dispose of contents in accordance with local/regional/national/international regulations." See Examples 1 and 2A of this document as an example. In most cases, the precautionary statements are independent. However, OSHA does allow flexibility for applying precautionary statements to the label, such as combining statements, using an order of precedence or eliminating an inappropriate statement. Precautionary statements may be combined on the label to save on space and improve readability. For example, "Keep away from heat, spark and open flames," "Store in a well-ventilated place," and "Keep cool" may be combined to read: "Keep away from heat, sparks and open flames and store in a cool, well-ventilated place." Where a chemical is classified for a number of hazards and the precautionary statements are similar, the most stringent statements must be included on the label. In this case, the chemical manufacturer, importer, or distributor may impose an order of precedence where phrases concerning response require rapid action to ensure the health and safety of the exposed person.

   In the self-reactive hazard category Types C, D, E or F, three of the four precautionary statements for prevention are: • "Keep away from heat/sparks/open flame/hot surfaces. - No Smoking."; • "Keep/Store away from clothing/…/combustible materials"; • "Keep only in original container."

   These three precautionary statements could be combined to read: "Keep in original container and away from heat, open flames, combustible materials and hot surfaces. - No Smoking." Finally, a manufacturer or importer may eliminate a precautionary statement if it can demonstrate that the statement is inappropriate.

6. **Supplementary Information.** The label producer may provide additional instructions or information that it deems helpful. It may also list any hazards not otherwise classified under this portion of the label. This section must **also** identify the percentage of ingredient(s) of unknown acute toxicity when it is present in a concentration of ≥1% (and the classification is not based on testing the mixture as a whole). If an employer decides to include additional information regarding the chemical that is above and beyond what the standard requires, it may list this information under what is considered "supplementary information." There is also no required format for how a workplace label must look and no particular format an employer has to use; however, it cannot contradict or detract from the required information.

   An example of an item that may be considered supplementary is the personal protective equipment (PPE) pictogram indicating what workers handling the chemical may need to wear to protect themselves. For example, the hazardous Materials Information System (HMIS) pictogram of a person wearing goggles may be listed. Other supplementary information may include directions of use, expiration date, or fill date, all of which may provide additional information specific to the process in which the chemical is used.

   Pictograms are graphic symbols used to communicate specific information about the hazards of a chemical. On hazardous chemicals being shipped or transported from a manufacturer, importer or distributor, the required pictograms consist of a red square frame set at a point with a black hazard symbol on a white background, sufficiently wide to be clearly visible. A square red frame set at a point without a hazard symbol is not a pictogram and is not permitted on the label. The pictograms OSHA has adopted improve worker safety and health, conform with the GHS, and are used worldwide. While the GHS uses a total of nine pictograms, OSHA will only enforce the use of eight. The environmental pictogram is not mandatory but may be used to provide additional information. Workers may see the ninth symbol on a label because label preparers may choose to add the environment pictogram as supplementary information. Figure 1 shows the symbol for each pictogram, the written name for each pictogram, and the hazards associated with each of the pictograms. Most of the symbols are already used for transportation and many chemical users may be familiar with them.

It is important to note that the OSHA pictograms do not replace the diamond shaped labels that the U.S. Department of Transportation (DOT) requires for the transport of chemicals, including chemical drums, chemical totes, tanks or other containers. Those labels must be on the external part of a shipped container and must meet the DOT requirements set forth in 49 CFR 172, Subpart E. If a label has a DOT transport pictogram, Appendix C.2.3.3 states that the corresponding HCS pictogram shall not appear. However, DOT does not view the HCS pictogram as a conflict and for some international trade both pictograms may need to be present on the label. Therefore, OSHA intends to revise C.2.3.3. In the meantime, the agency will allow both DOT and HCS pictograms for the same hazard on a label.

While the DOT diamond label is required for all hazardous chemicals on the outside shipping containers, chemicals in smaller containers inside the larger shipped container do not require the DOT diamond but do require the OSHA pictograms. (See Example 2.) Labels must be legible, in English, and prominently displayed. Other languages may be displayed in addition to English. Chemical manufacturers, importers, and distributors who become newly aware of any significant information regarding the hazards of a chemical must revise the label within six months.

Employer Responsibilities

Employers are responsible for maintaining the labels on the containers, including, but not limited to, tanks, totes, and drums. This means that labels must be maintained on chemicals in a manner which continues to be legible and the pertinent information (such as the hazards and directions for use) does not get defaced (i.e., fade, get washed off) or removed in any way. The employer is not responsible for updating labels on shipped containers, even if the shipped containers are labeled under HazCom 1994. The employer must re-label items if the labels are removed or defaced. However, if the employer is aware of newly-identified hazards that are not disclosed on the label, the employer must ensure that workers are aware of the hazards as discussed below under workplace labels.

Workplace Labels

OSHA has not changed the general requirements for workplace labeling. Employers have the option to create their own workplace labels. They can either provide all the required information that is on the label from the chemical manufacturer or, the product identifier and words, pictures, symbols or a combination thereof, which in combination with other information immediately available to employees; or provide specific information regarding the hazards of the chemicals. If an employer has an in-plant or workplace system of labeling that meets the requirements of HazCom 1994, the employer may continue to use this system in the workplace as long as this system, in conjunction with other information immediately available to the employees, provides the employees with the information on all of the health and physical hazards of the hazardous chemical. This workplace labeling system may include signs, placards, process sheets, batch tickets, operating procedures, or other such written materials to identify hazardous chemicals. Any of these labeling methods or a combination thereof may be used instead of a label from the manufacturer, importer or distributer as long as the employees have immediate access to all of the information about the hazards of the chemical. Workplace labels must be in English. Other languages may be added to the label if applicable. If the employer chooses to use the pictograms that appear in Appendix C on the workplace (or in-plant) labels, these pictograms may have a black border, rather than a red border.

Employers may use additional instructional symbols that are not included in OSHA's HCS pictograms on the workplace labels. An example of an instructional pictogram is a person with goggles, denoting that goggles must be worn while handling the given chemical. Including both types of pictograms on workplace labels is acceptable. The same is true if the employer wants to list environmental pictograms or PPE pictograms from the HMIS to identify protective measures for those handling the chemical.

Employers may continue to use rating systems such as National Fire Protection Association (NFPA) diamonds or HMIS requirements for workplace labels as long as they are consistent with the requirements of the Hazard

Communication Standard and the employees have immediate access to the specific hazard information as discussed above. An employer using NFPA or HMIS labeling must, through training, ensure that its employees are fully aware of the hazards of the chemicals used. If an employer transfers hazardous chemicals from a labeled container to a portable container that is only intended for immediate use by the employee who performs the transfer, no labels are required for the portable container.

GHS Pictograms

GHS Labels may contain Manufacturer ID, Product ID, Pictogram symbols, Signal Words, Hazard Statements, Precautionary Statements and other information for each hazard class and associated hazard category as applicable.

Health Hazard  • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity	**Flame**  • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides	**Exclamation Mark**  • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder  • Gases Under Pressure	**Corrosion**  • Skin Corrosion/ Burns • Eye Damage • Corrosive to Metals	**Exploding Bomb**  • Explosives • Self-Reactives • Organic Peroxides
Flame Over Circle  • Oxidizers	**Environment** **(Non-Mandatory)**  • Aquatic Toxicity	**Skull and Crossbones**  • Acute Toxicity (fatal or toxic)

A.17. Respirable Crystalline Silica Policy

PURPOSE

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

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

SCOPE

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

RESPONSIBILITIES

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

SAFETY DEPARTMENT / SITE MANAGER

1. Conduct job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments to determine if an employee's exposure will be above 25 $\mu g/m^3$ as an 8-hour TWA under any foreseeable conditions.

2. Select and implement into the project's ECP the appropriate control measures in accordance with the Construction Tasks identified in OSHA's Construction Standard Table 1; and potentially including (but not limited to) - a written Exposure Control Plan (ECP), exposure monitoring, Hazard Communication training, medical surveillance, housekeeping and others.

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

3. Ensure that the materials, tools, equipment, personal protective equipment (PPE), and other resources (such as worker training) required to fully implement and maintain this Respirable Crystalline Silica Program are in place and readily available if needed.

4. Ensure that Project Managers, Site Managers, Competent Persons, and employees are educated in the hazards of Silica exposure and trained to work safely with Silica in accordance with OSHA's Respirable Crystalline Silica Construction Standard and OSHA's Hazard Communication Standard. Managers and Competent Persons may receive more advanced training than other employees.

5. Maintain written records of training (for example, proper use of respirators), ECPs, inspections (for equipment, PPE, and work methods/practices), medical surveillance (under lock and key), respirator medical clearances (under lock and key) and fit-test results.

6. Conduct an annual review (or more often if conditions change) of the effectiveness of this program and any active project ECP's that extend beyond a year. This includes a review of available dust control technologies to ensure these are selected and used when practical.

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

PROJECT MANAGER / SITE MANAGER

1. Ensure all applicable elements of this Respirable Crystalline Silica Program are implemented on the project including the selection of a Competent Person.

2. Assist the Safety Department in conducting job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments to determine if an ECP, exposure monitoring, and medical surveillance is necessary.

3. Assist in the selection and implementation of the appropriate control measures in accordance with the Construction Tasks identified in OSHA's Construction Standard Table 1; and potentially including (but not limited to) - a written Exposure Control Plan (ECP), exposure monitoring, Hazard Communication training, medical surveillance, housekeeping and others.
4. Ensure that employees using respirators have been properly trained, medically cleared, and fit-tested in accordance with the company's Respiratory Protection Program. This process will be documented.

5. Ensure that work is conducted in a manner that minimizes and adequately controls the risk to workers and others. This includes ensuring that workers use appropriate engineering controls, work practices, and wear the necessary PPE.

6. Where there is risk of exposure to Silica dust, verify employees are properly trained on the applicable contents of this program, the project-specific ECP, and the applicable OSHA Standards (such as Hazard Communication). Ensure employees are provided appropriate PPE when conducting such work.

COMPETENT PERSON AND/OR SITE MANAGER (SUPERINTENDENT, FOREMAN, ETC.)

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

2. Identify existing and foreseeable Respirable Crystalline Silica hazards in the workplace and take prompt corrective measures to eliminate or minimize them.

3. Notify the Project Manager and/or Safety Department of any deficiencies identified during inspections to coordinate and facilitate prompt corrective action.

4. Assist the Project Manager and Safety Department in conducting job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments to determine if an ECP, exposure monitoring, and medical surveillance is necessary.

EMPLOYEES

1. Follow recognized work procedures (such as the Construction Tasks identified in OSHA's Construction Standard Table 1) as established in the project's ECP and this program.

2. Use the assigned PPE in an effective and safe manner.

3. Participate in Respirable Crystalline Silica exposure monitoring and the medical surveillance program.

4. Report any unsafe conditions or acts to the Site Manager and/or Competent Person.

5. Report any exposure incidents or any signs or symptoms of Silica illness.

DEFINITIONS

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

1. **Action Level** means a concentration of airborne Respirable Crystalline Silica of 25 µg/m^3, calculated as an 8-hour TWA.

2. **Competent Person** means an individual who is capable of identifying existing and foreseeable Respirable Crystalline Silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them.

3. **Employee Exposure** means the exposure to airborne Respirable Crystalline Silica that would occur if the employee were not using a respirator.

4. **High-Efficiency Particulate Air (HEPA) Filter** means a filter that is at least 99.97 percent efficient in removing monodispersed particles of 0.3 micrometers in diameter.

5. **Objective Data** means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to Respirable Crystalline Silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

6. **Permissible Exposure Limit (PEL)** means the employer shall ensure that no employee is exposed to an airborne concentration of Respirable Crystalline Silica more than 50 µg/m^3, calculated as an 8-hour TWA.

7. **Physician or Other Licensed Health Care Professional (PLHCP)** means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by the Medical Surveillance Section of the OSHA Respirable Crystalline Silica Standard.

8. **Respirable Crystalline Silica** means Quartz, Cristobalite, and/or Tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle size- selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality-Particle Size Fraction Definitions for Health-Related Sampling.

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

REQUIREMENTS

Specified Exposure Control Methods

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

The task(s) being performed by Granger Construction Company, identified on OSHA's Construction Standard Table 1, are:

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

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection & Min. Assigned Protection Factor (APF)	
			≤ 4 hours/shift	>4 hours/shift
1	Stationary masonry saws	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
2a	Handheld power saws (any blade diameter) when used outdoors	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	APF 10
2b	Handheld power saws (any blade diameter) when used indoors or in an enclosed area	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	APF 10	APF 10
3	Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less) for tasks performed outdoors only	• Use saw equipped with commercially available dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.	None	None
4a	Walk-behind saws when used outdoors	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None

	Construction Task or Equipment Operation	Engineering and Work Practice Control Methods	Required Respiratory Protection & Min. Assigned Protection Factor (APF)	
			≤ 4 hours/shift	>4 hours/shift
4b	Walk-behind saws when used indoors or in an enclosed area	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	APF 10	APF 10
5	Drivable saws for tasks performed outdoors only	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
6	Rig-mounted core saws or drills	• Use tool equipped with integrated water delivery system that supplies water to cutting surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
7	Handheld and stand-mounted drills (including impact and rotary hammer drills)	• Use drill equipped with commercially available shroud or cowling with dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • Use a HEPA-filtered vacuum when cleaning holes.	None	None
8	Dowel drilling rigs for concrete for tasks performed outdoors only	• Use shroud around drill bit with a dust collection system. • Dust collector must have a filter with 99% or greater efficiency and a filter cleaning mechanism. • Use a HEPA-filtered vacuum when cleaning holes.	APF 10	APF 10
9a	Vehicle-mounted drilling rigs for rock and concrete	• Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector.	None	None
9b	Vehicle-mounted drilling rigs for rock and concrete	• Operate from within an enclosed cab and use water for dust suppression on drill bit.	None	None
10a	Jackhammers and handheld powered chipping tools when used outdoors	• Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.	None	AFP 10
10b	Jackhammers and handheld powered	• Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.	APF 10	

	Construction Task or Equipment Operation	Engineering and Work Practice Control Methods	Required Respiratory Protection & Min. Assigned Protection Factor (APF)	
			≤ 4 hours/shift	>4 hours/shift
	chipping tools when used indoors or in an enclosed area			APF 10
10c	Jackhammers and handheld powered chipping tools when used outdoors	• Use tool equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.	None	APF 10
10d	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	• Use tool equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.	APF 10	APF 10
11	Handheld grinders for mortar removal (i.e., tuckpointing)	• Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	APF 10	APF 25
12a	Handheld grinders for uses other than mortar removal for tasks performed outdoors only	• Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Use grinder equipped with commercially available shroud and dust collection system.	None	None
12b	Handheld grinders for uses other than mortar removal when used outdoors	• Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a	None	None

	Construction Task or Equipment Operation	Engineering and Work Practice Control Methods	Required Respiratory Protection & Min. Assigned Protection Factor (APF)	
			≤ 4 hours/shift	>4 hours/shift
		cyclonic pre-separator or filter-cleaning mechanism.		
12c	Handheld grinders for uses other than mortar removal when used indoors or in an enclosed area	• Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	None	APF 10
13a	Walk-behind milling machines and floor grinders	• Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
13b	Walk-behind milling machines and floor grinders	• Use machine equipped with dust collection system recommended by the manufacturer. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.	None	None
14	Small drivable milling machines (less than half-lane)	• Use a machine equipped with supplemental water sprays designed to suppress dust. • Water must be combined with a surfactant. • Operate and maintain machine to minimize dust emissions.	None	None
15a	Large drivable milling machines (half-lane and larger) for cuts of any depth on asphalt only	• Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. • Operate and maintain machine to minimize dust emissions.	None	None
15b	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth	• Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. • Operate and maintain machine to minimize dust emissions.	None	None

	Construction Task or Equipment Operation	Engineering and Work Practice Control Methods	Required Respiratory Protection & Min. Assigned Protection Factor (APF)	
			≤ 4 hours/shift	>4 hours/shift
	or less on any substrate			
15c	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	• Use a machine equipped with supplemental water spray designed to suppress dust. • Water must be combined with a surfactant. • Operate and maintain machine to minimize dust emissions.	None	None
16	Crushing machines	• Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components, and discharge points). • Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. • Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote-control station.	None	None
17a	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	• Operate equipment from within an enclosed cab.	None	None
17b	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	• When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
18a	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	• Apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None

	Construction Task or Equipment Operation	Engineering and Work Practice Control Methods	Required Respiratory Protection & Min. Assigned Protection Factor (APF)	
			≤ 4 hours/shift	>4 hours/shift
18b	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	• When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None	None

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

1. For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust;

2. For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;

3. For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:

    a. Is maintained as free as practicable from settled dust;

    b. Has door seals and closing mechanisms that work properly;

    c. Has gaskets and seals that are in good condition and working properly;

    d. Is under positive pressure maintained through continuous delivery of fresh air;

    e. Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 μm range (e.g., MERV-16 or better); and

    f. Has heating and cooling capabilities.

4. Where an employee performs more than one task included on OSHA's Construction Standard Table 1 during a shift, and the total duration of all tasks combined is more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift. If the total duration of all tasks on Table 1 combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.

Alternative Exposure Control Methods

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

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

1. **Performance Option**: Granger Construction Company will assess the 8-hour TWA exposure for each employee based on any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to Respirable Crystalline Silica.

2. **Scheduled Monitoring Option**

    a. Granger Construction Company will perform initial monitoring to assess the 8-hour TWA exposure for each employee based on one or more personal breathing zone air samples that reflect the exposures of employees on each shift, for each job classification, and in each work area. Where several employees perform the same tasks on the same shift and in the same work area, Granger Construction Company will plan to monitor a representative fraction of these employees. When using representative monitoring, Granger Construction Company will sample the employee(s) who are expected to have the highest exposure to Respirable Crystalline Silica.

    b. If initial monitoring indicates that employee exposures are below the Action Level, Granger Construction Company will probably discontinue monitoring for those employees whose exposures are represented by such monitoring.

    c. Where the most recent exposure monitoring indicates that employee exposures are at or above the Action Level but at or below the PEL, Granger Construction Company will repeat such monitoring within six months of the most recent monitoring.

    d. Where the most recent exposure monitoring indicates that employee exposures are above the PEL, Granger Construction Company will repeat such monitoring within three months of the most recent monitoring.

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

Granger Construction Company will ensure that all Respirable Crystalline Silica samples taken to satisfy the monitoring requirements of this program and OSHA are collected by a qualified individual (i.e. a Certified Industrial Hygienist) and the samples are evaluated by a qualified laboratory (i.e. accredited to ANS/ISO/IEC Standard 17025:2005 with respect to Crystalline Silica analyses by a body that is compliant with ISO/IEC Standard 17011:2004 for implementation of quality assessment programs).
Within five working days after completing an exposure assessment, Granger Construction Company will individually notify each affected employee in writing of the results of that assessment or post the results in an appropriate location accessible to all affected employees.

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

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

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

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

Control Methods

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

List and discuss control methods not included in Table 1

Respiratory Protection

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

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

1. Where exposures exceed the PEL during periods necessary to install or implement feasible engineering and work practice controls;

2. Where exposures exceed the PEL during tasks, such as certain maintenance and repair tasks, for which engineering and work practice controls are not feasible; and

3. During tasks for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL.

Housekeeping

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

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

1. The compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air; or

2. No alternative method is feasible.

Written Exposure Control Plan

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

1. A description of the tasks in the workplace that involve exposure to Respirable Crystalline Silica;

2. A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to Respirable Crystalline Silica for each task;

3. A description of the housekeeping measures used to limit employee exposure to Respirable Crystalline Silica; and

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

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

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

Medical Surveillance

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

Granger Construction Company will make available an initial (baseline) medical examination within 30 days after initial assignment, unless the employee has received a medical examination that meets the requirements of the OSHA Respirable Crystalline Silica Construction Standard within the last three years. The examination shall consist of:

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

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

2. A physical examination with special emphasis on the respiratory system;

3. A chest X-ray (a single postero-anterior radiographic projection or radiograph of the chest at full inspiration recorded on either film [no less than 14 x 17 inches and no more than 16 x 17 inches] or digital radiography systems) interpreted and classified according to the International Labour Office (ILO) International Classification of Radiographs of Pneumoconiosis by a NIOSH-certified B Reader;

4. A pulmonary function test to include forced vital capacity (FVC) and forced expiratory volume in one second (FEV1) and FEV1/FVC ratio, administered by a spirometry technician with a current certificate from a NIOSH-approved spirometry course;

5. Testing for latent tuberculosis infection; and

6. Any other tests deemed appropriate by the PLHCP.

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

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

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

2. The employee's former, current, and anticipated levels of occupational exposure to Respirable Crystalline Silica;

3. A description of any personal protective equipment (PPE) used or to be used by the employee, including when and for how long the employee has used or will use that equipment; and

4. Information from records of employment-related medical examinations previously provided to the employee and currently within the control of Granger Construction Company.

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

1. A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to Respirable Crystalline Silica and any medical conditions that require further evaluation or treatment;

2. Any recommended limitations on the employee's use of respirators;

3. Any recommended limitations on the employee's exposure to Respirable Crystalline Silica; and;

4. A statement that the employee should be examined by a Specialist if the chest X-ray is classified as 1/0 or higher by the B Reader, or if referral to a Specialist is otherwise deemed appropriate by the PLHCP.

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

1. The date of the examination;

2. A statement that the examination has met the requirements of the OSHA Respirable Crystalline Silica Construction Standard; and

3. Any recommended limitations on the employee's use of respirators.

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

1. Any recommended limitations on the employee's exposure to Respirable Crystalline Silica; and/or

2. A statement that the employee should be examined by a Specialist if the chest X-ray is classified as 1/0 or higher by the B Reader, or if referral to a Specialist is otherwise deemed appropriate by the PLHCP.

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

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

1. A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to Respirable Crystalline Silica and any medical conditions that require further evaluation or treatment;

2. Any recommended limitations on the employee's use of respirators; and

3. Any recommended limitations on the employee's exposure to respirable crystalline Silica.

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

1. The date of the examination;

2. Any recommended limitations on the employee's use of respirators; and

3. If the employee provides written authorization, the written opinion shall also contain any recommended limitations on the employee's exposure to Respirable Crystalline Silica.

Hazard Communication

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

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

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

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

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

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

Recordkeeping

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

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

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

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

1. The Crystalline Silica-containing material in question;
2. The source of the objective data;
3. The testing protocol and results of testing;

4. A description of the process, task, or activity on which the objective data were based; and

5. Other data relevant to the process, task, activity, material, or exposures on which the objective data were based.

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

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

1. Name and social security number;

2. A copy of the PLHCPs' and/or Specialists' written medical opinions; and

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

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

PROGRAM EVALUATION

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

SILICA EXPOSURE CONTROL PLAN FOR DRILLING

Employee information

Company name:	Granger Construction Company	Date:	September 23, 2017
Person Completing Plan:	Brian Goodman	Job Title:	Safety Director
Competent Person:		Jobsite/Location:	

Description of Task

Drilling 3/16" to 5/8" diameter holes up to 4" deep in concrete floors, walls, ceilings and columns; both indoors and outdoors per Table 1. Equipment/Task (vii)

Engineering Controls

Use drill equipped with commercially available shroud or cowling with dust collection system. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter- cleaning mechanism.

Work Practices

Check filter module prior to use for any damage. Refer to manufacturer's instruction manual when to activate filter cleaning mechanism. Operate and maintain tool in accordance with the manufacturer's instruction to minimize dust emissions. When emptying the dust collector, wear a respirator.

Respirator Protection

None required when drilling inside or outside per Table 1.

Equipment/task (vii). A respirator shall be worn when emptying filters. See Granger's written respiratory protection program on selecting, training and fit testing. Be certain operator is clean shaven, fit tested and trained before respirator use.

Housekeeping

Dry sweeping or use of compressed air is not permitted to clean up visible silica on work surfaces. Use wet methods or a HEPA Vacuum that has an automatic filter cleaning mechanism. Full vacuum bags shall be sealed, zip-tied or taped and disposed of in an approved waste container.

Procedures Used to Restrict Access to Work Area

Monitor work area and if deemed necessary, restrict other personnel from standing or walking into the drilling area. This will be done by blocking off the area with danger tape or rope and posting warning signs.

Additional Notes

Review this plan with all involved employees.

Keep a copy of this plan at the jobsite.

Provide this plan of action the General Contractor, if we (Granger Construction) are not the GC.

Review and update annually.

A.18. Respiratory Protection Policy

Respiratory Protection Program (RPP)

PURPOSE & SCOPE: This Program is intended to establish procedures to prevent employee over-exposure to airborne contaminants or exposure to oxygen deficient environments with the use of Personal Respiratory Protection Equipment (respirators or PRPE). We, as a responsible employer, have assessed or will assess employee exposure levels. For any employees whom we determine will be potentially exposed to hazardous levels of airborne contaminants, we will implement all pertinent hazard control and respiratory protection measures and all applicable aspects of this Program. We therefore intend to ensure that all affected employees are adequately informed, trained and protected regarding these contaminants, and that the potential for exposure is eliminated or controlled where feasible. We will also comply with applicable regulations and meet accepted standards and safe practices. This Program is available for review by all employees in the corporate office or electronically.

APPLICATION: For materials and conditions where we have information that over-exposure may occur, hazard determination will be done using appropriate MIOSHA/OSHA compliant methods such as air monitoring or estimates using objective data or a reliable method. Data on the physical and chemical properties of air contaminants, combined with information on room dimensions, air exchange rates, contaminant release rates, and other pertinent data, including exposure patterns and work practices, may be used to estimate the maximum exposure that could be anticipated in the workplace. Data from industry-wide surveys may be used to assist in making a determination.
Worst-case assumptions or estimates of the highest foreseeable employee exposure levels will be made.

Hazardous exposures should be prevented by eliminating contaminants from the work environment or by reducing their concentrations to levels below the PEL with engineering controls. Respiratory protection will be used when effective use of engineering controls is not feasible or inadequate, while they are being instituted, or during an emergency. All exposed workers in all work areas that are determined to have a hazardous atmosphere shall use respirators according to the specific procedures in this Program.

IMPLEMENTATION: Where possible, we are implementing the use of information, procedures and forms from MIOSHA/OSHA and/or other sources including those we may have created. Our basic Program Summary outlines our minimum requirements. Failure to use Respiratory Protection procedures or equipment is a serious violation of safety rules and Supervisors shall enforce compliance. We will provide appropriate respiratory protection equipment, facilities, procedures, medical determination of ability, training, certification and needed retraining of authorized users and inspection of the Program at least annually.

APPENDICES: Further details of this Program are contained and documented appendices noted below. MIOSHA/OSHA Standards are appendices for mandatory use. Others are advisory. Appendices are attached by reference and include:

a. MIOSHA CH Parts 451, 601, 602, 603, 620, 621, 622 and GIH Parts 301, 302-350, 433, 451, 520, 523-591, R3303-5006.

b. CET 5045, 5050, 5080, 5730, 5731, 5810, 5820, 5880, 5955, 5985.

c. The Small Entity Compliance Guide – OSHA3384-09.

Respiratory Protection Program Summary

1. The Safety Director is our qualified Program Administrator who established our Program with standard operating procedures and worksite-specific procedures for using respirators to prevent employee over-exposure to air-borne contaminants and to comply with MIOSHA Health Parts 433 and 451. Respirators shall be used according to the procedures in emergencies or when adequate engineering controls are not feasible or not yet instituted. He shall evaluate and modify the program periodically.
2. The Respirator Coordinator or a designate will determine and record:
   a. The existence, type and extent of respiratory hazards for all work areas and processes and any workplace surveillance done e.g. air monitoring, estimates from objective data or any methods used
   b. The feasibility of engineering controls
   c. The type of respirators selected as adequate protection
   d. Employee medical evaluation, training and fit testing and
   e. Selection, issuance, use and care of respirators and components
   f. Any regular inspection and evaluation of the Program, preferably annually.
3. Supervisors shall:
   a. Identify affected employees and instruct them to use respirators when needed and
   b. Ensure proper employee medical evaluation, training, fit testing, respirator selection, issuance, use, and care.
4. When respiratory hazards are identified on a project, personnel shall be given appropriate PPE. Respiratory Equipment Maintenance Record (SF178FR) shall be kept by each employee.
5. Respirator Users shall: Use, clean, maintain and store respirators only as trained and specified in the Program and authorized by Supervisors. This includes proper labeling, donning, doffing, pressure checks, cleaning, inspecting, repairing, cartridge changes, bagging, storage, and recordkeeping. Respirators, shall not be used if they create a hazard or the user is not medically able. Filtering facepieces (dust masks) may be used in compliance with the Standard.
6. Respirators shall be NIOSH certified and selected as appropriate for the relevant workplace and user factors including reasonably estimated respiratory hazards identifying the contaminants' chemical state and physical form. Full facepiece pressure demand SCBAs NIOSH certified for 30+ minutes are required for all IDLH environments. If not IDLH, respirator type shall have an APF (see Table 1) > (the MUC / [PEL or STEL or CL]). Use a respirator with an APF (based on Table 1) that is greater than the measured air concentration divided by the applicable PEL, STEL or CL. For protection against gases and vapors the respirator shall be an ASR or an APR equipped with ESLI or components shall be changed on a schedule based on objective data to ensure changes before the end of components' service life. For particulates, the respirator shall be an ASR or an APR with NIOSH certified filters, either HEPA under 30CFR11 or other filters under 42CFR84. For protection, primarily against particulates with MMAD > 2 mcm, any NIOSH certified particulate filter may be used. APF is Assigned Protection Factor; MUC is Maximum Use Concentration; STEL is Short Term Exposure Limit; CL is Ceiling Limit; ASR is Air Supplying Respirator; APR is Air Purifying Respirator; HEPA is High Efficiency Particulate Air filter; MMAD is Mass Mean Aerodynamic Diameters
7. Users will be instructed and trained at least annually in the need, use, fit, care, maintenance, inspection, donning, doffing, components, limitations & emergency use of respirators, exposure symptoms and MIOSHA Part 451& App D.
8. Respirators shall be cleaned and disinfected regularly and should only be used by one (1) person. Inspect parts when cleaning. Respirators shall be stored in a convenient, protective, clean and sanitary location, labeled if issued. Respirators, where practical, will be assigned to each User for their exclusive use. Cartridges will be changed on schedule determined by manufacturer's recommendations or EOSL indicators, breakthrough test data or mathematical models.
9. Respirators used routinely shall be inspected during cleaning. Worn or deteriorated parts shall be replaced. Respirators for emergency use, e.g. SCBA, shall be thoroughly inspected at least monthly and after each use.

10. Before employees may use respirators, a PLHCP's medical evaluation shall determine that they are physically able to perform the work and use the equipment (Part 451(e)). Also, fit testing shall be performed (Part 451(f)); QLFT may be used if the required fit factor < 100, otherwise QNFT shall be used. The medical status should be reviewed periodically. Fit testing will be performed at least annually. Required respirators, training, and medical evaluation shall be provided at no cost to employees.
11. All employees shall check with their supervisor to ensure safety and compliance before performing any task which has hazardous materials or conditions including: Asbestos, Lead, Gasoline, Paints, solvents or any item with VOCs, Welding, cutting or grinding of metal or plastics, and Dusts from construction, demolition or grain. NOTE: Contaminants of concern include asbestos, lead and silica dusts.

Respiratory Protection Definitions of Terms

Air-purifying respirator (APR) means a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

Assigned protection factor (APF) means the workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees when the employer implements a continuing, effective respiratory protection program as specified by this section.

Atmosphere-supplying respirator (ASR) means a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.

Canister or cartridge means a container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.

Demand respirator means an atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.

Emergency situation means any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.

Employee exposure-exposure to a concentration of an airborne contaminant that would occur if the employee did not use respiratory protection.

End-of-service-life indicator (ESLI) means a system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.

Escape-only respirator means a respirator intended to be used only for emergency exit.

Filter or air purifying element means a component used in respirators to remove solid or liquid aerosols from the inspired air.

Filtering facepiece (dust mask) means a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.

Fit factor means a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

Fit test means the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. (See also Qualitative fit test QLFT and Quantitative fit test QNFT.)

Helmet means a rigid respiratory inlet covering that also provides head protection against impact and penetration.

High efficiency particulate air (HEPA) filter means a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.

Hood means a respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.

Immediately dangerous to life or health (IDLH) means an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

Interior structural firefighting means the physical activity of fire suppression, rescue or both, inside of buildings or enclosed structures which are involved in a fire situation beyond the incipient stage. (See 29 CFR 1910.155)

Loose-fitting facepiece means a respiratory inlet covering that is designed to form a partial seal with the face.

Maximum use concentration (MUC) - maximum atmospheric concentration of a hazardous substance from which an employee can be expected to be protected when wearing a respirator, and is determined by the assigned protection factor of the respirator or class of respirators and the exposure limit of the hazardous substance. The MUC can be calculated by multiplying the assigned protection factor specified for a respirator by the required OSHA permissible exposure limit, short-term exposure limit, or ceiling limit. When no OSHA exposure limit is available for a hazardous substance, an employer must determine an MUC on the basis of relevant available information and informed professional judgment.

Negative pressure respirator (tight fitting) means a respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.

Oxygen deficient atmosphere means an atmosphere with an oxygen content below 19.5% by volume.

Physician or other licensed health care professional (PLHCP) means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by paragraph (e) of this section.

Positive pressure respirator means a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

Powered air-purifying respirator (PAPR) means an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

Pressure demand respirator means a positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.

Qualitative fit test (QLFT) - a pass/fail fit test to assess the adequacy of respirator fit that relies on the individual's response to the test agent.

Quantitative fit test (QNFT) - assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

Respiratory inlet covering means that portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.

Self-contained breathing apparatus (SCBA) means an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

Service life means the period of time that a respirator, filter or sorbent, or other respiratory equipment provides adequate protection to the wearer.

Supplied-air respirator (SAR) or airline respirator means an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

This section means this respiratory protection standard.

Tight-fitting facepiece means a respiratory inlet covering that forms a complete seal with the face.

User seal check means an action conducted by the respirator user to determine if the respirator is properly sealed to the face.

Respiratory Protection Training & Fit Testing

Training on Respiratory Protection included information and demonstration of knowledge on:

1. The need for respiratory protection, proper fit, use maintenance, care, and cleaning.

2. Limitations and capabilities of the respirator.
3. How to use it effectively in emergencies including malfunctions.
4. How to inspect, don, doff, use, perform positive and negative pressure seal checks.
5. Procedures for maintenance and storage including component changes e.g. ESLIs or schedules.
6. Medical signs and symptoms that may limit effective use and medical evaluation requirements.
7. The general requirements of the MIOSHA/OSHA standard and the company program.
8. The specific type(s) of NIOSH/MSHA approved respirator(s) and components used.
9. Precautions and procedures with respirators for voluntary use.
10. Information and instructions on the Fit Test procedure.

Respirator Care & Maintenance Record

To ensure that respirators retain their original effectiveness, respirators shall be cleaned and maintained, routinely after each use, and normally by their users, or other designated personnel. Use Respirator Care & Maintenance Record (SF178FR) or equivalent. These persons shall be equipped, instructed, trained and qualified by the company. They shall perform the following procedures and record them and the dates when they are completed:

1. INSPECT the facepiece, valves, seats, headbands, yoke, attachments, tube and all components.
2. CLEAN, disinfect, rinse & air-dry respirators after each use with a suitable cleaner and disinfectant.
3. REPAIR or replace respirators, parts and components strictly as specified by the manufacturer.
4. STORE respirators and components protected against deformity, sunlight, extreme heat or cold, moisture, chemicals and any other contaminants. Normally seal in labeled plastic bags and place in designated area.

A.19. Lead Policy

This Program is based upon provisions of the OSHA Act of 1970, MIOSHA Act (PA 154) of 1974 and amendments and MIOSHA requirements including MIOSHA Construction Health Part 603. It is intended to comply with all applicable regulations and standards and nothing herein shall be allowed to violate or conflict with them.

Lead overexposure can damage the brain, nervous, urinary and reproductive systems and blood-forming tissues causing serious symptoms including death. Infants and young children are especially vulnerable, and no lead dust should be tracked from work to homes or other areas with children. Our competent person shall review plans, reports, records, SDS and consult with property Owners, GCs, CMs and other appropriate individuals and agencies to determine if employees may become exposed to metallic lead, inorganic lead compounds or organic lead soaps. If they may be exposed, we shall consult and comply with the applicable MIOSHA standards. Aspects to which we shall give attention include: 1- Exposure assessment, 2- Methods of Compliance, 3- Respiratory Protection, 4- PPE and Clothing, 5- Housekeeping, 6- Hygiene Facilities and Practices, 7- Medical Surveillance, 8- Medical Removal, 9- Employee Information and Training, 10- Signs, 11- Recordkeeping, 12-Observation of Monitoring, 13-Appendices to Standards.

Construction work of concern includes: (a) Demolition or salvage of structures where lead or materials

containing lead are present, (b) Removal or encapsulation of materials containing lead, (c) New construction, alteration, repair, painting, decorating, or renovation of structures, substrates, or portions thereof that contain lead or materials containing lead, (d) Installation of products containing lead, (e) Lead contamination or emergency cleanup, (f) Transportation, disposal, storage or containment of lead or materials containing lead on the site or location at which construction activities are performed, (g) Maintenance operations associated with the above construction activities.

1. **Exposure Assessment and Action**: If Lead is present or suspected in the workplace, we shall take the following steps a) through d) in order:
    a. Initially determine which, if any employee is exposed above the Action Level (30 µg/m3 8-hr. TWA). If there are vinyl or asphalt tiles or suspect finishes or mortar which we plan to demolish, disturb or use, we shall have their lead content determined. If content is above .06%, we shall determine if objective data conclusively demonstrates no exposure in excess of the Action Level. Employee complaints of symptoms will be considered. If lead is present any tasks that could disturb or disperse lead are prohibited unless it is determined that exposure above the Action Level is not possible or interim protective measures are implemented. Such tasks include (where lead is present) manual demolition of structures (e.g. dry wall), manual scraping, manual sanding, heat gun applications, and power tool cleaning, spray painting with lead paint, using lead containing mortar, lead burning, rivet busting, cleanup using dry expendable abrasives, abrasive blasting enclosure movement and removal, abrasive blasting, welding, cutting and torching.
    b. If Action Level exposure is reasonably possible, we shall institute an air monitoring program to determine actual exposure and concomitantly implement appropriate interim protective measures including respirators, PPE and clothing, change areas, washing facilities, biological monitoring of lead and zinc protoporphyrin (ZPP) levels, and training, and notify employees of air monitoring results within 5 days.
    c. If the initial exposure is determined to be at or above the Action Level but at or below the PEL (50 µg/m3 8-hr. TWA) we shall monitor at least every 6 months until at least two consecutive measurements, taken at least 7 days apart, are below the action level.
    d. If exposure exists above the PEL we shall implement a comprehensive Compliance Program complete with the 13 aspects herein, along with a description of operations in which lead is emitted, and other relevant information such as the type of equipment and material, job responsibilities, operating procedures, maintenance procedures, and means to achieve compliance.
2. **Methods and Program of Compliance**: Engineering and work practice controls, including administrative controls shall be used. If still needed, respiratory protection and PPE with hygiene, housekeeping and **other** compliance measures shall be used. The job site task activities (equipment, materials, controls, crew size,

responsibilities/tasks, procedures, practices) and exposure control means, measures and technology can be found in the JHAs for this project.

3. Documentation of air monitoring shall be communicated and acted upon within 5 days or less. Implementation of each aspect of this program shall be scheduled and completed at the first feasible opportunity. A work practice program shall be implemented and maintained effective. Administrative controls with rotation of employees in and out of lead areas shall be done as Medical Surveillance indicates is reasonably needed to keep blood lead levels below the action level and Medical Removal shall be used in compliance with MIOSHA/OSHA standards.

   Contractors shall be informed verbally, and activities coordinated whenever an activity may begin which could adversely affect them with general updates weekly. The job site shall be regularly and frequently inspected and actionable findings acted upon as soon as feasible. This Program shall be updated and revised at least every 6 months and made available upon request to affected and authorized parties. Mechanical ventilation performance shall be evaluated to maintain effectiveness.

4. **Respiratory Protection**: Respirators shall be used as needed under our Respiratory Protection Policy. Table 1 lists respirator types.

   a. A ½ face APR with HEPA filters is the minimum acceptable protection up to 500 µg/m^3 lead.
   b. A hooded PAPR with HEPA filters is the minimum acceptable protection up to 1250 µg/m^3 lead.
   c. A full-face APR with HEPA filters is the minimum acceptable protection up to 2500 µg/m^3 lead.
   d. A ½ Face positive pressure HEPA APR is minimum acceptable protection to 5000 µg/m^3 lead.
   e. A full-face positive pressure HEPA APR is minimum acceptable protection to 50000 µg/m^3 lead.
   f. An SCBA is required over 100000 µg/m^3 lead.

5. **Personal Protective Equipment and Clothing (PPE)**: PPE includes coveralls, gloves, hats, shoes or coverlets, face shields or vented goggles all of which shall be cleaned and or replaced at least weekly (daily if exposure is over 200ug/m^3 lead as an 8-hour TWA). Items shall be HEPA vacuumed before entering clean areas and shall be removed before leaving the work site.

6. **Hygiene Facilities and Practices**: PPE storage, disposal and replacement (separating, enclosing and labeling clean items from contaminated items), facilities for respirator and goggle washing, employee showers (if feasible) and hand **washing** capable of removing contaminants (use is required before eating, leaving the worksite and at the end of the work shift), clean changing and clean eating facilities shall be provided at the job site at no cost to employees and their proper use by employees shall be required and enforced.

7. **Housekeeping**: Housekeeping shall keep surfaces as free as practicable from lead dust using HEPA vacuuming and non-dispersing **methods**, not shoveling, sweeping or compressed air. Where feasible, lead work areas shall be enclosed to minimize dispersal of lead dust beyond those areas. Smoking, eating, chewing and cosmetic application and presence of any of these materials shall be prohibited in lead areas and shall not be used or handled until after employees clean off clothing and wash their hands. Employees shall wash their hands before touching their eyes, nose, mouth or face or items that may contact them.

8. **Medical Surveillance**: **Biological** monitoring of blood lead and ZPP levels and medical examinations, if needed shall be done for each employee exposed above the Action Level. Blood tests shall be done initially, within 2 months, at least every 6 months thereafter (for employees exposed above the Action Level more than 30 days in 12 months), and at least every 2 months (if blood lead exceeds 40 ug/dl), monthly (during medical removal) and every 2 weeks (if tests are higher than medical removal criteria). Medical examinations and treatment shall be done with medically appropriate content as determined by the examining physician (with pregnancy or male fertility testing upon employee's request) and in full compliance with MIOSHA CH603. Exam frequency shall be at least annually (if blood lead exceeds 40 ug/dl), as soon as possible (upon employee's notification of signs or symptoms of lead intoxication, or desire for medical advice regarding lead and reproductive health, or difficulty in breathing during a respirator fitting test or during use) and as medically appropriate (while medical removed or limited).

9. **Medical Removal**: Medical removal of an employee from lead areas shall be temporary if blood lead exceeds 50 ug/dl removal (until 2 consecutive tests show blood levels below 40 ug/dl). Removal shall be according to

any final medical determination and until a subsequent determination of no medical lead risk condition. Removal, return to work, protection benefits, workers compensation, other credits and all aspects shall fully comply with MIOSHA CH603.

10. **Employee Information and Training**: Affected employees shall be informed and trained regarding lead and other hazards using warning signs and labels, material safety data sheets (SDS), and a fully compliant training program initially before exposure, at least annually thereafter and whenever a training need is demonstrated. Training shall address the nature of operations with potential exposure, the presence and health effects of hazards, and the applicable MIOSHA/OSHA standards, our plans and programs, engineering and administrative controls, PPE and respirator requirements and procedures, housekeeping and hygiene procedures and work practices, medical surveillance and removal procedures, instructions that chelating agents should not be used except under the direction of a licensed physician; and other employee and employer rights and responsibilities including rights to records.
11. **Signage**: Signs shall be posted and maintained readily visible in each work area where employees' exposure to lead is above the PEL stating "WARNING, LEAD WORK AREA POISON, NO SMOKING OR EATING".
12. **Recordkeeping**: Records shall be maintained, made available and transferred in compliance with MIOSHA/OSHA standards regarding **exposure** assessment, medical surveillance, medical removal, and objective data for exemption from initial monitoring.
13. **Observation of Monitoring**: Affected employees or their designated representatives shall be given opportunity to observe monitoring of employee exposure in compliance with standards.

Description of Operations in Which Lead is Emitted

If necessary, the following format may be used.

1. **General Description of Operations and Crew**

   For most of our jobs after abatement contractors finish (if abatement is required) we will demolish, replace and/or refinish walls, pour concrete, do wood blocking, installation of doors and frames, casework, countertops and bath accessories, and clean up as required for the project. Amounts of lead in these materials are normally absent-low. Disturbance will be minimal. The number of hours and days of employee exposure will be short or non-existent. Consequently, workers are not expected to be overexposed to lead or even exposed to significant levels if at all.

2. **Type of Equipment and Tools Used**

   Hand tools and equipment that cause minimal disturbance will be selected if lead exists.

3. **Materials Used and Contacted**

   Finishes and some dry wall.

4. **Job Responsibilities**

   See #1.

5. **Operating Procedures**

   Where lead is present, we will prohibit manual demolition of structures (e.g. dry wall), manual scraping, manual sanding, heat gun applications, and power tool cleaning, spray painting with lead paint, using lead containing mortar, lead burning, rivet busting, cleanup using dry expendable abrasives, abrasive blasting enclosure movement and removal, abrasive blasting, welding, cutting and torching.

6. **Work Practices**

   Wet methods and HEPA vacuums will be used as required.

7. **Maintenance Procedures**

8. **Means to Achieve Compliance**

   Follow all applicable state and federal regulations and standards and the 13 aspects of our Lead Safety Policy. Engineering and work practice controls, including administrative controls shall be used. If still needed, respiratory protection and PPE with hygiene, housekeeping and other compliance measures shall be used.

A.20. Cadmium Policy

This Policy is based upon provisions of the OSHA Act of 1970, MIOSHA Act (PA 154) of 1974 and amendments and MIOSHA requirements including MIOSHA Construction Health Part 309 which is incorporated herein and required for reference and use. It is intended to comply with all applicable regulations and nothing herein shall be allowed to violate or conflict with them.

Construction work of concern includes:

1. Wrecking, demolition, or salvage of structures where cadmium or materials that contain cadmium are present,
2. Use of cadmium-containing paints and cutting, brazing, burning, grinding, or welding on surfaces painted with cadmium-containing paints,
3. Construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof that contain cadmium or materials that contain cadmium,
4. Cadmium welding or cutting of cadmium-plated steel and brazing or welding with cadmium alloys,
5. Installation of products that contain cadmium,
6. Electrical grounding with cadmium welding and electrical work using cadmium-coated conduit,
7. Maintaining or retrofitting cadmium-coated equipment,
8. Cadmium contamination cleanup and emergency operations that involve cadmium,
9. Transportation, disposal, storage, or containment of cadmium or materials, that contain cadmium on the site or location at which construction activities are performed

Our Competent Person (CP) shall be the Safety Director or his designate, and shall administer this Policy, assessing its applicability to any job and ensure compliance.

Determine the possibility of employee exposure to airborne cadmium, assess potential and actual exposure, monitor employees with potential exposure above the Action Level of 2.5 micrograms per cubic meter of air (2.5 µg/m3), establish and demark regulated areas where exposure is expected to exceed the PEL of 5 micrograms per cubic meter of air (5 ug/m3), limit regulated area access to Authorized persons and establish, implement and ensure compliance with a site-specific Written Compliance Program (WCP), reviewing and updating it with any significant changes in compliance status or lowest Cadmium levels and shall implement feasible engineering and work practice controls (unless no employee is regularly exposed or exposed at least 30 days per year) following provisions of specific operations (Rule 9 (5)) and supplement controls with respiratory protection if needed, and provide or ensure all initial and annual training, communication, emergency plan, PPE, hygiene, housekeeping, medical surveillance, examination, information, biological monitoring and removal procedures and recordkeeping as appropriate for our operations.

Examples of procedures which the CP shall employ or adapt after ensuring compliance with standards include:

Exposure Assessment and Action

Our CP shall review relevant plans, past reports, SDS, available records, and consult with any property Owner, CM, GC other site contractors and discuss with appropriate individuals and agencies to determine potential job exposure to airborne cadmium. If Cadmium is present or suspected, our CP shall:

1. Determine which, if any employee may be exposed above the Action Level (2.5 µg/m3; 8-hr TWA), considering all objective data.
2. If Action Level exposure is reasonably possible, the CP shall institute an air monitoring program to determine actual exposure and record all data, re-test after 7 days if exposure results are below the Action Level and whenever there are changes, a new exposure above the PEL or any reason to suspect additional exposure, and inform affected employees individually and by posting results within 5 days noting any overexposure and corrective actions.
3. If exposure exists above the PEL we shall implement engineering and administrative controls a comprehensive Written Compliance Program (WCP) with all its components.

Written Compliance Program (WCP)

A WCP shall include:

1. A description of each operation with cadmium including:
    a. Machinery used
    b. Material processed
    c. Controls in place
    d. Crew size
    e. Employee job responsibilities
    f. Operating procedures
    g. Maintenance practices.
2. A description of means of compliance, including engineering plans and studies used to determine methods selected to control exposure and, where necessary respiratory protection to achieve the PEL.
3. A report of the technology applicable to meeting the PEL.
4. Air monitoring data documenting levels and sources of cadmium.
5. Schedule for implementation of the program, documenting purchase orders and construction contracts.
6. A work practice program with items required in R 325.51865 to R 325.51866.
7. A written plan for emergencies from airborne Cadmium, as in R 325.51864 which provides for respirators and PPE and evacuation and restriction of non-essential personnel.
8. Other relevant information, including, if not otherwise adequate, a description of training, communication, emergency plans, PPE, housekeeping, hygiene, medical surveillance, examination, information, biological monitoring and removal procedures and recordkeeping. See also the OH 309 and our Lead Safety Program.
9. The CP shall review and update the WCP with any significant changes in compliance status or lowest Cadmium levels. Upon request, the WCP shall be provided to the director, affected employees, and designated employee representatives for examination and copying.

Methods and Program of Controls & Compliance

Engineering and work practice controls, including administrative controls (not employee rotation) supplemented by respiratory protection if still needed, shall be used. The job site task activities (equipment, materials, controls, crew size, responsibilities/tasks, procedures, practices) and exposure control means, measures and technology shall be determined for each job in compliance with the standards.

Documentation of air monitoring shall be communicated and acted upon within 5 days or less. Implementation of each aspect of this program shall be scheduled and completed at the first feasible opportunity. A work practice program shall be implemented and maintained effective. Administrative controls with rotation of employees in and out of lead areas shall be done as Medical Surveillance indicates is reasonably needed to keep blood lead levels below the action level and Medical Removal shall be used in compliance with MIOSHA/OSHA standards.

Contractors shall be informed verbally and activities coordinated whenever an activity may begin which could adversely affect them with general updates weekly. The job site shall be regularly and frequently inspected and actionable findings acted upon as soon as feasible. This Program shall be updated and revised as needed and made available to affected and authorized parties. Mechanical ventilation performance shall be evaluated to maintain effectiveness and shall comply with the standards.

Employee Information and Training

The CP shall ensure or perform understandable and effective training for all exposed employees before job assignment and at least annually thereafter which shall include:

1. Cadmium health hazards especially information in appendix A.

2. The quantity, location, manner of use, release, and storage of cadmium in the workplace and the specific operations with exposure to cadmium, especially exposure above the PEL including information from other contractors.
3. Engineering controls and work practices associated with the employee's job assignment.
4. Employee self-protections including smoking cessation and personal hygiene, and work practices, emergency procedures, and the provision of personal protective equipment.
5. The purpose, proper selection, fitting, proper use, and limitations of respirators and protective clothing.
6. The purpose and description of medical surveillance program.
7. The contents of applicable OSHA/MIOSHA rules and regulations.
8. Employee's right to access records.

The CP shall make a copy of these rules and their appendices readily available without cost to all affected employees and shall provide a copy if requested. Also, an employer shall provide to the director, upon request, all materials relating to the employee information and training program.

The CP shall notify other employers of any hazards and any cadmium we produce, use or store and shall request similar information from them.

Authorized persons shall be trained, equipped and supplied with selected respirators by our CP, and required to use them and not to eat, drink, smoke, chew tobacco or gum, or apply cosmetics in a regulated area or have associated products in a regulated area.

Respiratory Protection

Respirators shall be used as needed under our Respiratory Protection Program.

See MIOSHA OH Part 451 & CS Part 309, Rule 12. Table 2 lists respirator types. Examples may be:

1. a ½ Face APR with HEPA filters is the minimum acceptable protection up to 10 x PEL i.e. to 50 µg/m^3 Cd
2. a hooded PAPR with HEPA filters is the minimum acceptable protection up to 25 x PEL i.e. to 125 µg/m^3 Cd
3. a full face HEPA APR or ½ Face PAPR or ½ Face continuous flow SAR up to 50 x PEL i.e. to 250 µg/m^3 Cd
4. a full face HEPA PAPR or continuous flow SAR up to 250 x PEL i.e. to 1250 µg/m^3 Cd
5. an SAR in pressure demand mode up to 1000 x PEL i.e. 5000 µg/m^3 Cd
6. an SCBA is required over 1000 x PEL or for firefighting.

Personal Protective Equipment and Clothing (PPE)

PPE includes coveralls, gloves, hats, shoes or coverlets, face shields or vented goggles all of which shall be cleaned and or replaced at least weekly and immediately if damaged. Items shall be HEPA vacuumed before entering clean areas and shall be removed before leaving the work site.

Hygiene Facilities and Practices

PPE storage, disposal and replacement (separating, enclosing and labeling clean items from contaminated items), facilities for respirator and goggle washing, employee showers and hand washing capable of removing contaminants (use is required before eating, leaving the worksite and at the end of the work shift), clean changing and clean eating facilities shall be provided at the job site at no cost to employees and their proper use by employees shall be required and enforced.

Housekeeping

Housekeeping shall keep surfaces as free as practicable from lead dust using HEPA vacuuming and non-dispersing methods, not shoveling, sweeping or compressed air. Where feasible, Cadmium work areas shall be enclosed to minimize dispersal of lead dust beyond those areas. Smoking, eating, chewing and cosmetic application and presence of any of these materials shall be prohibited in lead areas and shall not be used or handled until after

employees clean off clothing and wash their hands. Employees shall wash their hands before touching their eyes, nose, mouth or face.

Medical Surveillance, Exams, Biological Monitoring, Actions, Removal, Protection, Benefits, Rights, Observation of Monitoring & Recordkeeping

Signs and Labels

Signs shall be posted and readily visible in each regulated area and its approaches stating: “DANGER CONTAINS CADMIUM, CANCER HAZARD, CAN CAUSE LUNG AND KIDNEY DISEASE, AUTHORIZED PERSONNEL ONLY, RESPIRATORS REQUIRED IN THIS AREA”.

Cadmium containers shall be labeled stating: “DANGER CONTAINS CADMIUM, CANCER HAZARD, AVOID CREATING DUST, CAN CAUSE LUNG AND KIDNEY”.

A.21. Asbestos Policy

1. Granger Construction Company shall provide training and inform all persons within the organization to identify, communicate and act upon potential hazards including asbestos in a manner consistent with their duties. We shall ensure that the organization complies with MIOSHA CH Part 602 &/or GI Part 305 as applicable. Employees must not be exposed above the PEL and work shall comply with all applicable laws and regulations. Consult and comply with all requirements of DEQ, EPA (NESHAP 40CFR61, AHERA & MAP 40CFR763 etc.), MIOSHA, MI PA 92, 93, 135, 440, including those for licensing, training, insurance and Class I, II, III & IV Work provisions. Accreditation is required for Abatement Workers & Contractors/Supervisors, Project Designers and K-12 Management Planners.
2. Job planners shall diligently determine the presence, quantity and location of asbestos including Presumed Asbestos Containing Materials (PACM), Asbestos Containing Materials (ACM) and suspect material. They shall request reliable information regarding hazards including the presence of asbestos (ACM or PACM), lead, PCBs, CFCs, mercury and other regulated materials from knowledgeable or responsible sources including property Owners, construction managers and general contractors. An accredited asbestos inspection report is required on public or commercial buildings built before 1981. Sufficient samples shall be collected and analyzed by Qualified Persons of any ACM or PACM which may be disturbed or they shall be assumed and treated as ACM. Communicate location & procedures to affected employees.
3. Persons working on job sites shall be constantly alert to signs or evidence of asbestos (ACM or PACM). No person shall knowingly or negligently expose himself, anyone else or the environment to asbestos. If asbestos is discovered or suspected or its presence is made known, employees who are not fully trained, equipped, instructed and authorized shall cease work in that area (if work has begun) and shall inform and consult their supervisor for specific work instructions before returning to that area.
4. The supervisor to whom asbestos discovery is made known shall immediately inform other employers at the site, the property Owner and GC/CM of newly discovered asbestos. He shall treat PACM and suspect material as ACM until and unless the presumption is properly rebutted with inspection, testing and/or analysis per 40CFR 763.86. He shall not allow employees to work in an area with ACM or PACM which has been or may be disturbed except as allowed under a compliant asbestos work plan specific for that job.
5. Asbestos inspections shall be AHERA (40CFR Part 763, Subpart E) compliant and testing performed by an accredited asbestos inspector or CIH. The Safety Director may authorize a supplementary limited scope asbestos inspection of (MI Public Act 440 Sec. 338.3402(2)(i)(iv)) during remodeling, renovation, operation, or maintenance activity in a public and commercial building (not a school) that involves not more than 2 homogeneous areas as defined in 40CFR 763.83 and not more than 6 bulk samples collected in a randomly distributed manner following the Asbestos Sampling Guide by Fibertec incorporated herein.
6. If asbestos is identified, discovered or presumed to be on the job, the highest ranking available employee in charge of the project shall determine whether, when, by whom and what Class (I, II, III, IV) work is to be done, if any which could disturb asbestos. He shall ensure that employees are not exposed and that an appropriately trained Competent Person conducts an exposure assessment and institutes and monitors compliance with a comprehensive plan containing adequate methods of compliance. Licensed (accredited), insured and compliant asbestos abatement contractors shall perform all abatement. MI PA 135 exempts licensed electricians, plumbers, HVAC contractors & residential builders from asbestos abatement licensing for small quantity removal < 260’ linear or <160’ square of friable ACM if the removal is incidental to the contractor’s work. All regulations including initial and annual training, MIOSHA notification (if >10’ linear or 15 sq ft), reporting, inspections, work practices, transport, disposal and others shall be followed. Evacuate if inadvertent asbestos disturbance occurs.
7. Work practices and engineering controls appropriate for all applicable classes of asbestos work shall be specified and followed. Critical barriers, negative pressure enclosures, work methods and equipment, respiratory protection, protective clothing, hygiene facilities and practices, communication of hazards and training, housekeeping, medical surveillance and recordkeeping shall be addressed as in CH Part 602 or GIH Part 305 as applicable. At minimum, initial pre-exposure training and annual 2-hour Asbestos Awareness training is required for all employees likely to be exposed above the PEL or who do Class I-IV work.

8. ACM or PACM contact with abrasive disk saws (without a point of cut ventilator or enclosure with HEPA filtered exhaust), compressed air, dry sweeping, shoveling or other dry clean-up are prohibited as is employee rotation.
9. Minimum training for Competent Persons shall be 40 hours and comply with 40CFR763, Subpart E, Appendix E for Class I & II work (It may be 12 hours for intact floor removal or similar for intact roofing) or 16 hours as in 40CFR763.92(a)(2), for Class III & IV work.
10. Minimum training for construction Asbestos Workers shall be initially before exposure and be 32 hours equivalent to EPA MAP for Class I work and for Class II work with critical barriers or NPEs and 8+ hours for most other Class II work (4 + hours for some work with materials not in paragraph k(9)(iv)(A)), and 16+ hours for most Class III work with hands-on training for Class I-III work, and 2 hours as in 40CFR763.92(a)(1) for Class IV work, and training pursuant to paragraph k(9)(viii) for other work with likely exposure above the PEL. Refresher training shall be at least annually for all Asbestos Workers with 8 hours for Class I and II workers who required 32-hour initial training and 2 hours for Class III and other Class II workers.
11. Content of construction Asbestos Workers training shall be as in paragraphs k(9)(iii) through (vi) and ensure understanding of: Asbestos recognition, health effects, relationship of smoking and lung cancer, work operations (including ACM/PACM quantity, location, use, release, storage) and protective controls (including need and use of applicable engineering controls, work practices, respirators, housekeeping, hygiene, PPE, decontamination, emergency and disposal procedures and contents of EPA 20T-2003), medical surveillance, MIOSHA Part 602 and appendix J and others and signs and labels.
12. **Definitions**

    ACM (Asbestos Containing Materials) – Materials with more than 1% asbestos.

    Class I Work – Activities involving removal of TSI and surfacing ACM and PACM [e.g. plaster, popcorn ceiling, 1x1 tile, pipe insulation].

    Class II Work – Removal of other ACM e.g. wallboard, floor tile, sheeting, roofing, siding, shingles, mastic, joint compound.

    Class III Work – Repair and maintenance activities where ACM or PACM may be disturbed.

    Class IV Work – Maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris [not ACM or PACM] resulting from Class I, II and III activities.

    PACM (Presumed Asbestos Containing Material) – TSI & surfacing material [also consider asphalt or vinyl flooring & ceiling tile as ACM] in buildings constructed before 1981 [mastic, joint compound etc. are suspect] [& anything marked or known to contain asbestos].

    Surfacing Material – Material sprayed, troweled or otherwise applied to surfaces such as acoustical plaster on ceilings and fireproofing materials on structural members or other materials on surfaces for acoustical, fireproofing or other purposes.

    TSI (Thermal System Insulation) – ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

    Asbestos Program 517 322-1320; CSHD 322-1856; GISHD 322-1608; DEQ Waste 373-2730; DEQ Air 335-4639; DEQ Det 313 456-4686; EPA V 312 353-9062; OSHA 212 219-7711

A.22. Mold Policy

Mold Prevention – Requires Quick Response

When a leak occurs, immediately:

1. Begin de-humidification
2. Open and ventilate affected walls
3. Remove affected carpet

Use Anti-Microbials such as AEGIS or other decontaminating solutions:

1. Helpful in slowing down initial growth and decontaminating areas
2. Treatment of mold from spreading or growing

Proper Investigation – (from a Legal, Liability and Medical Perspective):

1. Verify cause or loss (subrogation potential – is someone else potentially at fault?)
2. Independent third-party structural engineer

Determine corrective action:

1. EPA guidelines, ACGIH Bioaerosols ID mold genus (Stachybotrys, etc.)
2. Are contents affected?
3. Is HVAC affected?
4. Are occupants in a susceptible class?
5. For legal and health cases, get a Certified Industrial Hygienist (CIH) (www.abih.org)

Professional Mold Remediation Process:

1. Move contents away from remediation area
2. Building containment/decontamination stages
3. Provide negative air to control spread of spores
4. Demolition of area of concern
5. Clean by bleach, surfactant, and wire brush
6. HEPA vacuum, wet-wiping, and air scrubbing
7. Post-remediation testing
8. Application of encapsulate or anti-microbial

Water and Mold Response Plant (“Management System” Approach):

1. Evaluation:
   a. Define extent of water damage; assess quantity of any mold growth in comparison with EPA Guidelines.
2. Control:
   a. Create an appropriate scope of work to outline repair or remediation. In nearly all cases, damage to be corrected as appropriate by building staff and/or subcontractor(s).
   b. Only in rare cases of mold in excess of EPA guidelines, remediation by a professional mold remediation contractor, with oversight by a Certified Industrial Hygienist (CIH).

A.23. Pollution Incident Prevention Policy

1. **Trade Contractors PIPP Summary**

   PIPP shall be submitted from each trade contractor for all polluting materials which will be stored on-site and included in Site-Specific Safety Plan. The report must contain the following information:

   a. Polluting Materials
   b. Storage Location,
   c. Dates expected to be brought on site and removed
   d. Spill Containment Measures
   e. Spill Control and Prevention Measure
   f. Training methods for all employees in spill prevention and control techniques, materials storage, handling and mixing, drum inspection and reporting procedures.
   g. List of all emergency numbers at each telephone.
   h. Method of limiting the number of employees who handle solvents.
   i. Log book of spills with evaluation any incidents and improve safety planning accordingly.

2. **Spill Reporting/Notification Procedure**

   a. **On-Site Verbal Report**

   Any employee who knows of a spill must report it immediately to their foreman and the Granger Safety Manager.

Name	Company/Position	Cell Phone	Pager/Other	Home
Foreman				
Granger Safety Manger				
[Owner's Rep]				

   b. **Verbal Report to Authorities**

   Ranking person or his designee shall make verbal report to the applicable federal, state and local authorities.

   Verbal report must include the following information:

   I. Facility name and address
   II. Name and phone of reporting authority
   III. Type, quantity and location of material spilled
   IV. Spill containment clean-up action

   Make verbal report to the following:

   I. MDEQ: Pollution Emergency Alerting System (PEAS) 800-292-4706 / Non-Emergency 800-662-9278
   II. Granger Sr. Project Manager
   III. Granger On-Site Safety Manager
   IV. Granger Safety Director

   c. **Written Report**

   A written report, using the Incident Report detailing events leading up to spill and intended corrective action to prevent a recurrence shall be submitted within ten (10) days to:

   I. All applicable federal, state and local authorities.
   II. Granger Sr. Project Manager
   III. Granger Safety Director

B. Granger Construction Company Operations (tab page)

B.1. General Rules

Employees are required to immediately report hazardous conditions or equipment to Granger Construction.

Granger Construction and its employees will not knowingly permit an employee to work while under the influence of intoxicating beverages or substances which could impair the employee's ability to perform a task in a safe manner.

Granger Construction will identify as unsafe any machine, power tool, or piece of equipment that is damaged or defective. The machine, tools, or equipment shall be locked out, made inoperable, or be physically removed from the jobsite. Granger Construction and its employees shall not permit any of the following:

a. The use of damaged or defective machinery, tools, material, or equipment that could create a hazard.
b. The operation of machinery, equipment, and special tools, except by a qualified employee.
c. An employee other than the operator to ride any piece of moving equipment not covered by a specific standard, unless there is a seat or other safety feature provided for use by the employee. Acceptable safety features may include a guardrail, enclosure, or a seat belt.

Housekeeping

It is everyone's responsibility to maintain a high standard of housekeeping on the job site at all times. Special attention should be given to maintaining clear walkways and roadways, removal of trash, control of slip/trip hazards and proper storage and stacking of materials. The Granger Construction Safety Policy required compliance with the following guidelines:

1. A sufficient number of trash receptacles must be provided and emptied with regularity.
2. Floors, stairs and means of egress are to be swept daily and kept free of obstructions.
3. All combustible materials are to be removed as soon as possible.
4. Trash containers are never to be located under or near flammable and combustible materials.
5. Aisle ways are not to be blocked or partially obstructed.
6. Hoses and electrical cords shall be located as not to create a tripping hazard.
7. Electrical panels shall remain un-obstructed.
8. Fire extinguishers and similar fire protection devices shall not be obstructed.
9. Spilled oil, gas or fuel shall be cleaned as soon as possible and oily rags shall not be placed in typical trash containers.
10. Tools are not to be left where they may create a tripping hazard.
11. Each jobsite is encouraged to have organized clean up at least once weekly. This cleanup is for "undefinable clean up".

Disposal of Waste Material

1. Materials, including scrap and debris, shall be piled, stacked, or placed in a container in a manner that does not create a hazard to an employee.
2. Garbage capable of rotting or becoming putrid shall be placed in a covered container. Container contents shall be disposed of at frequent and regular intervals.
3. Combustible scrap and debris shall be removed in a safe manner from the work area at reasonable intervals during constriction. A safe means shall be provided to facilitate this removal.
4. Materials which may be dislodged by wind and that could create a hazard when left in an open area shall be secured.

General Waste Management

Before work begins employees should evaluate on the best way to keep the area clear of debris.

Recycling should always be the first approach for any waste on a project. If the material is not recyclable or recycling is not feasible, materials should be ordered in a manner to minimize packaging and waste. Separate recycling containers will be provided for all waste materials and each container will have designated material labels displayed on the front of each container.

Recycling

Each project shall have (at minimum) recycling of the following:

1. Concrete/ Grout/ Mortar
2. Steel/ other Metals
3. Soil relocation within the site

Large projects should consider also recycling the following:

1. Cardboard
2. Plastic

Work in Hazardous Spaces

When an employee enters a hazardous space, such as a bin, silo, hopper, or tank, that contains bulk or loose material which could engulf the employee, the employees shall wear a safety harness and a lanyard affixed to a rope grab to a lifeline, or other acceptable retrieval system, all components of which shall comply with Construction Safety Standard Part 45. “Fall Protection” / OSHA Subpart M – Fall Protection. The uppermost elevation of the stored material shall not be higher than the shoulder height of the employee.

Machine Installation and Guarding

1. The power source of any machine that is to be repaired, serviced, or set up, where unexpected motion or an electrical or other energy source would cause injury, shall be locked out by each employee doing the work, except when motion is necessary during setup, adjustment, or troubleshooting. Any residual pressure shall be relieved before and during the work. A machine connected by and plug to an electric power source shall be considered in compliance if the plug is disconnected and tagged and the disconnect is in view of the operation.
2. An employee shall not place his/her body beneath equipment such as a vehicle, a machine, or materials, that is supported only by a jack, overhead hoist, chain fall, or any other temporary single supporting means, unless safety stands, blocks, or another support system that can support the total imposed weight is used to protect the employee if the temporary single supporting means fails.

Sanitation

1. A supply of potable water shall be available to employees in all places of employment.
2. A container used to distribute drinking water shall be constructed of impervious nontoxic materials, shall be clearly marked as to its contents, and shall be serviced so that sanitary conditions are maintained.
3. A portable container used to dispense drinking water shall be closed and equipped with a tap.
4. Dipping water from a container or drinking from a common cup is prohibited.
5. Where single-service cups, cups to be used once, are supplied, a sanitary container for the unused cups shall be provided. A receptacle for disposing of used cups shall be provided and emptied as often as is necessary.
6. An outlet for non-potable water, such as water for industrial or firefighting purposes only, shall be identified by signs to indicate clearly that the water is not to be used for drinking, washing, or cooking purposes.
7. There shall be no connection between a system furnishing potable water and a system furnishing non-potable water.

Toilets at Construction Sites

1. Toilets at construction site shall be provided for employees as follows:
   a. 1 to 20 employees – 1 toilet.

   b. 21 to 40 employees – 2 toilets.
   c. 41 or more employees – 1 additional toilet for each additional 40 or less employees.
2. To assure sanitation, a toilet shall be serviced and maintained on a regular basis.
3. A toilet shall be supplied with toilet paper.

General Sanitation

1. Employers shall provide adequate washing facilities for employees engaged in the application of paints, coating, herbicides, or insecticides, or in other operations where contaminants may be harmful to the employees. Such facilities shall be in near proximity to the worksite and shall be so equipped as to enable employees to remove such substances.
2. Washing facilities shall be maintained in a sanitary condition.
3. Whenever showers are required by a standard, the following shall be provided:
   a. One shower shall be provided for each 10 employees of each sex, who are required to shower during the same shift.
   b. Body soap or other appropriate cleaning agents convenient to the shower shall be provided.
   c. Showers shall be provided with hot and cold water feeding a common discharge line.
   d. Employees who use showers shall be provided with individual clean towels.
4. Eating and drinking areas. An employee shall not be allowed to consume food or beverage in a toilet room nor in any area exposed to a toxic material.
5. Whenever employees are required by a standard to wear protective clothing because of the possibility of contamination with toxic materials, the employer shall provide change rooms equipped with storage facilities for street clothes and separate storage facilities for the protective clothing.

Medical Services and First Aid

1. Before beginning a project, provisions shall be made for prompt medical attention in case of serious injury.
2. A person who has a valid certificate in First Aid training shall be present at the worksite to render first aid. A certificate is valid if the requirements necessary to obtain the certificate for first aid training meet or exceed the requirements of the United States bureau of mines, the American Red Cross, the guidelines for basic first aid training programs, or equivalent training.
3. Where a remote location or a single employee worksite exists, a written plan that includes alternate methods for assuring available treatment for employees at a remote location or single-employee worksite shall be provided. The plan shall be communicated to all affected employees.
4. An employer shall assure that there are first aid supplies at each jobsite and that the supplies are readily accessible.
5. The contents of a first aid kit shall be sealed in individual packages, stored in a weatherproof container, and checked by an employer or designated person before being sent out on each job and at least weekly on each job to ensure that expended items are replaced.
6. An employer shall provide proper equipment for the prompt transportation of an injured person to a physician or hospital and a communication system for contacting the necessary emergency services. In areas where 911 is not available, the telephone numbers of a physician, hospital, or emergency services shall be conspicuously posted at eh jobsite.
7. Where the eyes or body of any person may be exposed to injurious corrosive materials, the employer shall provide suitable facilities for quick drenching or flushing of the eyes and body within the work area for immediate emergency use.

Illumination

1. A minimum illumination intensity of 10 foot-candles shall be provided on a jobsite where construction work is being performed.
2. A minimum illumination intensity of 5 foot-candles shall be provided in areas on a jobsite where work is not being immediately performed but where workers may pass through.

3. A minimum illumination intensity of 50 foot-candles shall be provided for first aid stations and infirmaries.
4. For areas or operations not covered above refer to ANSI A11.1 “Industrial Lighting,” 1965 edition.

Cell Phones & Electronic Devices

Cell phones and other electronic devices can be useful for jobsite communications. However, the use of electronic devices can be a distraction and create safety hazard for workers and those around them.

1. Cell phones and other electronic devices may only be used by workers in designated safe areas. These areas will be designated ahead of time on site logistics plans and discussed at site safety orientation. These areas will include break/lunch rooms.

   If a phone call is received outside of a safe area, workers shall disregard the call, or if call is urgent shall stop work, answer the call, and go to the nearest designated area prior to beginning the conversation.
2. Foreman and other supervisors may use cell phones or electronic devices throughout the jobsite so long as they are stationary, not working, and are out of the way of other workers. The supervisors must be paying attention to their surroundings and move if changing conditions warrant.
3. Cell phones and other electronic devices may not be used while operating any motorized vehicle or construction equipment unless two-way communication is required (e.g. between a crane operator and out of sight signal person). Any exceptions must be noted specifically in the JHAs covering said work, and devices should only be used for the work described.
4. Employees engaged in any task requiring their full attention, such as fire watch or safety monitor, may not use cell phones or electronic devices until their duty is over or they are relieved.
5. Ringtones and other volumes should be set to vibrate or kept to a minimum to avoid distracting noises for other workers.
6. No headphones or ear buds shall be worn on site at any time.

Site Safety

Traffic Control

Granger and subcontractor site-specific safety and logistics plans should include preliminary designs of all traffic control measures necessary for the job.

A competent person shall design and implement traffic control measures to protect workers and the public at all times.

Subcontractors must present traffic control plans to the Granger Superintendent or On-Site Safety Manager prior to implementation. Any changes to the original plan shall be approved by Granger.

All signaling workers shall utilize standard signals conforming with MIOSHA, MUTCD, and MDOT standards. Workers shall not use any electronic devices unless communicating directly with equipment operators is a necessary part of the job. Any exceptions should be included in JHAs.

All workers exposed to on- or off-site traffic are required to wear reflective clothing. This clothing shall be inspected prior to use for wear and reflectivity.

Signaling or other workers who feel unsafe due to on- or off-site traffic shall immediately notify their supervisors and/or the Granger Superintendent or On-Site Safety Manager. Granger and the subcontractor shall review the traffic control plans and determine if additional measures are necessary to provide a safe environment.

If public vehicular traffic is causing safety concerns, the Granger Superintendent or Project Manager should contact the local sheriff’s department and/or road commission to discuss if additional measures can or should be taken.

Site Security

Site security plans shall be part of the Granger and subcontractor site-specific safety and logistic plans.

Measures indicated on the site-specific safety plans shall be implemented prior to work starting where possible.

All items on site, such as materials, equipment, gang boxes, etc., shall be labeled as to the owner and/or renting subcontractor. The subcontractor shall provide appropriate means to prevent theft or vandalism to said objects at the end of each shift.

Any incidences of theft or vandalism shall be immediately reported to the Granger Superintendent or Project Manager.

Granger shall establish a secure perimeter around the jobsite and/or laydown area as soon as feasible. This may include fencing with padlocked gates, plywood coverings for any openings, temporary padlocked doors, or other measures as necessary. Doors used as an emergency exit from the site must not be padlocked shut if anyone is in the building.

The Granger Superintendent will designate a person (possibly him or herself) responsible for locking all gates and doors at the end of each shift.

All visitors to the site must check in and out at the Granger site office.

For work taking place in a public area, all construction items (tools, materials, gang boxes, etc.) must be placed in a locked room or other designated area at the end of each shift.

Signage

Accident Prevention Signs

An accident prevention sign shall comply with the following provisions:

1. Be placed to alert and inform in time to avoid a hazard or take appropriate action.
2. Be placed and maintained to be legible, without distraction, and so that the sign does not create a hazard in itself.
3. Be placed so that the sign will not be obscured.
4. Be removed or covered when the hazards are removed.

Danger Sign

1. A danger sign to alert employees shall be used where an immediate hazard exists.
2. A danger sign shall have the signal word **"Danger"** in white within a red oval outlined in white on a black rectangular background in the upper panel.
3. Employees shall be instructed that a danger sign indicates immediate danger and that special precautions are necessary.

Caution Sign

1. A caution sign shall be used to warn of a potential hazard or to caution against an unsafe practice.
2. A caution sign shall have the signal word **"Caution"** in yellow on a black background in the upper panel. The lower panel where additional wording may be used shall be black letters on a yellow background.
3. Employees shall be instructed that a caution sign indicates a possible hazard and that proper precautions shall be taken.

Safety instruction Signs

1. A safety instruction sign shall be used for a general instruction or suggestion relative to safety measures.

2. A safety instruction sign shall have the signal work in white on a green background in the upper panel. The lower panel where additional wording may be used shall be black letters on a white background.

Accident Prevention Tags; Types; Use and Specifications

1. A **"Do Not Start"** tag shall be attached to the starting mechanism of equipment that would cause a hazardous condition if activated. The background color shall be white with black lettering on a red square.
2. A **"Danger"** tag shall be used where an immediate hazard or probability of injury exists. The background color shall be white with white letters on a red oval within a black square.
3. A **"Caution"** tag shall be used to warn of a potential hazard or to caution against an unsafe practice. The background color shall be yellow with yellow letters on a black rectangle.
4. An **"Out of Order"** tag shall be used only for the specific purpose of indicating equipment of machinery is out of order and its use might create a hazard. The background shall be white with white letters on a black square.

Signage shall be included in site-specific safety plan and logistics plans.

Sign warning the public of construction areas shall include a Granger Windscreen on every site stating "DANGER", "Construction Area", "No Trespassing".

Signs shall be removed as soon as possible after the dangerous situation indicated no longer exists.

Granger employees can request signs from our insurance agent at no-cost signage also may be available in the yard.

Subcontractors are required to provide their own signs, however the signs must be approved by Granger prior to installation.

Barricades & Fencing

The subcontractor creating a hazard is responsible for providing appropriate barricades to protect other works from the hazards, unless the work is specifically assigned to other trades by Granger. The subcontractor who installed or is using the barricade is responsible for regular inspections and repairs of said barricade.

Barricades and fencing shall be used to alert others of hazard created during construction.

Permanent barricades and fencing will be indicated in the site-specific safety plan and will be installed prior to work taking place.

Temporary barricades and/or fencing shall be installed per MIOSHA/OSHA requirements whenever conditions warrant, such as around openings, energized substations, around excavations, near construction equipment, etc.

Barricades and fencing for specific job activities shall be included in the JHAs and discussed with Granger superintendent prior to installation.

Fencing surrounding the site or lay down areas shall be locked at the end of each shift.

Barricades and fencing used as a means of fall protection must meet all MIOSHA/OSHA requirements for fall protection including a top rail height of 42 inches and the ability to stand up to 200 pounds of horizontal force.

Warning (red) tape shall be used only to call attention to a hazard, such as slippery floors, overhead work, or hot work. Tape shall only be used in lieu of a barricade when the hazard will last less than one shift. All workers shall be taught not to enter a taped off area without approval from the trade who installed the tape.

Yellow caution tape is not an acceptable barricade and should only be used in conjunction with acceptable barricading and signage.

B.2. Masonry Wall Bracing

Responsibilities; restricted zone; wall bracing system, and signage

1. Prior to the start of masonry construction, the mason contractor shall notify in writing Granger construction where and when a restricted zone will exist.

2. The mason contractor shall establish the restricted zone and the installation of the wall bracing system and danger signs. After the wall bracing system and danger signs have been installed in accordance with MIOSHA Part 2. Masonry wall bracing / OSHA Subpart Q- Concrete and Masonry Construction, any person including, but not limited to, a construction manager, subcontractor, general contractor, or owner who alters or removes the wall bracing system or danger signs shall replace them in accordance with MIOSHA Part2. / OSHA Subpart Q.

3. Each employer having workers in the restricted zone shall monitor the wind speed and evaluate employees when the limitations of the standards have been exceeded.

Training Requirements

1. An employer shall provide training by a qualified person to each competent person or employee who is involved in installing, altering, repairing, maintaining, or inspecting the wall bracing system and restricted zone. The training shall enable an employee to recognize hazards associated with the work and shall include all the following topics, as applicable:
   a. The nature of hazards involving masonry walls under construction.
   b. Instruction in the general use and maintenance of wall bracing systems, signage, and restricted zone requirements as prescribed in MIOSHA Part 2. / OSHA Subpart Q.
   c. Identifying unsupported masonry walls requiring bracing.
   d. The procedures for installing, altering, repairing, inspecting, and maintaining the wall bracing system being used.
   e. Proper installation and maintenance of a restricted zone and signage.
   f. Procedures for monitoring wind speeds.
   g. Procedures for vacating the restricted zone during windy conditions.
   h. Inspecting the worksite for overhead and underground utilities and other hazards.
   i. Inspecting the worksite for excavations in the restricted zones.
   j. Any other pertinent requirements.

2. An employer shall provide training by a qualified person to any employee who enters a restricted zone of a masonry wall under construction. The training shall enable an employee to recognize and understand all the following:
   a. The nature of hazards involving masonry walls under construction.
   b. Instruction in the general use and maintenance of wall bracing systems, signage, and restricted zone requirements as prescribed in MIOSHA Part 2. / OSHA Subpart Q.
   c. Procedures for monitoring wind speed.
   d. Procedures for vacating the restricted zone during windy conditions.
   e. The nature of hazards involving electrical lines within the restricted zone.
   f. The nature of hazards involving excavating within the restricted zone.
   g. Any other pertinent requirement.

3. Additional training is required in each of the following situations:
   a. When changes at the worksite present a hazard that an employee has not been previously trained for.
   b. When changes in the types of wall bracing, systems present a hazard for which an employee has not been previously trained.

4. The employer shall verify compliance with MIOSHA Part 2. / OSHA Subpart Q by preparing a written certification record. The written certification record shall contain the name or other identity of the employee trained, the date or dates of the training, and the signature of the person who conducted the training or the signature of the employer. If the employer relies on training conducted by another employer or completed prior to the effective date of the standards, the certification record shall indicate the date the employer determined the prior training was adequate rather than the date of actual training. The latest training certification shall be maintained and available during the work shift.

Restricted Zone Requirements

1. For walls, greater than 8 feet in height, a restricted zone shall be established prior to the start of the construction of the wall. The restricted zone shall meet all the following requirements:
   a. Be equal to the height of the constructed wall plus a minimum of 4 feet and run the entire length of the wall plus a minimum of 4 feet beyond the ends of the wall.
   b. Be established on both sides and ends of the wall.
   c. Be limited to entry by employees trained in accordance with R 408.40205.
   d. Remain in place until the wall has obtained its final lateral support.
   e. Be delineated by signage in accordance with R 408.40207.

2. If a restricted zone extends onto or across roadways or other adjacent areas, protection shall be provided as prescribed in MIOSHA Part 22 signals, signs, tags, and barriers, R 408.42223 traffic control / OSHA Subpart G-Signs, Signals, Barricades, or by other methods.

3. If restricted zones cannot be installed or maintained as prescribed by the standards, alternative protection methods shall be provided. Drawings / plans or calculations shall be prepared by a qualified person and available at the jobsite.

4. For multi-story structures the restricted zone shall be determined by a qualified person.

Signing Requirements

1. Each unsupported masonry wall that is more than 8 feet in height shall be posted with a danger sign on each end and each side at intervals of not more than 50 feet.

2. The restricted zone shall be delineated by signs at each corner and spaced at intervals of not more than 50 feet along the perimeter.

3. The danger signs shall be maintained in readily visible, unobstructed locations and in a legible condition until the masonry wall has obtained its final lateral support.

4. A danger sign shall comply with MIOSHA construction safety standard Part 22 signals, tags, and barricades, R 408.42201 to R 408.42243, and state:

RESTRICTED ZONE WALL UNSTABLE IN WIND
TRAINED PERSONNEL ONLY

5. An illustration of a danger sign which complies with this standard is shown in figure 2 of MIOSHA Part 2. Masonry wall bracing standard page 4.

6. All signs must be removed after the walls have obtained their final lateral support.

Wind Speed; Determination by Competent Person

1. Wind speed shall be determined by a competent person near the masonry wall exposed to wind and shall be monitored during the initial and intermediate periods. A wind measuring device shall be used to determine wind speed.

Initial Period Requirements

"Initial Period" means the period of time, not to exceed 24 hours, during which the masonry wall is being laid above its base or the highest line of bracing and, at the end of which, required bracing is installed.

1. Unbraced masonry walls shall not exceed the maximum height as shown in table 1 of MIOSHA Part 2. Masonry Wall Bracing during the initial period.
2. No one shall be within the restricted zone of a masonry wall subject to winds exceeding 20 mph during the initial period.
3. At the end of the initial period, the wall shall be braced on both sides if it exceeds the unbraced wall heights shown in table 2 of MIOSHA Part 2. Masonry Wall Bracing.

Intermediate Period Requirements

"Intermediate Period" means the period of time following the initial period until the masonry wall is connected to the structural elements that provide its final lateral support.

1. When the height of an unbraced masonry wall exceeds the maximum height as shown in table 2 of MIOSHA Part 2. Masonry Wall Bracing during the intermediate period, the masonry wall shall be braced on both sides.

2. No one shall be within the restricted zone of a masonry wall subject to winds exceeding 35 mph during the intermediate period.

3. When bracing cannot be installed because of work operations, no one shall be permitted within the restricted zone when the wind is more than 20 mph during the intermediate period as shown in table 3 of MIOSHA Part 2. Masonry Wall Bracing.

Wall Bracing Design

1. A wall bracing system shall be designed by a qualified person and capable of providing stability to the wall for a wind speed of 40 mph.

2. A wall bracing system shall be installed in accordance with 1 of the following:
   a. A triangle wall bracing system as prescribed in R 408.40212.
   b. A bracing plan that is designed using acceptable engineering practices and the engineering content of the mason contractor's association of America, standard practice for bracing masonry walls under construction, chapter 5 and 6 and their commentaries, July 2001 Edition, adopted by reference in R 408.40202. Wall bracing erection drawings / plans or calculations and specifications shall be available at the jobsite. Bracing schemes for walls matching examples specifically outlined in the Mason Contractors Association of America, masonry wall bracing design handbook, March 2003 Edition, adopted by reference in R 408.40202, satisfy these requirements.

Inspections

An unsupported masonry wall, including the wall bracing system, shall be inspected for visible defects by a competent person at the beginning of each shift and after any occurrence that could affect the structural integrity of the wall bracing system or the wall.

   a. Any bracing element that is damaged or weakened from any cause shall be immediately repaired or replaced. A competent person shall supervise the repairs.

b. Any bracing element that is repaired shall have at least the original designed strength for the wall bracing system.
c. If any movement if the wall or physical damage to the wall occurs, the project structural designer of record shall be notified. Repairs to the wall shall be designed by a structural engineer and shall not be done without the approval of the project structural designer of record.
d. Only those persons repairing the wall or wall bracing system may work within the restricted zone until repairs have been made.

B.3. Personal Protective Equipment (PPE)

PPE Summary

The Safety Director determined the needs of the company and established our Personal Protective Equipment program (PPE) to protect employees from all known hazards which cannot be eliminated or adequately controlled. The PPE addresses selection, use and care of PPE. It is available for review by all employees in the office of the Safety Director, who is responsible for effectively carrying out its requirements of the Employer, and enforcing its requirements of employees and other parties.

The Personal Protection Coordinator shall assess work areas and operations for uncontrolled hazards, or shall ensure that it is done by our Safety Team or other competent persons who shall have timely assistance from the Safety Director to whom they shall report all relevant information.

Employees who identify a new or previously unrecognized hazard shall immediately report it to their supervisor.

The Safety Director will select PPE appropriate for the hazards identified. The employer will then provide, issue and pay for the PPE and provide cleaning facilities and replacement parts necessitated by reasonable use and wear. Except where specified, PPE shall be company property assigned as personal equipment for the exclusive use and care of the specific individual wearer.

The Safety Director shall ensure that employees are adequately trained and fitted for their PPE, and shall enforce the MIOSHA/OSHA requirement that employees use it. He shall train and certify each PPE user and retrain with changes in the workplace or PPE or inadequacies in user knowledge so each user demonstrates continued understanding and ability in: When, where, what, how and why to use PPE, and its limitations, life, care, maintenance, inspection, disposal and/or replacement, and in other training requirements of applicable standards and the manufacturers.

Employees shall use and care for PPE as trained or instructed, and shall not expose themselves to workplace hazards. They shall keep PPE clean, unaltered, in good repair, properly stored and available for use. They shall not use damaged or defective PPE, and shall immediately refurbish or replace it.

Employees shall return all company PPE for examination and disposal or re-issuance when it needs replacement or repair and before changing jobs or leaving employment. Excessive wear, loss, or damage and negligence of the employee to whom PPE is issued shall be the responsibility of that employee.

Unless other arrangements are made, employees shall provide their own personal property, including protective shoes, boots, prescription spectacles, and washable clothing which meet safety standards.

Ignoring PPE requirements is a serious violation of this policy and may violate Michigan law. Such employee misconduct is cause for serious disciplinary action including dismissal from employment.

The PPE program requires compliance with MIOSHA GISS Part 33 or CSS Parts 6 and 45/OSHA Subpart C-PPE, whichever is applicable, and it addresses the following types of PPE:

1. Eye and face protection devices meeting ANSI Z87.1-1989 standards including welding helmets and hand shields, face shields and eye protectors
2. Head Protection meeting ANSI Standard Z89.1-1986
3. Foot Protection meeting ANSI Standard Z41-1991
4. Electrical Protective Equipment ANSI-ASTM marked and certified
5. Safety Belts, Harnesses, Lifelines and Lanyards as in MIOSHA GIS R3390 or CSS Part 45 1926.502(d)(e)/ OSHA Subpart M.
6. Gloves and Body Protection as specified in PPE program

PPEP Policy

Granger Construction Company is committed to the safety, health and wellbeing of all employees and other individuals in our workplace. Proper use of personal protective equipment (PPE) is an essential safety practice. It is required by MIOSHA/OSHA standards and by Company policies.

Therefore, Granger Construction Company will provide PPE and enforce its use in accordance with applicable standards and policies. Our General Safety Rules state that employees shall do as follows:

1. Wear safety glasses, work boots and hard hats, hearing protection, arm guards, respirators, gloves, safety helmets, hair caps and hi-viz protective clothing or equipment as specified for each job or task. Wear hard hats with head hazards, safety glasses with any eye hazards, metal foot protection with foot hazards, ear plugs or muffs with loud noise and welding helmets plus complete protection of body from radiation and hot splatter when welding. Wear life jackets over waterways and orange reflective vests near traffic. Wear clothing as appropriate to protect against sun, wind, rain and temperature extremes. Shorts, tank tops and tennis shoes will not be allowed on any jobsite. Wear no contact lenses where there is potential exposure to splash from corrosives. Keep all PPE and protective clothing free from damage and in clean, usable condition; replace it when needed.
2. Use specific equipment, protective clothing, PPE, facilities and procedures as instructed and trained when working with or around special hazards including asbestos, lead, cadmium, or confined spaces.
3. Check with your supervisor to ensure safety and compliance before performing any task or entering and area that may have hazardous materials or conditions. Hazardous materials of concern include Asbestos, Lead, Gasoline, Paints, solvents or any item with VOCs or flammability, Fumes from welding, cutting or grinding of metal or plastics, and Dusts from construction, demolition or grain. Hazardous conditions of concern include Height, Depth, Confined or enclosed spaces, Equipment, machinery, processes or materials about which you do not understand the hazards and controls, Severe weather, and Loud noise.

Our PPE Program Summary states that:

1. Employees shall use and care for PPE as trained or instructed, and shall not expose themselves to workplace hazards. They shall keep PPE clean, unaltered, in good repair, properly stored and available for use. They shall not use damaged or defective PPE, and shall immediately refurbish or replace it.
2. Employees shall return all company PPE for examination and disposal or re-issuance when in need of replacement PPE or parts and before changing jobs or leaving employment.

Consequently,

1. Employees who have been issued PPE or who are required to provide safety footwear or personal clothing, shall not be allowed to work if they do not have and use the required PPE or clothing in good condition.
2. If they attempt to work without proper PPE or clothing, or are found so doing, they shall be in violation of company policy and may be in violation of MIOSHA/OSHA standards and State laws, and they are subject to disciplinary action.
3. If they do not correct this violation immediately, they shall be dismissed from work for the day without pay, and may be terminated from employment in cases of repeated violation or under aggravating circumstances.
4. Employees may obtain replacement PPE which the company makes available, free of charge by returning company PPE for examination confirming reasonable wear and tear, or they may purchase available PPE from the company or any source, all in conformity with any applicable collective bargaining agreement.
5. Disposable PPE designed for one time use only, shall be made readily available on the job site by the company.

Hearing Conservation

1. A Hearing Conservation Program (HCP) shall be used where occupational noise exposure is at or above the Action Level of 85 db.
2. Engineering controls, administrative controls, or less noisy operations shall be employed where feasible to reduce noise below the Permissible Exposure Limit (PEL).
3. Hearing protection shall be provided, at least 3 types, where noise is at least the Action Level, and its use shall be enforced where above the PEL.
4. A Noise Monitoring Program shall determine employee noise exposure and a) Identify employees for inclusion in the HCP and enable proper selection of hearing protectors, b) Use representative personal monitoring, c) integrate all continuous, intermittent and impulsive sound into the measurements, d) Be repeated with increased noise levels.

5. Employee will be trained initially upon assignment and annually. Training shall include the effects of noise, the purpose of hearing protectors, and of audiometric testing, and fitting, use, wearing and care of hearing protectors.

Employer and Employee Responsibilities

1. Granger Construction will not permit defective or damaged personal protective equipment to be used.
2. Granger Construction requires each employee to wear personal protective as prescribed by the manufacturer when required by an OSHA / MIOSHA rule.
3. If personal protective equipment is required and is worn in direct contact with the skin, the equipment shall be sanitized before being issued to another employee.
4. Granger Construction requires the wearing of appropriate personal protective equipment in all operations where there is an exposure to hazardous conditions or where OSHA / MIOSHA rules indicated the need for using such equipment to reduce the hazards to an employee.
5. All personal protective equipment shall be of safe design and constructed for the work to be performed.

B.4. Welding and Cutting

Employer and employee responsibility

1. An employer shall do all the following:
   a. Assure that each employee has received safety training in the use of equipment for welding operations and instruction in MIOSHA Part. 7 Welding and Cutting / OSHA Subpart J - Welding and Cutting before allowing the employees to use the equipment.
   b. Assure that an employee in charge of operation of oxygen or fuel gas supply equipment or of oxygen or fuel gas systems is instructed and judged competent for this work by the employer before being left in charge. Rules and instructions covering the operation and maintenance of oxygen or fuel gas distribution piping systems shall be readily available.

2. Welding operations shall not be permitted in the following situations:
   a. In an area not authorized by the building or structure occupant.
   b. In a sprinklered building while the sprinkler system is impaired, unless a fire watch is provided.
   c. In the presence of a potentially explosive atmosphere, such as mixtures of flammable gases, vapors, liquids, or dusts with air.

General Requirements

1. Only apparatus designed for use with fuel gas or oxygen, such as a torch, regulator, pressure-reducing valves, acetylene generator, and manifold, shall be used for welding or cutting.
2. Fuel gas, oxygen, or compressed air shall not flow from a cylinder or manifold through a torch or other device equipped with a shutoff valve unless the pressure is reduced by a regulator attached to the cylinder or manifold.
3. An oxygen cylinder, fuel gas cylinder, cylinder valve, coupling regulator, hose, and apparatus shall be kept in good operating condition and shall be kept free from defects.
4. An oxygen cylinder, fuel gas cylinder, cylinder valve, coupling regulator, hose, and apparatus shall be kept free from oily or greasy substances and shall not be handled with oily hands or gloves. A jet of oxygen shall not be permitted to strike oily surfaces or greasy clothes and shall not be permitted to enter a fuel, oil, or other storage tank.
5. Oxygen shall only be used for welding or cutting.
6. Welders shall place welding cables, hose, and other equipment so that it is clear of passageways, ladders, and stairways, or shall assure that it is protected against damage and does not create a hazard to an employee.

Working in Confined Spaces

1. Before the start of a welding operation in a confined space, the employer shall ensure that the atmosphere is tested and recorded. Ventilation shall be provided and maintained in accordance with the requirements of the Department of Licensing and Regulatory Affairs.
2. For specific confined space rules, see MIOSHA Construction Safety Standard Part. 35 “Confined Space in Construction” as referenced in R 408.40709 / OSHA subpart AA “Confined Spaces in Construction.
3. When working in a confined space, the torch valves, the gas supply valve, and oxygen valve outside the confined space shall be shut off during the lunch period, overnight, or during any other prolonged period and the torch and hoses shall be removed from the confined space. Open-ended fuel gas and oxygen hoses shall be immediately removed from enclosed spaces when they are disconnected from the torch or other gas-consuming device.
4. When electrodes are used in a confined space and welding is suspended during the lunch period, overnight, or during any other prolonged period, the electrode shall be removed from the holder and the machine shall be shut off. The holder shall be placed or protected so that they cannot make electrical contact with employees or conducting objects.

5. A gas cylinder or a welding machine used for welding operations in a confined space shall be placed on the outside of the space where work is being performed.
6. If an employee must enter a confined space through a small opening to perform welding operations, another employee trained in rescue procedures and equipped with the means necessary to effect a rescue shall be stationed outside the confined space in position to watch the welder. When a safety harness and lifeline are used, they shall be provided for as prescribed in MIOSHA Construction Safety Standard Part 45. "Fall Protection" as referenced in R 408.40709 / OSHA Subpart M – Fall Protection, and shall be attached to the welder's body so that his or her body cannot be jammed in a small exit opening.

Torches General

1. A torch shall be inspected before each shift for leaking shutoff valves, hose and tip connections, or clogged tips. A defective torch shall not be used.
2. A clogged tip opening shall be cleaned with a device, such as a drill or cleaning wire, designed for this purpose.
3. A torch shall be lighted by a friction lighter and not by a match or hot work.

Cylinders Manufacturing, Labeling, Periodic Testing, and Marking

1. A cylinder shall be manufactured, labeled, and periodically tested in accordance with the specifications of the Federal Department of Transportation requirements published in 49 C.F.R. Part 178, Subpart C, "Specification for Cylinders" which are adopted by reference in R 408.40709.
2. A cylinder shall be legibly marked with either the chemical or trade name. Marking shall be by stenciling, stamping, or labeling and shall not be tampered with or be readily removable. Whenever practical, the marking shall be located on the shoulder of the cylinder.

Storage

1. An oxygen cylinder shall not be stored less than 20 feet from fuel gas cylinders or any highly combustible material, such as, but not limited to, oil, greases, excelsior, flammable gas, or a source of ignition, or shall be separated from the material by a noncombustible wall not less than 5 feet high which has a fire resistance rating of 30 minutes.
2. A cylinder shall be stored away from any source of heat more than 125 degrees Fahrenheit.
3. A cylinder, whether full or empty, in storage or during shipment, or with the regulator removed, shall have the valve closed and the cap connected in place if a cap is provided in the design, or shall be otherwise protected.
4. Where different gases are stored, they shall be grouped by types. Groupings shall separate the fuel gases from the oxidizing gases.
5. A storage area for cylinders shall be well ventilated.
6. A cylinder shall not be stored in basements or pits.

Cylinders General

1. A chain, bracket, or other restraining device shall be used always to prevent cylinders from falling.
2. A cylinder shall stand valve end up always.
3. A cylinder shall not be dropped, dragged, rolled on its side, or struck violently.
4. When using a crane or hoisting device, a cylinder shall be lifted only by cradles or enclosed platforms. An electromagnet, hook, rope, or sling shall not be used.
5. A frozen or ice-clogged valve shall be thawed either by warm air or water and shall be dried before using. Boiling water or a flame shall not be used. Force shall not be applied to a valve or cap to loosen a cylinder frozen in place.
6. Gases shall not be mixed within a cylinder except by the supplier.
7. A cylinder shall not be placed where it will become a part of the electrical circuit by accidental grounding or where it may be burned by an electric welding arc. A cylinder shall not be placed so that hot slag or flame can

reach it unless the cylinder is protected by a fire-resistant shield. An electrode shall not be tapped against a cylinder to strike an arc.

8. A regulator, gauge, or hose shall not be interchangeable between fuel gas, oxidizing gas, or inert gas.
9. A cylinder valve shall be opened slightly for an instant and then closed before connecting to a regulator or manifold to clear the valve of dust and dirt. Any employee opening the valve shall stand to one side of the outlet, not in front of it. The employee shall not open the valve near a source of ignition. Pressure to a regulator shall be introduced by slowly opening the cylinder valve. An acetylene cylinder valve shall only be opened enough to allow proper working pressure, but shall not be opened more than 1 ½ turns of the spindle.
10. Acetylene shall not be utilized or piped, except in cylinder manifolds, at a pressure more than 15 psig.
11. A cylinder to which a regulator is attached shall not be moved unless secured to a hand or powered truck designed or equipped for this purpose.
12. A cylinder valve must be closed in any of the following situations:
    a. When moving the cylinder.
    b. When the work is finished, or is left unattended during the lunch period, overnight, or any other prolonged period.
    c. When the cylinder is empty.
    d. When the regulator is removed.
13. A cylinder without fixed handwheels shall have keys, handles, or nonadjustable wrenches on valve stems while in service. A multiple cylinder installation shall require only 1 key or handle for each manifold. A hammer shall not be used to open a cylinder valve or loosen a cap.
14. A cylinder, whether full or empty, shall not be used as a roller or support.
15. A damaged or leaking cylinder, a cylinder with a valve stuck open, or a valve in need of repair shall be taken outdoors away from sources of ignition, tagged with a warning sign, and the manufacturer or distributor notified. Complete removal of the stem from the cylinder valve shall be avoided.
16. Nothing shall be placed on top of a cylinder.

Hoses and Regulators

1. Hose and hose connections used for a welding operation shall be as prescribed in paragraph 3.5.6 of the American National Standard Institute Standard ANSI/AWS Z49.1, “Safety in Welding and Cutting and Allied Processes,” 1973 edition, which is adopted by reference in R 408.40709.
2. Parallel lengths of hose taped together shall have no more than 4” out of 12” covered by tape.
3. Parallel hoses shall be color coded as follows:
    a. Red- Fuel gases.
    b. Green- Oxygen
    c. Black- Inert gas or air
4. The employer shall assure that only approved hose is used for LP gas.
5. A hose and its connections shall be inspected before each shift for burns, worn places, or other defects which could affect the safety of an employee. Suspected leaks shall be checked by use of a grease-free soap solution.
6. A defective hose shall not be used, but shall be repaired or replaced.
7. A hose that has been subject to a flashback or has been repaired or spliced shall be tested at twice the normal pressure, but not less than 300 psig.
8. A box used for the storage of gas hose shall be ventilated.

Regulators and Protective Devices

a. The use of regulators shall comply with the following requirements:
    a. Regulators shall be used only for the gas and pressure for which they are intended.
    b. Regulators shall be repaired by authorized and trained personnel or shall be returned to the supplier for calibration or repair.
    c. Regulators shall not be removed until the cylinder valve is closed and the regulator is drained.

   d. Regulators shall have gauges marked "**Use No Oil**" when used for oxygen.
2. Backflow prevention devices shall be installed on the fuel gas and oxygen hoses.
3. A cylinder equipped with a shutoff valve shall have a regulator attached to the cylinder valve or manifold during use.

Arc Welding and Cutting

1. An arc welding and cutting cable shall be of the completely insulated, flexible-type and shall be capable of handling the maximum current requirements of the work, taking into account the duty cycle under which the welder is working.
2. A manual electrode holder shall be specifically designed for arc welding and cutting and shall be capable of handling the maximum rated current required by the electrode.

Operation

1. Engine fuel, cooling water, or shielding gas shall not be allowed to leak.
2. A welding machine shall be disconnected when being moved and shall be turned off when not in use.
3. Electrodes shall be retracted or removed when not in use. Electrode holders not in use shall be placed so that they cannot make electrical contact with an employee, fuel, gas tank, or conducting object.
4. A welder shall not let live electrodes or holders touch his or her bare skin or damp clothing. When arc welding is performed in wet conditions or under a condition of high humidity, the welder shall be protected against electrical shock.
5. Electrode holders shall not be cooled by immersion in water.
6. Welding shall not be permitted where fumes of chlorinated hydrocarbons are present or will reach or be drawn into the atmosphere surrounding the welding operation.
7. Before starting an arc welding operation, the welder shall do all the following:
   a. Assure the work lead is secured to the work.
   b. Assure the magnetic work clamps are free of splatter on the contact surface.
   c. Spread out the welding cable, if necessary, to prevent overheating and damage.
   d. Assure grounding connections are secured to a good ground.
   e. Assure the required switching equipment for shutting down the machine has been provided.
8. A welder shall not curl or loop welding cable around his or her body.

Maintenance of Arc Welding Machines

1. Spliced welding cable shall not be used within 10' of an arc welding machine.
2. Equipment in need of repair that constitutes a safety hazard shall not be used or put in use until repairs are made by a knowledgeable employee or an outside service.
3. Cut insulation on work and lead cable or exposed bare conductors of an arc welding machine shall be protected by electrical tape and shall be made watertight or the conductor shall be replaced. Splices shall be made by insulated welding joints or pressure connectors.
4. An arc welding machine that has become wet shall be thoroughly dried and tested before use.

Personal Protective Equipment

1. A welder shall wear face and eye protection when performing welding operations and by other employees exposed to a risk of injury from splatter or flash, or both. The protective devices shall be provided for as prescribed in MIOSHA Construction Safety Standard Part 6. "Personal Protective Equipment." As referenced in R 408.40709 / OSHA Subpart E – Personal Protective and Life Saving Equipment.
2. The employer shall provide welding gloves at no expense to the employee and the employee shall wear them to protect their hands and wrists.

3. The employer shall provide other protective devices, such as, but not limited to, body protection, chaps, and curtains, at no expense to the employee, and the employee shall use them when exposed to a risk of injury by flash burn, sparks, and foreign bodies.
4. Whenever practical, all arc welding and cutting operations shall be shielded by noncombustible or flameproof screens which will protect employees and other persons working in the vicinity from the direct rays of the arc.

Fire Precautions

1. Welding operations shall not be performed within 50' of explosives, stored cylinders, or stored fuel. Combustible and flammable materials located within 35' of welding operation shall either be removed or covered with fire-resistant material.
2. Cracks or openings through which sparks could pass in the floor or wall that are within 35' of a welding operation shall be covered with a fire-resistant material.
3. A wood floor within 10' of a welding operation shall be protected by either wetting down, covering with sand, or covering with a fire-resistant material.
4. A minimum of 1 2A-10BC portable fire extinguisher shall be immediately available to the work area during welding operations.
5. An employer shall designate a person as responsible for fire safety during a welding operation where a fire could start or where 1 of the following conditions exist:
   a. Appreciable combustible and flammable materials are more than 35' from a welding operation but are easily ignited.
   b. Combustible and flammable material is adjacent to the opposite side of a metal partition, wall, ceiling, or roof that is likely to ignite by conduction or radiation.
   c. If there is a possibility that a smoldering fire may start, the person shall remain at the work location for not less than 30 minutes after the welding operation has stopped.
6. Before welding, cutting, or heating is commenced on any surface covered by a preservative coating whose flammability is not known, a test shall be made by a competent person to determine its flammability. Preservative coatings shall be considered to be highly flammable when scrapings burn with extreme rapidity.

Welding Drums, Barrels, Tanks, or Other Containers

1. Welding operations shall not be performed on drums, barrels, tanks, or other containers until they have been cleaned of all flammable, combustible, or toxic materials or fumes.
2. All pipelines or other connections to drums, barrels, or tanks shall be disconnected or blanked before performing welding operations.
3. Hollow spaces or cavities shall be vented and either filled with water or purged with an inert gas before preheating, cutting, or welding.
4. An opening shall be maintained during welding and cutting to vent gases or vapors.
5. Welding on natural gas pipelines shall be as prescribed by regulations of the Department of Transportation, 49 F.R. Part 192, "Minimum Federal Safety Standards for Gas Pipelines," which are adopted by reference in R 408.40709.

B.5. Handling and Storage of Material

General Provisions; Storage

1. All material shall be stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, falling, or collapse during storage or transit.
   a. Structural steel, poles, pipe, bar stock, and other cylindrical materials, unless racked, shall be stacked and blocked to prevent spreading or tilting.
2. Storage areas, aisles, and passageways shall be kept free of the accumulation of materials that constitute a hazard to the movement of material-handling equipment and employees. Such areas shall be kept in good repair.
3. If a difference in road, or work levels exists, ramps, grading, or blocking shall be provided to ensure the safe movement of material-handling equipment.
4. A truck, or semitrailer shall be chocked or otherwise secured during loading and unloading if the movement of a truck, or trailer could create a hazard for the employees.
5. While roofing work is being performed, materials and equipment shall not be stored within 6’ of a roof edge, unless guardrails are erected at the roof edge.
6. Material stored inside buildings under construction shall not be placed within 6’ of any hoist way or inside floor openings, nor within 10’ of exterior walls that don’t extend above the top of the material stored.
7. Noncompatible materials shall be segregated in storage.
8. Storage areas shall be kept free from accumulation of material that constitutes hazards from tripping, fire, explosion, or pest harboring. Vegetation control shall be exercised when necessary.
9. Materials shall not be stored on scaffold or runways in excess of supplies needed for immediate operations.

Storage of Bagged material, Brick, and Block

1. Bagged material on a pallet shall be all the following:
   a. Not more than 36” in height.
   b. Secured to prevent displacement from the pallet before moving.
   c. Stacked not more than 2 pallets high.
   d. Stacked by stepping back the layers and cross-keying the bags at least every 10 bags high.
2. A loose brick or tile stack shall be all the following:
   a. Tapered back 2” in for every foot of height above 4’.
   b. Not exceed 6’ in height.
   c. Crossed-keyed at each 2’ level.
3. A loose block stack shall be all the following:
   a. Not exceed 6’ in height.
   b. Cross-keyed at each 3’ level.
4. Brick on a pallet shall be all the following:
   a. Not more than 30” in height.
   b. Secured to prevent displacement from the pallet before moving.
   c. Stacked not more than 2 pallets high.

5. Block on a pallet shall be all the following:
   a. Not more than 46” in height.
   b. Cross-keyed every course or secures to pallet.
   c. Stacked not more than 2 pallets high.

6. Brick or block in a banded cube shall not be stacked more than 2 cubes high.

Storage of Lumber

1. Lumber shall be stacked on level and solidly supported sills to be self-supporting and stable.

2. A pile of lumber manually stacked, and a pile of lumber to be manually unstacked, shall not exceed 6’ in height.

3. Lumber which is mechanically stacked shall not exceed 10’ in height. This lumber shall not be re-handled manually, except as prescribed above in rule (2).

4. Used lumber shall have all protruding nails and screws removed before stacking.

Clearances

1. Material stored near an electrical distribution or transmission line shall maintain the following clearances:
   a. Line rated 50 kV or less 10 feet plus the length of the material stored.
   b. Line rated 50 kV or more 10 feet plus 0.4 inches for each kV over 50 kV plus the length of the material stored or 10 feet plus 4 inches for each 10 kV over 50 kV plus the length of the material stored.

2. An employee shall be designated to observe the clearance and give timely warning if it is difficult for the operator to maintain the prescribed clearance by visual means.

Compressed Gas

The handling and storage of all compressed gasses, except those used for welding and cutting, shall be prescribed in the Compressed Gas Association Standard, P-1 2000, “Safe Handling of Compressed Gases in Containers,” in R 408.40810.

Disposal of Waste Materials

1. The area onto and through which material is to be dropped shall be completely enclosed with barricades not less than 36” or more than 42” high and not less than 6’ back from the opening and area receiving the material. Barricade signs warning of the hazards of falling material shall be posted on the barricaded at each level containing the barricades with contact person’s name and phone number. Removal of signs shall not be permitted in this lower area until debris handling ceases above.

2. If material is dumped from mechanical equipment or a wheelbarrow, then a toe board or bumper not less than 4” thick x 6” high nominal size shall be secured to the floor at each material chute opening.

3. If the drop is more than 20’ outside the exterior of the building, then a chute as prescribed in MIOSHA Construction Safety Standard Part 20. “Demolition,” as referenced in R 408.40810 / OSHA Subpart H – Material Handling, Storage, Use, and Disposal as referenced in 1926.252(a), shall be used, and extend to within 8’ of the lower level.

4. Material, barricaded, and chutes shall not be removed until material handling ceases above.

5. All scrap lumber, waste materials, or rubbish shall be removed from the immediate work area as the work progresses.

6. Disposal of waste material or debris by burning will not take place on any Granger construction site.

7. All solvent waste, oily rags, and flammable liquids shall be kept in fire resistant covered containers until removed from the worksite.

Rigging Equipment

1. Rigging equipment for material handling shall be inspected at the time of installation, before each job, and at the beginning of each shift in use, by an employee qualified to perform this inspection. Defective rigging equipment shall be tagged and removed from service immediately. The daily inspections will be documented and turned in to Granger at the end of the work week.

2. If not in use, rigging equipment shall be stored in a manner that is not hazardous for an employee.

3. Rigging equipment, other than a sling, hoisting line, and alloy steel chain, shall not be loaded more than its recommended safe working load, as prescribed in General Industry Safety Standard Part 49. “Slings,” as references in R 408.40810 / OSHA Subpart H- Materials Handling, Storage, Use, and Disposal 1926.251(a)(2)(ii).

Slings

1. All rigging equipment must comply with all the following:
   a. Have permanently affixed and legible identification markings as prescribed by the manufacturer that indicates the recommended safe working load.
   b. Not be loaded more than its recommended safe working load as prescribed on the identification markings by the manufacturer.
   c. Not be used without affixed, legible identification markings.

   2. Employers shall not use improved plow-steel wire rope slings with loads more than the rated capacities, such as working load limits, indicated on the sling by permanently affixed and legible identification markings prescribed by the manufacturer.

3. Wire rope slings shall have permanently affixed, legible identification markings stating size, rated capacity for the type or types of hitch or hitches used and the angle upon which it is based, and the number of legs if more than 1 leg.

Wire Ropes

1. Wire ropes shall be taken out of service if any of the following conditions exist:
   a. In running ropes, 6 randomly distributed broken wires in 1 lay or 3 broken wires in 1 strand in 1 lay.
   b. Wear of 1/3 the original diameter of outside individual wires. Kinking, crushing, bird-caging, or any other damage resulting in distortion of the rope structure, except for deformation caused by normal methods of attachment to drums, hooks, shackles, or other accessories.
   c. Evidence of any heat damage from any cause.
   d. Reduction from nominal diameter.
   e. In standing ropes, more than 2 broken wires in 1 lay in sections beyond end connections or more than 1 broken wire at an end connection.
   f. Wire rope shall not be used if, in any length of 8 diameters, the total number of visible broken wires exceed 10% of the total numbers of wires, or if the rope shows other signs of excessive wear, corrosion, or defect.

2. A wire rope used for hoisting, lowering, or pulling shall consist of 1 continuous piece without a knot or splice, except an eye splice at the end of a wire rope.

3. If wire rope clips are used to form eyes in a wire rope, table 1 of MIOSHA Part 8. “Handling and Storage of Materials,” / Table H-2 OSHA Subpart H- “Material Handling, Storage, Use, and Disposal,” shall be followed as to number and spacing to be used. The “U” section shall be on the dead-end side.

4. Protruding ends of strands in splices on slings and bridles shall be covered or blunted.

5. Shock loading is prohibited.

Natural and Synthetic Fiber Rope

1. A natural or synthetic fiber rope used for hoisting, lowering, or pulling shall consist of 1 continuous piece without a knot or splice, except an eye splice at the end of the rope.

2. An eye splice for manila rope shall contain not less than 3 full tucks, and short splices shall contain not less than 6 full tucks, 3 on each side of the center splice.

3. An eye splice for standard synthetic fiber rope shall contain not less than 4 full tucks, and short splices shall contain not less than 8 full tucks, 4 on each side of the splice center line. An eye splice for other types of synthetic fiber rope shall be made as prescribed by the rope manufacturer.

4. An eye splice for natural or synthetic fiber rope shall be of a size to provide an interior angle at the splice of not more than 60 degrees when the eye is placed over the load or support.

5. A natural or synthetic fiber rope eye shall be equipped with a thimble if the eye is placed over or around an object with a sharp corner.

6. Strand end tails from an eye splice shall not be trimmed flush with the surface of the rope immediately adjacent to the full tucks. This applies to both eye and short splices and all types of fiber rope.
   a. Tails from an eye splice for a fiber rope less than 1” in diameter shall project not less than 6” rope diameters beyond the last tuck.
   b. Tails from the eye splice for fiber rope 1” or more in diameter shall project not less than 6” beyond the last full tuck.
   c. Projecting tails may be tapered and spliced into the body of the rope using not less than 2 additional tucks, which shall require a tail length of approximately 6 rope diameters beyond the last full tuck or they may be taped or wired down.

7. A natural or synthetic rope shall not be used for load carrying service if any of the following apply:
   a. It is frozen or has been subject to corrosive chemicals or extreme temperatures.
   b. It has begun to unravel.
   c. It has external abrasions, cuts, or broken fibers, decay, burns, softness, or variation in size or roundness.
   d. It has internal presence of grit, broken fibers, mildew or mold, color change, powdering, or loose fibers.

8. Natural or synthetic rope shall not be used if there is exposure to corrosive substances, chemicals, or heat.

Hooks, Shackles, and Other Accessories

1. A hook, ring, oblong link, pear-shaped link, welded or mechanical coupling link, or other attachment, when used with alloy steel chain, shall have a rated capacity equal to the chain or rope to which it is attached, and the load shall not exceed the rated load. Shackles and other accessories shall have a rated capacity equal to or greater than the load to which it is attached.

2. A hook shall be discarded if either of the following applies:
   a. The throat opening is more than 15% greater than the manufactured size.

b. The hook has more than 10 degrees twist from a vertical center line drawn through the hook center.

3. Special custom design grabs, hooks, clamps, and other lifting accessories, for such units as modular panels, prefabricated structures and similar materials, shall be marked to indicate the safe working loads and shall be proof tested to 125% of their rated load.

4. A job or shop hook and link, or a make shift fastener, formed from a bolt, rod, or other lifting accessories, shall not be used, unless tested in accordance with sub rule (3) as stated above.

5. A shackle and connecting pin, and other accessories, shall be discarded if the diameter is reduced by more than 10%.

Chains

1. Chains used for material handling shall be made of alloy steel.

2. A welded alloy steel chain shall have a permanently affixed tag showing the size, grade, rated capacity, and manufacturer's name.

3. If wear at any point of any chain link is more than shown in table 2 of MIOSHA Part 8. "Handling and Storage Materials"/ Table H-1 OSHA Subpart H- "Materials Handlin, Storage, Use, and Disposal" then the chain shall be repaired or replaced. The repair shall return the chain to its rated capacity.

4. Employers shall not use alloy steel-chain slings with loads more than the rated capacities, such as working load limits, indicated on the sling by permanently affixed and legible identification markings prescribed by the manufacturer.

Shackles and Hooks Safe Working Loads

1. The manufacturer's recommendations shall be followed in determining the safe working loads of the various sizes and types of specific and identifiable hooks. All hooks for which manufacturer's recommendations are not available shall be tested to twice the intended safe working load before they are initially put into use. Records of the dates and results of such tests shall be maintained.

2. Employers shall not use shackles with loads more than the rated capacities, such as working load limits, indicated on the shackle by permanently affixed and legible identification markings prescribes by the manufacturer.

Synthetic Webbing (Nylon, Polyester, and Polypropylene)

1. Only use natural and synthetic fiber rope slings that have permanently affixed and legible identification markings that state the rated capacity for the type or types of hitch or hitches used and the angle upon which it is based, type of fiber material, and the number of legs if more than 1.

2. Rated capacity shall not be exceeded.

3. Synthetic webbing shall be of uniform thickness and width and selvage edges shall not be split from the webbing's width.

4. Natural and synthetic fiber rope slings with loads more than the rated capacities, such as working load limits, indicated on the sling by permanently affixed and legible identification markings prescribed by the manufacturer shall not be used.

B.6. Excavation, Trenching and Shoring

Locating Utility Lines

1. No excavation work will begin on site until all local utilities have been located and marked. CALL MISS DIG 8-1-1 or 1-800-482-7171, at a minimum of 3 business days prior to any excavation.
2. Upon receiving the information from the public utility, the excavation contractor shall exercise reasonable care when working near the underground facilities of any public utility. If the facilities are to be exposed, or likely to be exposed, only hand or (soft digging) shall be employed in such circumstances and such support, as may be reasonably necessary for protection of the facilities, shall be provided in and near the construction area.
3. When any contact with, or damage to, any pipe, cable, or its protective coating, or any other underground facility of a public utility occurs, the public utility shall be notified immediately by the employer responsible for operations causing the damage. If an energized electrical cable is severed, an energized conductor exposed, or dangerous fluids or gasses are escaping from a broken line, the responsible employer shall evacuate the employees from the immediate area while awaiting the arrival of the public utility personnel.

Excavation; Consideration of Soil Types; Water; Slide Hazards

1. If different textured soils are encountered in the side of an excavation, each soil type of the excavation shall be cut to the proper angle of repose, except that the slope shall not steepen between the toe of the slope and the ground level where soft clay or running soil is encountered in the lower cut.
2. An employee shall not work in an excavation in which there is accumulated water or in which water is accumulating unless precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation, but may include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or the use of a safety harness and lifeline.
3. If water is controlled or prevented from accumulating by using water removal equipment, the water removal equipment and operation shall be monitored by a qualified person or a monitoring system to ensure that the equipment is properly operated.
4. An ongoing inspection of an excavation or trench shall be made by a qualified person. After every rainstorm or other hazard-producing occurrence, an inspection shall be made by a qualified employee for evidence of possible slides or cave-ins. Where these conditions are found, all work shall cease until additional precautions, such as additional shoring or reducing the slope, have been accomplished.
5. When installed forms, walls, or similar structures create a trench between the form, wall, or structure and the side of the excavation, an employer must comply with all applicable OSHA / MIOSHA standards.

Excavation; Obstructions; Retaining Materials; Egress; Guarding; Heavy Equipment

1. A tree, boulder, rock fragments, or other obstruction whose movement could cause injury to an employee shall be removed or supported.
2. An excavation that an employee is required to enter shall have excavated and other material stored and retained not less than 2’ from the excavation edge.
3. When mobile equipment is utilized or permitted adjacent to an excavation where the operator’s vision is restricted, stop logs or barricades shall be utilized or a signal person shall be used.
4. An excavation 48” or more in depth and occupied by an employee shall be provided with either a ladder extending not less than 3’ above the top as a means of access or a ramp. Lateral travel along the wall of a trench to a ladder or other means of egress shall not exceed 25’.

5. An earth ramp may be used in place of a ladder if it meets the following requirements:
    a. The ramp material shall be stable.
    b. The sides of the excavation above the ramp shall be maintained to the angle of repose or sheeted or shored along the means of egress.
    c. The degree of angle of the ramp shall not be more than 45 degrees.
    d. Vertical height between the floor of the trench and the toe of the ramp shall not exceed 30".

Hazardous Atmosphere; Testing and Controls

To prevent exposure to harmful levels of atmospheric contaminants and to assure acceptable atmospheric conditions, the following requirements shall apply:

1. Where an oxygen deficiency (an atmosphere that contains less than 19.5% oxygen) or a hazardous atmosphere exists, such as in excavations where hazardous substances are stored nearby, the atmosphere in the excavation shall be tested before employees enter excavations that are more than 4'.
2. Precautions shall be taken to prevent employee's exposure to atmospheres that contain less than 19.5% oxygen and any other hazardous atmosphere. These precautions include providing proper respiratory protection or ventilation.
3. Precautions shall be taken, such as providing ventilation, to prevent employee exposure to an atmosphere that contains a concentration of a flammable gas in excess of 20% of the lower flammable limit of the gas.
4. When controls are used that are intended to reduce the level of atmospheric contaminants to acceptable levels, testing shall be conducted as often as necessary to ensure the atmosphere remains safe.

Supporting Systems; Angle of Repose; Tie Backs; Tight Sheeting; Additional Bracing

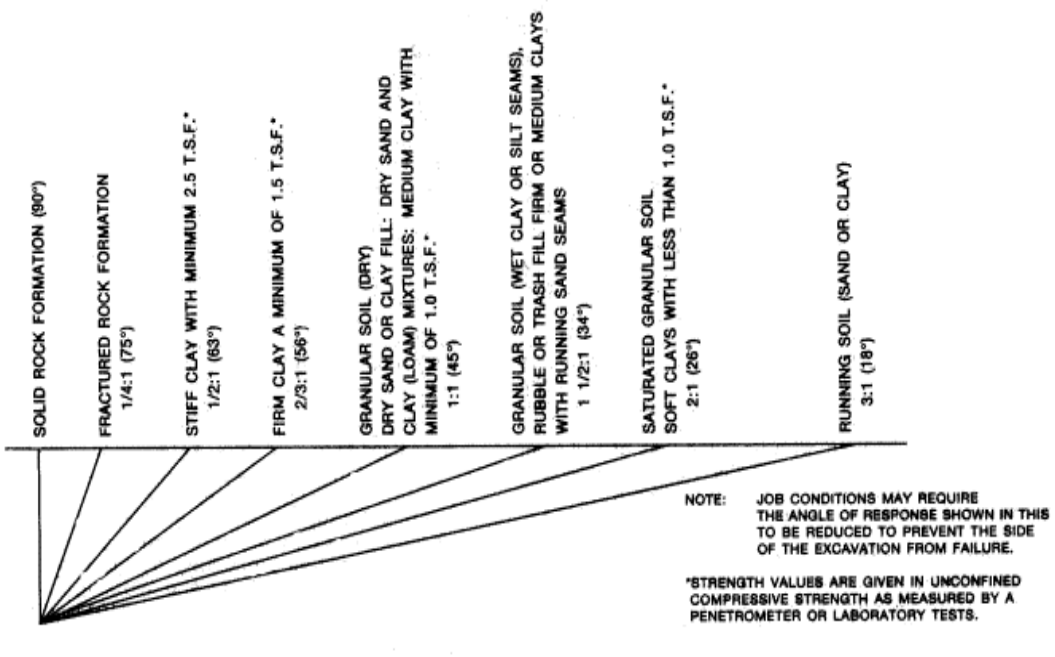
1. The angle of repose and the design of the supporting system for a side if an excavation shall be based on the evaluation of all the following:
    a. Depth of cut and type of soil.
    b. Possible variation in the water content of the material while the excavation is open.
    c. Anticipated changes in the material due to exposure of air, sun, water, freezing.
    d. Load imposed by structures, equipment, overlaying material, or stored material.
    e. Vibration from traffic, equipment, or blasting.
2. A support system shall be designed by a qualified employee. The design of the supporting system shall be maintained at the jobsite. Changes from the design of the support system shall be approved by a qualified person.
3. Tie rods and other forms of tie backs used to restrain the top of the sheeting shall be anchored a minimum of 10'. The measurement to the anchor point shall start at the intersection of an angle of repose with the surface of the soil retained. The tie back and anchor shall be capable of restraining any pressure exerted on the system.
4. When tight sheeting or sheet piling is used, pressure due to existing ground water conditions shall be considered in the design. Sheet piling shall be driven to the predetermined depth set forth in the required design. Changes from the design shall be approved by the designer of the support system.
5. Materials used for the supporting system shall be in good serviceable condition. When timbers are used, they shall be sound and free of large or loose knots.

6. A support system shall include additional bracing approved by the designer of the support system when the sides of excavations are cut adjacent to a previous known excavation or a known fill, particularly when the separation between the previous excavation and the new excavation is less than the depth of the excavation.
7. Tight sheeting shall be braced or anchored at the bottom and along the vertical plane to prevent lateral movement.

Excavation; Angle of Repose

1. The side of an excavation more than 5’ deep shall be sloped as prescribed in table 1.
2. An excavation less than 5’ in depth shall also be effectively protected when examination of the ground indicates hazardous earth movement may be expected.

TABLE 1
MAXIMUM ALLOWABLE ANGLE OF REPOSE FOR THE SIDE OF AN EXCAVATION IN EXCESS OF 5' DEPTH



Additional Requirements for Trench Support Systems

1. A brace or trench jack that is used for a support system for a trench shall be spaced as designed and shall be secured to prevent sliding, failing, or kick out.
2. The backfilling and the removal of a support system for a trench shall progress together from the bottom of the trench. In unstable or running soil, the jacks and braces shall be removed from above the trench after employees have cleared the trench.
3. The excavation of material to a level that is not more than 2’ below the bottom of the members of a support system shall be permitted, but only if the system is designed to resist the forces calculated for the full depth of the trench and if there are no indicators, while the trench is open, of a possible loss of soil from behind or below the bottom of the support system.
4. The installation of a support system shall be closely coordinated with the excavation of trenches.

Benching and Sloping

1. The angle of repose shall be flattened when an excavation has water conditions, silty materials, loose boulders, or areas where erosion, deep frost action, or slide planes appear.
2. When benching the side of an excavation, the vertical rise shall not be more than 5’ and the step back shall extend at least to the angle of repose as required by table 1.
3. When benching a side of a trench, the height of the lower bench shall not be more than the lesser of 5’ or width of the trench measured at the bottom.
4. An employee shall not be permitted to work on sloped or benched excavations at levels above another employee, except when an employee at the lower level is protected from the hazard of falling, rolling, or sliding material or equipment.

Trenching Boxes and Shields

1. Portable trench boxes or sliding trench shields may be used for the protection of personnel in place of a shoring system or sloping. Where such trench boxes or shields are used, they shall be designed, constructed, and maintained in a manner that provides protection equal to or greater than the sheeting or shoring required for the trench.
2. The use of benching in conjunction with a portable trench box is permitted when the toe of the trench box is not more than 2’ above the trench bottom, but only if the trench box is designed to resist the forces calculated for the full depth of the trench and if there are no indicators, while the trench is open, of a possible cave-in below the bottom of the trench box.
3. An employee shall not be allowed in shields when shields are being installed, removed, or moved.

Walkways, Sidewalks, Roadways

1. A sidewalk shall not be undermined unless it is shored to support a live load of not less than 125 lbs. per square ft.
2. If an employee or equipment is required or permitted to cross a trench or ditch, a walkway, runway, or bridge shall be provided and shall have a designed capacity of not less than 3 times the imposed load. A guardrail system shall be provided.

Adjacent Structures; Protection; Design; Inspection of Shoring, Bracing, and Underpinning

1. A structure that is adjacent to an excavation or trench below the level of the base or footing of any foundation or retaining wall shall be protected against settlement, lateral movement, undermining, or washout.
2. Before excavation begins, the design of the protection used shall be set forth by a qualified person who is knowledgeable in the subject area.
3. The shoring, bracing, and underpinning shall be inspected daily or more often, as conditions warrant, by a qualified person.

B.7. Cranes

Ground Conditions

1. A crane shall not be used or assembled unless ground conditions are firm, drained, and graded to a sufficient extent so that, in conjunction with the use of supporting materials if necessary, the equipment manufacturer's specifications for adequate support and degree of level of the crane are met. This requirement does not apply to marshes and wetlands.
2. The controlling entity is responsible to ensure that ground preparations necessary are met.
3. The controlling entity must also inform the user of a crane and operator of the location of hazards beneath the crane set-up area, such as voids, tanks, and utilities, if those hazards are identified in documents, such as site drawings, as-built drawings, and soil analyses, that are in the possession of the controlling entity, whether at the site or off-site, or the hazards are otherwise known to that controlling entity.
4. If the assembly director or the operator determines that ground conditions do not meet the requirements of MIOSHA Construction Safety Standard Part 10. Cranes and Derricks / OSHA Subpart CC Cranes and Derricks in Construction, that person's employer shall have a discussion with the controlling entity regarding the ground preparations that are needed so that the requirements can be met with the use of suitable supporting materials or devices, if necessary.

Assembly or Disassembly

1. Supervision by a competent and qualified person. The following criteria apply to a person supervising assembly or disassembly of equipment:
    a. Assembly or disassembly must be directed by a person who meets the criteria for both a competent and qualified person, or by a competent person who is assisted by 1 or more qualified persons.
    b. Where the assembly or disassembly is being performed by only 1 person, that person shall meet the criteria for both a competent and qualified person. That person is considered the A/D director.
2. The A/D director shall understand the applicable assembly or disassembly procedures.
3. The A/D director shall review the applicable assembly or disassembly procedures immediately prior to the commencement of assembly or disassembly unless A/D director understands the procedures and has applied them to the same type and configuration of equipment, including accessories, if any.
4. The following apply to crew instructions:
    a. Before commencing assembly or disassembly operations, the A/D director shall ensure that the crew members understand all the following:
        i. Their tasks
        ii. The hazards associated with their tasks
        iii. The hazardous positions and locations that crew members need to avoid
    b. During assembly or disassembly operations, before a crew member takes on a different task, or when adding new personnel during the operations, the requirements above in 4(a) must be met.
5. The following apply to protecting assembly or disassembly crew members out of the operators view:

a. Before a crew member goes to a location that is out of view of the operator and is either in, on, or under the equipment, or near the equipment or load where the crew member could be injured by movement of the equipment or load, the crew member shall inform the operator that he/she is going to that location.

b. Where the operator knows that a crew member went into a location covered in 5(a), the operator shall not move any part of the equipment or load until the operator is informed in accordance with a prearranged system of communication that the crew member is in a safe position.

6. When an employee is working under the boom; jib or other components, the following apply:

   a. When pins or similar devices are being removed, employees shall not be under the boom, jib, or other components, except where the requirements of 6(b) are met.

   b. When an employer demonstrates that site constraints require 1 or more employees to be under the boom, jib, or other components when pins or similar devices are being removed, the A/D director shall implement procedures that minimize the risk of unintended dangerous movement and minimize the duration and extent of exposure under the boom.

7. During all phases of assembly or disassembly, the A/D director shall ensure that rated capacity limits for loads imposed on the equipment, equipment components including rigging, lifting lugs, and equipment accessories are not exceeded for the equipment being assembled or disassembled.

8. The A/D director who supervises the assembly or disassembly operation shall address any specific hazards associated with the operation such as the following:

   a. Site and ground bearing conditions.
   b. Blocking material.
   c. Proper location of blocking.
   d. Verifying assist crane loads.
   e. Boom and jib pick points.
   f. Center of gravity
   g. Stability upon pin removal
   h. Snagging
   i. Struck by counterweights
   j. Boom hoist brake failure
   k. Loss of backward stability
   l. Wind speed and weather
   m. Cantilevered boom sections
   n. Weight of components
   o. Components and configuration
   p. Pile driving
   q. Outriggers and stabilizers
   r. Rigging

Critical Lifts

The following applies to lifts exceeding 75% of the rated capacity of a crane, or lifts that require the use of multiple cranes.

1. Before beginning a crane operation in which a lift exceeds 75% of the rated capacity of the crane, or requires the use of multiple cranes, the lift director shall plan the operation. The planning must meet all the following requirements:

   a. Be developed by a qualified person.

   b. Be designed to ensure that the requirements of MIOSHA Construction Safety Standard Part 10. Cranes and Derricks / OSHA Subpart CC Cranes and Derricks in Construction.

c. When the qualified person determines that engineering expertise is needed for the planning, the employer shall ensure that it is provided.

2. The following apply to plan implementation:

   a. The lift shall be directed by a lift director who meets the criteria for both a competent and qualified person, or a competent person who is assisted by 1 or more qualified persons.

   b. The lift director shall review the plan in a meeting with all workers who will be involved with the operation.

Power Line safety

1. Before beginning crane operations, the employer shall that the work zone near or around power lines is identified by either of the following:

   a. Demarcating boundaries, such as with flags, or a device such as a range device limit device or range control warning device, and prohibit the operator from operating the equipment past those boundaries.

   b. Defining the work zone as the area 360 degrees around the equipment, up to the

   c. crane's maximum working radius.

2. The employer shall determine if any part of the crane, load line, or load, including rigging and lifting accessories, if operated up to the equipment's maximum working radius in the work zone, could get closer than 20' to the power line. If this could occur, the employer shall do one of the following:

   a. Option 1- Deenergize and ground. Confirm from the utility owner or operator that the power line has been deenergized and visibly grounded at the worksite.

   b. Option 2- 20' clearance. Ensure that no part of the crane, load line, or load, including rigging and lifting accessories, get closer than 20' to the power line by implementing the measures specified in (3) of this manual.

   c. Option 3- Table A clearance from the MIOSHA / OSHA standards. The following apply:

      i. Determine the line's voltage and the minimum approach distance permitted under Table A "Minimum Clearance Distances."

      ii. Determine if any part of the equipment, load line, or load, including rigging and lifting accessories, while operating up to the maximum working radius in the work zone, could get closer than the minimum approach distance of the power line permitted under Table A "Minimum Clearance Distances." If this could occur, the employer shall follow the requirements in (3) of this section to ensure that no parts get closer to the line than the minimum approach distance.

3. Preventing encroachment or electrocution. Where encroachment precautions are required all the following requirements must be met:

   a. Conduct a planning meeting with the operator and the other workers who may be in the area of the equipment or load to review the location of the power lines, and the steps that will implemented to prevent encroachment or electrocution.

   b. If tag lines are used, the tag line must be nonconductive.

   c. Erect and maintain an elevated warning line, barricade, or line of signs, in view of the operator, equipped with flags or similar high-visibility markings, at 20'from the power line. If the operator is unable to see the elevated warning lines, a dedicated spotter shall be used in addition to one of the measures described.

d. Implement at least one of the following measures:

   i. A proximity alarm set to give the operator sufficient warning to prevent encroachment.

   ii. Use a dedicated spotter who is in continuous contact with the operator. The dedicated spotter must do all of the following:

      a. Be equipped with a visual aid to assist in identifying the minimum clearance distance. Examples of aid include, but are not limited to, any of the following:

         1. A clearly visible line painted on the ground.

         2. A clearly visible line of stanchions.

         3. A set of clearly visible line-of-sight landmarks such as a fence post behind the dedicated spotter and a building corner ahead of the dedicated spotter.

      b. Be positioned to effectively gauge the clearance distance.

      c. Where necessary, use equipment that enables the dedicated spotter to communicate directly with the operator.

      d. Give timely information to the operator so that the required clearance distance can be maintained.

   iii. Use a device that automatically warns the operator when to stop movement, such as a range control warning devise. This devise shall be set to give the operator sufficient warning to prevent encroachment.

   iv. Use of a devise that automatically limits range of movement shall be set to prevent encroachment.

   v. Use of an insulating link devise shall be installed at the point between the end of the line, or below, and the load.

4. All employees shall be trained who are assigned to work with the equipment on all of the following:

   a. The procedures to be followed in the event of electrical contact with a power line, including all the following:

      i. Information regarding the danger of electrocution from the operator simultaneously touching the equipment and the ground.

      ii. The importance to the operator's safety of remaining inside the cab except where there is an imminent danger of fire, explosion, or other emergency that necessitates leaving the cab.

      iii. The safety means of evacuating from equipment that may be energized.

      iv. The danger of the potentially energized zone around the equipment, step potential.

      v. Safe clearance distance from power lines.

   b. Power lines are presumed to be energized unless the utility owner or operator confirms that the power line has been and continues to be deenergized and visibly grounded at the worksite.

   c. Power lines are presumed to be uninsulated unless the utility owner or operator or a registered engineer who is a qualified person with respect to electrical power transmission and distribution confirms that a line is insulated.

   d. The limitations of an insulating link or device, proximity alarm, and any range control devices, if used.

e. The procedures to be followed to properly ground equipment and the limitations of grounding.

f. Employees working as dedicated spotters shall be trained to enable them to effectively perform their task, including training on the applicable requirements of MIOSHA Construction Safety Standard Part 10. Cranes and Derricks / OSHA Subpart CC Cranes and Derricks in Construction.

g. Devices originally designed by the manufacturer for use as a safety device, operational aid, or a means to prevent power line contact or electrocution, shall meet the manufacturer's procedures for use and condition.

Inspection

1. Upon completion of assembly, a qualified person shall inspect the equipment to ensure that it is configured in accordance with manufacturer equipment criteria.

2. A competent person shall begin a visual inspection that is documented prior to each shift for the equipment that is to be used. The inspection shall be completed before that shift and shall consist of observing for apparent deficiencies. Taking apart equipment components and booming down is not required as part of the visual inspection unless the results of the visual inspection or trial operation indicate that further investigation necessitates taking apart equipment components or booming down. At a minimum, the inspection shall include all the following:

   a. Control mechanisms for maladjustments interfering with proper operation.

   b. Control and drive mechanisms for apparent excessive wear of components and contamination by lubricants, water, or other foreign matter.

   c. Air, hydraulic, and other pressurized lines for deterioration or leakage, particularly those that flex in normal operation.

   d. Hydraulic system for proper fluid level.

   e. Hooks and latches for deformation, cracks, excessive wear, or damage such as from chemicals or heat.

   f. Wire rope reeving for compliance with the manufacturer's specifications.

   g. Wire rope.

   h. Electrical apparatus for malfunctioning, signs of apparent excessive deterioration, dirt or moisture accumulation.

   i. Tires, when in use, for proper inflation and condition.

   j. Ground conditions around the equipment for proper support including ground settling under and around outriggers or stabilizers and supporting foundations ground water accumulation or similar condition.

   k. The equipment for level position within the tolerances specified by the equipment manufacturer's recommendations, both before each shift and after each shift and after each move and setup.

   l. Operator cab windows for significant cracks, breaks, or other deficiencies that would hamper the operator's view.

   m. Safety devices and operational aids for proper operation.

3. If any deficiencies are found or if an additional inspection items required to be checked for specific types of equipment are identified, a competent person shall make an immediate determination as to whether the deficiency constitutes a safety hazard. If the deficiency is determined to constitute a safety hazard, the equipment shall be removed from service until it is corrected.

4. All cranes that are in service must be inspected monthly.
5. At least every 12 months, a qualified person shall inspect the equipment. All cranes must have a current annual inspection turned into Granger Construction before they will be allowed to operate on site.

Operations

1. All manufacturer procedures applicable to the operational functions of equipment, including its use with attachments shall be complied with.
2. The procedures applicable to the operation of the equipment, including rated capacities, load charts, recommended operating speeds, special hazard warnings, instructions, and operator's manual, shall be readily available in the cab always for the use by the operator.
3. When rated capacities are available in the cab only in electronic form and in the event of a failure that makes the rated capacities inaccessible, the operator shall immediately cease operations or follow safe shut-down procedures until the rated capacities, in electronic or other form, are available.
4. The operator shall not engage in any practice or activity that diverts his or her attention while actually engaged in operating the crane, such as the use of cellular phones other than when used for signal communications.
5. The operator shall not leave the controls while the load is suspended, except when all the following are met:
    a. The operator remains adjacent to the crane and is not engaged in any other duties.
    b. The load is to be held suspended for a period of time exceeding normal lifting operations.
    c. The competent person determines that it is safe and implements measures necessary to restrain the boom hoist and telescoping, load, swing, and outriggers or stabilizers.
    d. Barricades or caution lines, and notices, are erected to prevent all employees from entering the fall zone. No employees are permitted in the fall zone.
6. Before starting the engine, the operator shall verify that all controls are in the proper starting position and that all personnel are in the clear.
7. The operator shall obey a stop or emergency stop signal, from anyone who gives it.
8. When a local storm warning has been issued, the competent person shall determine whether it is necessary to implement manufacturer recommendations for securing the crane.
9. Whenever there is a concern about safety, the operator may stop and refuse to handle loads until a qualified person has determined that safety has been assured.
10. Only CCO or NCCCO operators will be allowed to operate cranes they are designated to operate on Granger Construction projects.
11. Rigging will only be conducted by a qualified and certified rigger.

Traveling with Load

1. Traveling with a load is prohibited if the practice is prohibited by the manufacturer.
2. Where traveling with a load, the following shall be ensured:
    a. A competent person supervises the operation, determines if it is necessary to reduce rated capacity, and makes determinations regarding load position, boom location, ground support, travel route, overhead obstructions, and speed of movement necessary to ensure safety.

b. The determinations of the competent person are implemented.

c. For equipment with tire, tire pressure specified by the manufacturer shall be maintained.

3. Rotational speed of the equipment shall be such that the load does not swing out beyond the radius at which it can be controlled.

4. A tag or restraint line shall be used if necessary to prevent rotation of the load that would be hazardous.

5. The brakes shall be adjusted in accordance with manufacturer procedures to prevent unintended movement.

Compliance with Rated Capacity

1. A crane shall not be operated more than its rated capacity.

2. The operator shall not be required to operate the crane in a manner that would violate sub rule (1) of this section.

3. Load weight. The operator shall verify that the load is within the rated capacity of the crane by either or both of the following methods:

   a. The weight of the load is determined from a source recognized by the industry such as the load's manufacturer, or by a calculation method recognized by the industry such as calculating a steel beam from measured dimensions and a known per foot weight, or by other equally reliable means. In addition, when requested by the operator, this information must be provided to the operator prior to the lift.

   b. The operator begins hoisting the load to determine if it exceeds 75% of the maximum rated capacity at the longest radius that is used during the lift operation by using a load weighting device, load moment indicator, rated capacity indicator, or rated capacity limiter. If it does, the operator shall not proceed with the lift until he or she verifies the weight of the load.

4. The operator shall not permit the boom or other parts of the crane to contact any obstruction.

5. The operator shall not use a crane to drag or pull loads sideways.

6. On wheel-mounted cranes, no loads shall be lifted over the front area, except as permitted by the manufacturer.

7. The operator shall test the brakes each time a load that is 90% or more of the maximum line pull is handled by lifting the load a few inches and applying the brakes. In duty cycle and repetitive lifts where each lift is 90% or more of the maximum line pull, this requirement shall apply to the first lift but not to successive lifts.

8. Neither the load nor boom shall be lowered below the point where less than 2 full wraps of rope remain on their respective drums.

Signals

1. A signal person shall be provided in each of the following situations:

   a. The point of operation, meaning the load travel or the area near or at load placement, is not in full view of the operator.

   b. When the equipment is traveling, the view in the direction of travel is obstructed.

   c. Due to specific safety concerns, either the operator or the person handling the load determines that it is necessary.

2. The signals between the operator and signal person shall be by hand, voice, audible, or new signals.

3. When using hand signals, the signal person, operator, and lift director shall use the standard signals.
4. Non-standard hand signals. When using non-standard hand signals, the signal person, operator, and lift director, when there is one, shall contact each other prior to the operation and agree on the non-standard hand signals that will be used.
5. During operations requiring signals, the ability to transmit signals between the operator and signal person shall be maintained. If that ability is interrupted at any time, the operator shall safely stop operations requiring signals until it is reestablished and a proper signal is given and understood.
6. If the operator becomes aware of a safety problem and needs to communicate with the signal person, he or she shall safely stop operations. Operations shall not resume until the operator and signal person agree that the problem has been resolved.
7. Only 1 person shall give signals to a crane at a time.
8. Any person on site who becomes aware of a safety problem shall alert the operator or signal person by giving the STOP or EMERGENCY STOP signal.
9. All directions given to the operator by the signal person shall be given from the operator's direct perspective.
10. Devices used to transmit signals shall be tested between the operator and the signal person on-site before beginning operations to ensure that the signal transmission is clear and reliable.
11. Signal transmission shall be through a dedicated channel except under the following circumstances:
    a. When multiple cranes or derricks are used for the same task, 1 or more qualified signal persons may share a dedicated channel for coordinating operations.
    b. When a crane is being operated on or adjacent to railroad tracks and the action of the crane operator need to be coordinated with the movement of other equipment or trains on the same or adjacent tracks.
12. The crane operator shall receive signals using hands-free devices.
13. The operator, signal person, and lift director, if there is one, shall contact each other and agree on the voice signals that will be used prior to beginning operations. These individuals shall meet again if any of the following occurs:
    a. A worker is substituted or added.
    b. There is confusion about the voice signals.
    c. Voice signals are to be changed.
14. Each voice signal shall contain the following elements, given in the following order:
    a. Function, such as hoist or boom direction.
    b. Distance or speed, or both.
    c. Function, stop command.
15. The operator, signal person, and lift director, if there is one, involved must be able to effectively communicate in the language used.
16. Hand signal charts shall be posted on the crane.

Keeping Clear of Load

1. Where available, hoisting routes that minimize the exposure of employees to hoisted loads shall be used to the extent consistent with public safety.
2. An employee shall not be within the fall zone of a suspended load that is not being moved, except for employees engaged in any of the following:
    a. Hooking, unhooking, or guiding a load.
    b. Initially attaching the load to a component or structure.
    c. Operating a concrete hopper or concrete bucket.
3. When employees are engaged in the hooking, unhooking, or guiding the load, or are in the initial connection of a load to a component or structure and are within the fall zone, all the following criteria shall be met:
    a. The material being hoisted must be rigged to prevent unintentional displacement.
    b. Hooks with self-closing latches, or their equivalent, must be used. Exception: “J” hooks are permitted to be used for setting wooden trusses.
    c. The material must be rigged by a qualified / Certified rigger.
4. Only employees needed to receive a load are permitted to be within the fall zone when a load is being landed.
5. During tilt-up or tilt-down operation both of the following shall be met:
    a. An employee shall not be directly under the load.
    b. Only employees essential to the operation are permitted in the fall zone, but not directly under the load. An employee is essential to the operation if the employee is conducting 1 of the following operations and an employer can demonstrate it is infeasible for the employee to perform that operation from outside the fall zone:
        i. Physically guiding the load.
        ii. Closely monitoring and giving instructions regarding the load’s movement.
        iii. Either detaching the load from or initially attaching the load to another component or structure including, but not limited to, making an initial connection or installing bracing.

Work Area Controls

1. To prevent employees from entering hazard areas each employer must:
    a. Train each employee assigned to work on or near the equipment in how to recognize struck-by and pinch or crush hazard areas posed by the rotating superstructure.
    b. Erect and maintain control lines, warning lines, railings or similar barriers to mark the boundaries of the hazard areas.
2. The following apply to protect employees in the hazard area:
    a. Before an employee goes to a location in the hazard area that is out of view of the operator, the employee, or someone instructed by the employee, shall ensure that the operator is informed that he or she is going to that location.

b. When the operator knows that an employee went to a hazard location, the operator shall not rotate the superstructure until the operator is informed in accordance with a prearranged system of communication that the employee is in a safe position.

3. When any part of a crane is within the working radius of another crane, the controlling entity, shall institute a system to coordinate operations.

B.8. Powered Industrial Trucks

Powered Industrial Trucks

This Summary is part of Grangers Constructions PITP which is intended to meet all requires OSHA / MIOSHA applicable standards and help prevent accidents involving Powered Industrial Trucks. Only training authorized personnel with a current operator permit will be allowed to operate a Powered Industrial Truck. Seat belts shall be provided on all equipment covered in this section and shall be worn at all times by the operator.

Name Plates and Markings

1. A Powered Industrial Trucks (RT Forklifts) which has been accepted by an approved testing laboratory shall bear a label or marking indicating such acceptance.
2. A name plate, label or tag provided on such truck shall be maintained in place and in legible condition.
3. The rated capacity must be posted on the vehicle and clearly visible to the operator at all times.

Equipment

1. A truck, except a motorized hand truck, shall be equipped with an audible device to warn of approach.
2. A truck used in areas where general lighting is less than 2 foot-candles shall be equipped with auxiliary lights that illuminate work in process.
3. All RT fork trucks must have a rollover protective structure (ROPS).

Modifications

1. No modifications or additions which affect the capacity or safe operation of the equipment shall be made without the manufacturer's written approval. If such modifications or changes are made, the capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly. In no case shall the original safety factor of the equipment be reduced.
2. If the truck is equipped with front end attachments, the name plate shall be marked to show the following:
    a. Identification of the attachment.
    b. The approximate weight of the truck and attachment.
    c. The load capacity of the truck and attachment combination at maximum elevation of the load engaging means with load laterally centered.

Parking Brakes; Tires

1. The parking brake on a sit-down rider truck shall be capable of holding the truck on the maximum grade which the truck can negotiate with rated load, or on a 15% grade, whichever is lesser. The parking brake shall be manually or automatically applied and shall remain applied until released by the operator.
2. Tires shall be used as recommended by the truck manufacturer.

Steering Control

Steering or spinner knobs shall not be attached to the steering wheel unless the steering mechanism is of a type that prevents road reactions from causing the steering handwheel to spin. The steering knob shall be mounted within the periphery of the wheel.

1. Except on a motorized hand and motorized hand or ride truck, the steering control of a powered industrial truck is contained within the outlines of the planes of the truck, or guarded to prevent injury to the operator during movement of the controls when passing an obstacle such as a wall, post, equipment, box, or another truck.

2. On a motorized hand and motorized hand or ride truck, the steering handle is provided with a guard or device to protect the operator's hands from injury when passing an obstacle such as a wall, post, equipment, box, or another truck.

Permits

1. An employer shall provide their employees with a permit to operate a powered industrial truck only after meeting all requirements of the applicable OSHA / MIOSHA standards.
2. A permit shall be carried by the operator or be available upon request by Federal or State representative at all times during working hours.
3. A permit shall indicate the type of truck an operator has been trained on and is qualified to operate.
4. A permit to operate a powered industrial truck is valid only with the employer who issued the permit, and the permit shall be issued for a period of not more than 3 years.

Mechanical Conditions and Maintenance

1. Employees shall not be permitted to operate a powered industrial truck is any of the following conditions are found:
    a. The service and parking brakes don not perform their intended function.
    b. The fuel system leaks.
    c. A lift cylinder of a load engaging means allows a downward drift of the load engaging means loaded or unloaded more than 5" in 5 minutes.
    d. A tilt cylinder of a mast allows a forward drift of the mast more than 2 degrees in 5 minutes with the mast in a vertical position and a capacity load on the fork or load engaging means.
    e. The steering mechanism allows free play of the steering wheel of more than ¼ turn on trucks capable of speeds up to 8 mph and more the 1/8 turn on trucks capable of speeds over 8 mph.
    f. A hydraulic system leaks and creates a hazard for an employee and equipment in the areas.
2. Repairs to a fuel and ignition system which involves a fire hazard shall be made only in a designated location. Repairs shall not be made in a location made hazardous by:
    a. Flammable gases or vapors
    b. Combustible dust.
    c. Ignitable fibers.
3. Repairs to the truck electrical system shall be made only after the battery has been disconnected.
4. A replacement part shall have not less than the equivalent safety of the original part.
5. It is the employer's responsibility to ensure that any defects that would affect the safe operation of the equipment are repaired before use.
6. Operators shall not make any repairs or adjustments unless specifically authorized to do so.

Fuel

1. Refuel only is designated areas.
2. Turn engine off while refueling
3. Smoking or open flames are prohibited while refueling.

4. All refueling must take place 25’ or more away from a source of open flame or sparks.

Operator Responsibilities

1. At the start of each shift, the operator of a powered industrial truck or a qualified employee shall perform daily checks of the equipment and document the inspection.
2. An operator shall promptly report any defects to the employer.
3. Safe guard employees always.
4. Don’t drive a truck up to anyone who is standing in front of a fixed object.
5. An operator shall not allow anyone to stand or pass under the elevated portion of any powered industrial truck, whether loaded or empty.
6. No employee, except the operator, shall ride on a powered industrial truck unless the truck is provided with a passenger seat.
7. An employee shall not place his or her arms or legs in either of the following positions:
    a. Between the uprights of the mast
    b. Outside the running lines of a moving truck.
8. When leaving a powered industrial truck unattended, an operator shall fully lower the forks flat to the floor, neutralize the controls, set the brakes, and shut the power off.
9. Whenever it is necessary to leave a truck on an incline, the truck wheels shall be blocked and the steering wheels turned towards the curbing, wall or railing.
10. Before moving or stacking, an operator shall survey the path of travel in order to avoid obstacles, such as, but not limited to, pipes, light fixtures, and other hazards. A safe distance shall be maintained from the edge of ramps or platforms while on an elevated surface.
11. An operator shall report all accidents involving injury to an employee or damage to building and equipment to Granger construction immediately.
12. An operator shall maintain clear access of fire aisles, to stairways and fire equipment when depositing loads.
13. An operator shall operate a powered industrial truck in accordance with local traffic rules when on a public road.
14. When following another truck, a safe distance of approximately 3 truck lengths shall be maintained from the lead truck.
15. An operator shall give the right of way to ambulances, fire trucks, or other emergency vehicles.
16. No passing another truck traveling in the same direction at intersections, blind spots, or other dangerous locations.
17. An operator shall slow down and sound the warning device at cross aisles and other locations where the operator’s vision is obstructed by fixed objects.
18. An operator shall look in the direction of and keep a clear view of the direction of travel. When moving loads blocking the forward visibility, for safe handling an operator shall drive the truck with the load trailing.
19. An operator shall ascend and descend grades of 10% or more at a speed of not more than 2 mph.
20. When ascending or descending a grade that exceeds the back-tilt of the mast, the load shall be facing upgrade.
21. On all grades, unloaded trucks shall be driven with the load engaging means downgrade, tilted back, and raised only as far as necessary to clear the floor or road surface.

22. Start, stops, and turns shall be made in a manner which will prevent a load from shifting or overturning.
23. Stunt driving and horseplay will not be permitted.
24. An operator of a truck shall avoid running over loose objects.
25. An operator shall drive at a slow speed over wet or slippery floors.
26. Operate a truck equipped with attachments as a partially loaded truck when not transporting a load.
27. When loading a fork lift truck, place the load as far as possible and tilt the mast backwards to cradle the load.
28. Exercise caution when tilting loads especially when they are segmented.
29. Lift or transport only a load that cannot fall out of a basket or container, or off the load engaging means during the normal movements of the truck.
30. Lift or transport only a load that is within the rated capacity of the truck.
31. Tilt an elevated load forward only when in a deposit position over a rack or stack.

Training

1. Employees shall be provided training before an employee is assigned as an operator for a powered industrial truck / RT forklift. Instruction shall include the following:
    a. Capacities of the equipment and attachments.
    b. Purpose, use, and limitations of controls.
    c. How to make daily inspections.
    d. Practice and operating assigned vehicles through the mechanical functions necessary to perform the required job.
    e. All applicable rules and regulation
    f. Hazards associated with exhaust gases produced by fossil fuel, diesel exhaust, and hazards associated with the handling of electrolyte chemicals.
2. Training shall consist of a combination of formal instruction, such as lecture, discussion, interactive computer learning, videotape, written material, practical training, and testing of the operator's performance in the workplace.
3. Operators are required to receive refresher training in relevant topics under any of the following conditions:
    a. An operator has been observed to operate the vehicle in an unsafe manner.
    b. An operator has been involved in an accident or a near-miss incident.
    c. An operator has received an elevation that reveals that the operator is not operating the truck safely.
    d. An operator is assigned to a different type of truck.
    e. A condition in the workplace changes that could affect safe operation of the truck.
4. An evaluation of each operator's performance shall be conducted before renewal of a truck operator permit.

Rough Terrain Forklift Truck Scaffolds; Equipment Requirements; Employee Safety Requirements

1. The scaffold platform shall be attached to the forks by enclosed sleeves and shall be secured against the back of the forks with a mechanical device so that the platform cannot tip or slip.
2. A work platform shall comply with the following requirements:

a. The guardrail shall be of welded mild steel construction that has a minimum safety factor of 4 times the maximum intended load.

b. Have a continuous guardrail system constructed as follows:

   i. Have a top rail which is located not less than 36", nor more than 42", above the platform floor and which is constructed to withstand a minimum of 200 lbs. of force in any direction.

   ii. Have a mid-rail which is installed at mid-height between the top rail and platform floor and which is constructed to withstand a 200-lb. side thrust.

   iii. Have a toe board which is not less than 4" in nominal height and which is installed not more than ¼" above the floor around the periphery of the work platform. If the platform has a gate, then the toe board shall be installed on the gate.

c. Have a wood planking, steel plate, or a steel grating bolted or welded to the bottom of the platform and be maintained free of slip or trip hazards.

d. Have a permanently affixed sigh on the platform that specifies the maximum number of passengers allowed, the work platform identification number, and the maximum rated load.

e. Be easily identifiable by high-visibility color or marking.

3. The work platform shall be level when in use.
4. If an employee is elevated in a platform on a variable reach lift truck, a personal fall arrest system, including the anchorage required in Construction Safety Standard Part 45 "Fall Protection", Construction Safety Standard Part 6 "Personal Protective Equipment" as referenced in R 408.41202 / Subpart- M Fall Protection is required and shall be worn when an employee is elevated.
5. The rough Terrain fork truck or the lift truck shall rest on firm footing. Leveling devices and outriggers shall be used where provided on equipment.
6. A trained operator shall remain at the operator station of a lift truck to control the lift truck while an employee is elevated. The lift truck control or controls shall be in neutral and the parking brake set. The operator of the lift truck scaffold platform shall be able to see the elevated platform always.
7. A lift truck platform shall be returned to the ground before a lift truck is repositioned. The forklift shall be moved as close to the work area as possible for final positioning. An employee shall exit the landed platform and reenter the platform only after the lift truck repositioning is completed.
8. The combined mass weight of the platform, load, and the employees shall not be more than 1/3 of the rated capacity of the rough terrain forklift truck on which the platform is used.
9. An employee shall maintain firm footing on the platform. Railings, planks, ladders, or other materials shall not be used on the platform to achieve reach or height.
10. The guardrail system of the platform shall not be used to support any of the following:
    a. Materials
    b. Other work platforms
    c. Employees
11. The platform shall be lowered to ground level for an employee to enter or exit, except where elevated work areas are inaccessible or hazardous to reach. An employee may exit the platform with the knowledge and consent of their employer. When exiting to unguarded work areas, fall protection shall be provided and used as required in Construction Safety Standard Part 45 "Fall Protection" a referenced in R 408.41202 / Subpart M-

Fall Protection. An employee shall not climb on any part of a lift truck when attempting to enter or exit the platform.

12. A platform shall not be modified if the modification is detrimental to its safe use.
13. Floor dimensions parallel to the truck longitudinal centerline shall not be more than 2 times the load center distance listed on the rough terrain forklift truck nameplate. The floor dimension width shall not be more than the overall width of the truck measured across the load-bearing tires plus 10” on either side. The minimum space for each employee on the platform shall not be less than 18” in either direction.
14. A wood pallet shall not be used as a platform for a lift truck scaffold.
15. If arc welding is performed by an employee on the platform, then the electrode holders shall be protected from contact with the metal components of the work platform
16. A work platform shall not be used during high wind, electrical storms, snow, ice, sleet, or other adverse weather conditions that could affect the safety of the employees on the work platform or the operator of the truck.

Operator Training

1. An employer shall ensure that an employee has been trained before the employee’s assignment as an operator of a rough terrain forklift truck that is used to elevate employees. An employee shall be trained in all the following areas:
    a. The capabilities of the equipment and its attachments.
    b. The purpose, use, and limitations of the controls.
    c. How to make daily checks.

B.9. Fixed and Portable Ladders

General Requirements

1. A ladder shall be provided at all personnel points of access if there is a break in elevation of 19 inches or more and in a ramp, runway, sloped embankment, stairway, or personnel hoist is not provided.

2. When a building or structure has only 1 point of access between levels, that point of access shall be kept clear to permit the free passage of employees. When work must be performed or equipment must be used, that restricts the free passage of employees at the point of access, an employer shall provide a second point of access and the access must be used.

3. When a building or structure has 2 or more points of access between levels, the employer shall ensure at least 1 point of access is kept clear to permit the free passage of employees.

4. Employers shall provide and install all ladder fall protection systems that are required by PART 11. FIXED AND PORTABLE LADDERS / SUBPART X- STAIRWAYS AND LADDERS and shall comply with all other pertinent requirements in PART 11 / SUBPART X before employees begin the work that necessitates the installation and use of ladders and their respective fall protection systems.

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

6. Rungs, cleats, and steps of portable ladders, and fixed ladders shall be spaced not less than 10 inches apart and not more than 14 inches apart, as measured between the center lines of the rungs, cleats, and steps.

7. Rungs, cleats, and steps of step stools shall not be less than 8 inches apart and not more than 12 inches apart, as measured between center lines of the rungs, cleats, and steps.

8. Rungs, cleats, and steps of the base section of extension trestle ladders shall not be less than 8 inches, nor more than 18 inches apart, as measured between center lines on the rungs, cleats, and steps. The rung spacing on the extension section of the extension trestle ladder shall be not less than 6 inches, nor more than 12 inches, as measured between center lines of the rungs, cleats, and steps.

9. The minimum clear distance between the sides of individual rung-type stepladders and the minimum clear distance between the side rails if other fixed ladders shall be 16 inches.

10. The minimum clear distance between side rails for all portable ladders shall be 11 ½ inches.

11. The rungs of individual rung-type stepladders shall be shaped so that an employee's feet cannot slide off the end of the rung.

12. The rungs and steps of fixed metal ladders that are manufactured after January 14, 1991, shall be corrugated, knurled, dimpled, coated with skid-resistant material, or otherwise treated to minimize slipping.

13. The rungs of steps of portable metal ladders shall be corrugated, knurled, dimpled, coated with skid-resistant material, or otherwise treated to minimize slipping.

14. Ladder components shall be surfaced in a manner that prevents employee injury due to punctures or lacerations and prevents the snagging of clothing.

Training requirements

1. An employer shall provide a training program for each employee who uses a ladder. The program shall enable each employee to recognize hazards related to the ladder and shall train each employee in the procedures to be followed to minimize these hazards.

2. An employer shall ensure that each employee has been trained by a competent person in all the following areas as applicable:

   a. The nature of fall hazards in the work area.
   b. The correct procedures for erecting, maintaining, and disassembling the fall protection systems to be used.
   c. The proper construction, use, and placement of, and are in handling, ladders.
   d. The maximum intended load-carrying capacities of ladders that are used.
   e. The rules contained in PART 11. FIXED AND PORTABLE LADDERS / SUBPART X- STAIRWAYS AND LADDERS.

3. Retraining shall be provided for each employee as necessary so that the employee maintains the understanding and knowledge acquired through compliance with the rules.

General use

1. A ladder shall not be placed in a passageway, doorway, driveway, or any location where it may be displaced, unless it is protected by barricades or guards or is secured to prevent displacement.

2. A ladder shall be placed on a substantial and stable base unless it is secured to prevent accidental displacement. The area around the top and bottom of the ladder shall be kept clear.

3. A ladder shall not be used as a brace, slide, guy, gin pole, or gangway or for any other use than that for which it is designed.

4. An employee shall face the ladder when ascending or descending. Each employee shall use at least 1 hand to grasp the ladder when progressing up or down the ladder. An employee shall not carry any object or load that could cause the employee to lose balance and fall.

5. An employee who is on a ladder shall not overreach or do any pushing or pulling that may cause the ladder to move or topple. If both of an employee's shoulders are outside of a side rail, the employee is overreaching.

6. A ladder shall be located and maintained to prevent an employee from bumping into, or snapping onto, projecting objects while ascending or descending the ladder.

7. A ladder shall not be loaded beyond its load-carrying capacity.

8. A ladder shall not be moved, shifted, or extended while occupied by an employee.

9. Single-rail ladders shall not be used.

Portable Ladders

1. A portable ladder shall be used at such a pitch that the horizontal projected distance from the top support to the base is not more than 1/4 of the vertical distance between these points.

2. A portable ladder in use shall be equipped with appropriate safety feet, unless the ladder is tied, blocked, or otherwise secured to prevent it from being displaced. Slip-resistant feet shall not be used as a substitute for care in placing, lashing, or holding a ladder that is used upon slippery surfaces, including flat metal or concrete surfaces that are constructed so that they cannot be prevented from becoming slippery.

3. A portable ladder that is used at such a pitch that the horizontal projected distance from the top support to the bas is less than 1/5 of the vertical distance between these points shall be secured at the top to prevent tipping backwards.

4. A portable ladder that is used at a pitch of 80 degrees or more shall be in compliance with the requirements of a fixed ladder as prescribed in General Industry Safety Standard PART 3. FIXED LADDERS as referenced in R 408.41102a.

5. When portable ladders are used for access to an upper landing surface, the ladders rails shall extend not less than 3 feet above the upper landing surface to which the ladder is used to gain access; or, when such an extension is not possible because of the ladder's length, then the ladder shall be secured at its top to rigid support that will not deflect and a grasping device, such as a grabrail, shall be provided to assist employees in mounting and dismounting the ladder. The side rails shall not extend in a manner that would permit ladder deflection under a load, by itself, to cause the ladder to slip off its support. The top of a non-self-supporting ladder shall be placed with the 2 rails supported equally, unless the ladder is equipped with a single support attachment.

6. A manufactured portable metal ladder shall not be used for electrical work or where the ladder or an employee may contact electrical conductors. A ladder shall have nonconductive side rails if the ladder is used where the employee or ladder could contact exposed energized electrical equipment. **(Due to the potential of electrical hazards Granger Construction Company only allows fiberglass ladders on our job sites NO METAL or WOOD ladders)**.

7. An employee who is using a portable ladder shall not stand on the top 2 rungs or within 3 feet of the top of the ladder.

8. Two portable ladders shall not be spliced together to provide long sections unless such ladders are specifically designed for such use.

9. A portable 2-section extension ladder shall be erected so that the top section rests on the base section. The top section shall be the section nearest to the climber.

10. A non-self-supporting ladder shall be used at an angle such that the horizontal distance from the top support to the foot of the ladder is approximately 1/4 of the working length of the ladder that is the distance along the ladder between the foot and the top support.

11. A fixed ladder shall be used at a pitch of not more than 90 degrees from the horizontal, as measured to the back side of the ladder.

Use of stepladders

1. An employee shall not use the backside of a stepladder for climbing, unless the stepladder is designed for such use.

2. Unless the stepladder is equipped with a handrail, the top step and cap shall not be used to stand on.

3. A stepladder shall not be used as a straight ladder by leaning it against a wall or other support.

4. A metal spreader or locking device shall be provided on each stepladder to hold the front and back sections in an open position when the ladder is being used. The ladder shall be opened fully and the spreaders shall be locked while in use.

Inspection; faults and defects

1. A ladder, as prescribed in PART 11 / SUBPART- X, shall be used to provide safe access to all elevations, unless other means, such as steps, stairs, ramps, runways, or elevators, are provided.

2. A ladder shall be inspected before use and after it had fallen or been involved in an accident to determine its condition.

3. A ladder that has any of the following faults and defects shall be immediately tagged **"DANGEROUS – DO NOT USE"** and shall be removed from service.
   a. Broken, worn, or missing rungs, cleats, or steps.
   b. Broken or split side rails.
   c. Broken or bent guides or iron spreaders.
   d. Broken or bent locks.

4. Fixed ladders that have structural defects, such as broken or split rails or corroded components, shall be removed from service until repaired. The requirements to remove a defective ladder from service is satisfied if 1 of the following provisions is complied with:
   a. The ladder is immediately tagged with the words **"DO NOT USE"** or similar language.
   b. The ladder is marked in a manner that readily identified it as defective.
   c. The ladder is blocked, such as with a plywood attachment that spans several rungs.

5. Ladder repairs shall restore that ladder to a condition that meets its original design criteria before the ladder is returned to use.

Maintenance

1. A ladder shall be maintained free of slip-enhancing hazards and in good working condition.

2. A ladder shall not be painted with an opaque material. A ladder, particularly one used outdoors should be coated with a suitable transparent protective material to retard splintering caused by weathering.

3. The side rails and legs of a ladder shall be kept free from splinters. The joints between the side rail and step shall be kept tight and material hardware and fittings secured.

4. A ladder surface shall be free of puncture or laceration hazards.

B.10. Scaffolds and Scaffold Platforms

Training Requirements

1. Each employee who performs work on scaffolds must be trained by a qualified person in scaffold safety. This training shall enable an employee to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize the hazards. The employees will be trained in the applicable areas:
    a. The nature of any electrical hazards, fall hazards, and falling object hazards in the work area.
    b. The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used.
    c. The proper use of the scaffold, and the proper handling of materials on the scaffold.
    d. The maximum intended load and the load-carrying capacities of the scaffolds used.
2. An employee who is involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold must be certified and trained by a competent person to recognize any hazards associated with the work in question. The training shall include the following topics:
    a. Nature of scaffold hazards.
    b. The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold being used.
    c. The design criteria, maximum intended load-carrying capacity, and intended use of the scaffold.
    d. Any other pertinent requirements.
3. If there is reason to believe that an employee lacks the skill or understanding needed to safely perform work that involves the erection, use, or dismantling of scaffolds, then the employer shall retrain the employee so that the requisite proficiency is regained. Retraining is required in all the following situations:
    a. Where changes at the worksite present a hazard for which an employee has not been previously trained.
    b. Where changes in the types of scaffolds, fall protection, falling object protection, or other equipment presents a hazard for which an employee has not been previously trained.
    c. Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the requisite proficiency for the work involved.

Construction and capacity

1. A scaffold shall be designed, constructed, erected, and used pursuant to the provisions set forth in Part. 12 Scaffolds and Scaffold Platforms / Subpart L- Scaffolds. A scaffold shall be designed by a qualified person.
2. A scaffold shall not be erected, moved, dismantled, or altered except under the supervision of a competent person.
3. A scaffold and its components shall be capable of supporting, without failure, not less than 4 times the maximum intended load.
4. A specially designed scaffold that utilizes methods of bracing other than cross bracing is acceptable if the scaffold and its components comply with the requirements in Part. 12 Scaffolds and Scaffold Platforms / Subpart L- Scaffolds.
5. A scaffold shall not be loaded to more than the designed working load.

6. Scaffolds and scaffold components shall be inspected for visible defects by a competent person before each work shift and after any occurrence that could affect a scaffold's structural integrity. Any scaffold, including accessories such as braces, brackets, trusses, screw legs, ladders, or platforms, that is damaged or weakened from any cause shall be immediately repaired or replaced. Any scaffold or accessories that are repaired shall have at least the original designed strength of the scaffold or accessory.
7. An employee on a scaffold who is exposed to an overhead hazard of falling material shall be protected with overhead protection that is sufficient to prevent injury.
8. All load-carrying wood scaffold framing members shall be a minimum of 1,500 psi fiber stress value.
9. Poles, legs, or uprights of scaffolds shall be plumb and shall be securely and rigidly braced to prevent swaying and displacement.
10. The support for a scaffold shall be sound, rigid, and capable of carrying the maximum intended load without settling or displacement. Leveling jack adjusting screws, when used, shall not extend more than 18" below the base of the scaffold. Unstable objects, such as barrels, boxes, pallets, brick, or concrete blocks, shall not be used to support a scaffold or work platform. Scaffold poles, legs, posts, frames, and uprights shall bear on base plate, along with mudsills or other adequate support.
11. Scaffold components that are not designed to be compatible shall not be intermixed.
12. A shore or lean-to scaffold shall not be used.
13. Makeshift devices, such as, but not limited to, boxes and barrels, shall not be used on top of scaffold platforms to increase the working level height of employees.
14. A ladder shall not be used on a scaffold to increase the working level height of employees, except on a large area scaffold where an employer has satisfied all the following criteria:
    a. When the ladder is placed against a structure that is not a part of the scaffold, the scaffold shall be secured against the sideways thrust exerted by the ladder.
    b. The platform units shall be secured to the scaffold to prevent the units from moving.
    c. Either the ladder legs shall be on the same platform or another means shall be provided to stabilize the ladder against unequal platform deflection.
    d. The ladder legs shall be secured to prevent them from slipping or being pushed off the platform.
15. All scaffolds must be green tagged, inspected and documented daily before employees can access scaffold.
16. If scaffold is found that is damaged it must be red tagged, and marked out of service.

Access to Scaffold Platforms

1. Access to a scaffold platform shall be provided by 1 or more of the following:
    a. A ladder that conforms to CSS Part. 11 "Fixed and Portable Ladders" as referenced in R 408.41202 / Subpart X- Stairways and Ladders.
    b. Hook-on or attachable metal ladders that are specifically designed for use in construction with manufactured types of scaffold. If a hook-on or attachable metal ladders are used as access or egress from a work platform that is more than 35' above the ground or floor level, then a ladder safety device shall be installed or the ladders shall be offset with landing platforms and guardrails that are installed not more than 35-foot intervals.
    c. Step or hook on, stair-type accessories that are specifically designed for use with appropriate types of scaffolds.

d. Direct access from adjacent scaffold, the structure, or personal hoist. The direct access to or from another surface shall be used only when the scaffold is not more than 14" horizontally and not more than 24" vertically from the other surface.

e. A ramp, runway, or stairway that conforms to CSS Part. 21 "Guarding of Walking & Working Areas" as referenced in R 408.41202 / Subpart M – Fall Protection.

2. The intermediate horizontal members of the frame of a manufactured tubular welded frame scaffold may be used instead of a ladder or stairway for access to, and egress from, the work platform, if all the following conditions are met:

   a. All the frames and component parts are compatible in design.

   b. The intermediate horizontal members of a frame are a minimum of 11 ½" in length.

   c. The horizontal members of each frame shall be uniformly spaced and shall not be more than 18" center to center vertically.

   d. When frames are connected vertically to one another, the distance between the bottom horizontal member of the upper end frame and the top horizontal member of the lower end frame shall be within 3" of the uniform spacing of the horizontal members of each frame.

   e. The elevation to the lowest horizontal member of the bottom frame shall not be more than 24" from the ground or floor.

   f. Each horizontal member shall be capable of supporting 300 lbs. applied at its midpoint without bending or cracking.

   g. Each horizontal member shall be inspected for, and found free of, cracks, bends, or bad welds. Cracks, bends, or bad welds shall be corrected.

   h. Only 1 employee at a time shall use a horizontal member of a frame as access to, or egress from, the workstation.

   i. Cross braces shall not be used as a means of access.

3. The guardrail system located on the side where horizontal members of the scaffold frame are used for access or egress from a work platform shall be constructed as follows:

   a. The intermediate rail shall be omitted between the corner posts at eh access location.

   b. The top rail shall be continuous between posts. A scaffold and its components shall be capable of supporting, without failure, not less than 4 times the maximum intended load.

4. If horizontal members of scaffold frames are used as access or egress from a work platform which is more than 35' above ground or floor level, a ladder safety device shall be installed and used or the horizontal members shall be offset with landing platforms and guardrails that are installed at not more than 30 foot intervals.

5. Steps and rungs of ladders and stairway-type access shall line up vertically with each other between rest platforms.

6. All the following provisions apply to erecting and dismantling a scaffold:

   a. An employer shall provide a safe means of access for each employee erecting or dismantling a scaffold if providing safe access is feasible and does not create a greater hazard. The employer shall have a competent person determine whether it is feasible or would pose a greater hazard to provide, and have employees use, a safe means of access. The determination shall be based on site conditions and the type of scaffold being erected or dismantled.

b. Hook-on or attachable ladders shall be installed as soon as scaffold erection has progressed to a point that permits safe installation and use.

c. When erecting or dismantling tubular welded frame scaffolds, end frames, that have horizontal members which are parallel, level and not more than 22" apart vertically as climbing devices for access, the employer shall ensure that the tubular welded frame scaffolds are erected in a manner that creates a usable ladder and provides a good handhold and foot space.

d. Cross braces or tubular welded frame scaffolds shall not be used as a means of access or egress.

Accumulation of tools, material, or debris prohibited; weather conditions; slippery conditions; electrical hazards; rope & fall protection

1. Excess tools, material, and debris shall not be permitted to accumulate on a scaffold to create hazards.
2. Work on or from scaffolds is prohibited during storms or high winds unless a competent person has determined that it is safe for employees to be on a scaffold and that the employees are protected by a personal fall arrest system. Wind screens shall not be used unless the scaffold is secured against the anticipated wind forces imposed.
3. A scaffold shall be kept free of slippery conditions such as those caused by ice, snow, oil, grease, or other slippery compounds.
4. An employee shall not be allowed within 10' of uninsulated electrical energized lines.
5. Before a scaffold is erected within 10' of a power line all of the following requirements shall be met, as applicable:
   a. The utility or property owner is consulted.
   b. A powerline or electrical apparatus is considered energized unless the property owner or utility indicates it is de-energized and the line or apparatus is visibly grounded. If de-energizing is impractical and the equipment is exposed to contact by an employee, the minimum clearance in Table 1 of Part 12. / Subpart L-1926.451(f)(6) shall be maintained between the scaffold, employee, or material, whichever is closer.
   c. The requirements for employees performing power transmission and distribution work, electrical work, or telecommunications work are found in Construction Safety Standard Part 16. Power Transmission and Distribution, Part 17. Electrical installation, and in Part 30 Telecommunications as referenced in R 408.41202.
6. Table 1of Part 12. Scaffold and scaffold platforms / Subpart L- 1926.451(f)(6) reads as follows:

TABLE 1

INSULATED LINES

VOLTAGE	MIMIMUM DISTANCE	ALTERNATIVES
Less than 300 volts	3 feet (0.9 meters)	
300 volts to 50kv	10 feet (3.1 meters)	
More than 50kv	10 feet (3.1 meters) plus 0.4 inches (1.0 centimeter) for each kilovolt over 50kv	2 times the length of the line insulator, but not less than 10 feet (3.1 meters)

VOLTAGE	MIMIMUM DISTANCE	ALTERNATIVES

Less than 50kv	10 feet (3.1 meters)	
More than 50kv	10 feet (3.1 meters) plus 0.4 inches (1.0 centimeter) for each kilovolt over 50kv	2 times the length of the line insulator, but not less than 10 feet (3.1 meters)

7. Welding, burning, riveting, or open flame work shall not be performed within 10’ of fiber or synthetic rope that is used to suspend a scaffold, unless the rope is protected from sparks, flame, or hot metal. Only treated or protected fiber or synthetic ropes shall be used for or near any work that involves the use of corrosive substances or chemicals.
8. A suspension rope, including connecting hardware, used on nonadjustable or adjustable suspension scaffold shall be capable of supporting, without failure, not less than 6 times the maximum intended load applied or transmitted to the rope.
9. If personal fall arrest systems are required to protect employees, then the arresting system equipment shall be a prescribed in Construction Safety Standard Part 45. “Fall Protection” as referenced in R 408.41202 / Subpart – M Fall Protection.
10. To reduce the possibility of welding current arcing through the suspension wire rope when performing welding from a suspended scaffold, a welder shall take the following precautions, as applicable:
    a. An insulated thimble shall be used to attach each suspension wire rope to its hanging support, such as a cornice hook or outrigger. Excess suspension wire rope and any additional independent lines from grounding shall be insulated.
    b. The suspension wire rope shall be covered with insulating material extending not less than 4’ above the hoist. If there is a tail line below the hoist, it shall be insulated to prevent contact with the platform. The position of the tail line that hangs free below the scaffold shall be guided or retained, or both, so that it does not become grounded.
    c. Each hoist shall be covered with insulated protective covers.
    d. In addition to a work lead attachment required by the welding process, a grounding conductor shall be connected from the scaffold to the structure. The size of the conductor shall be at least the size of the welding process work lead, and the conductor shall not be in series with the welding process or the workpiece.
    e. If the scaffold grounding lead is disconnected, the welding machine shall be shut off.
    f. An active welding rod or uninsulated welding lead shall not be allowed to contact the scaffold or its suspension system.

Guardrails; fall arrest devices

1. A guardrail shall be installed on any open side or end of a scaffold work platform that is 6’ or more above the floor or ground, except for any of the following:
    a. A boatswain’s chair
    b. A catenary scaffold
    c. A float scaffold
    d. A ladder jack scaffold
    e. A needle beam scaffold

The guardrail shall be as prescribed in R 408.42150.

2. An employee on a boatswain's chair, catenary scaffold, float scaffold, needle beam scaffold, or ladder jack scaffold shall be protected by a personal fall arrest system. An employee on a single-point or 2-point adjustable suspension scaffold shall be protected by both a personal fall arrest system and guardrail system.
3. A personal fall arrest device as prescribed in Construction Safety Standard Part 45. "Fall Protection", as referenced in R 408.41202 / Subpart M- Fall Protection shall be worn and attached to a substantial portion of a scaffold when the work platform of an adjustable suspension scaffold with overhead protection is 6' or more above the floor, water, or ground. Separate safety lines shall be attached to a substantial portion of the structure above and to the scaffold by an approved fall prevention device to prevent the scaffold from falling more than 12" if the scaffold suspension system fails.
4. A top rail or an intermediate rail may be eliminated if the configuration of the scaffold and the material deck provides equivalent protection to prevent an employee from the platform or if a personal fall arrest device is worn.
5. A cross brace may be used as part of the guardrail system as follows;
    a. If the pivot point occurs from 36" to 48" above the platform, then a mid-rail shall be added midway between the platform and the brace pivot point.
    b. If the pivot point occurs 18" above the platform, then a top rail shall be added.
    c. If the pivot point occurs less than 18" or more than 48" above the platform, then both a top rail and mid-rail shall be provided.
6. An employer shall have a competent person determine the feasibility and safety of providing fall protection for employees erecting or dismantling supported scaffolds. An employer shall provide fall protection for employees erecting or dismantling supported scaffolds where the installation and use of protection is feasible and does not create a greater hazard.
7. If vertical lifelines are used, then they shall be fastened to a fixed safe point of anchorage and shall be protected from sharp edges and abrasion. Safe points of anchorage include structural members of buildings, but do not include an of the following:
    a. Standpipes
    b. Vents
    c. Other piping systems
    d. Electrical conduit
    e. Outrigger beams
    f. Counterweights
8. If horizontal lifelines are used, they shall be secured to 2 or more structural members if the scaffold or may be looped around both suspension and independent support lines equal in number to the number of points supported and equivalent in strength to the strength of the suspension rope. Independent support lines and suspension rope shall not be attached to the same points of anchorage.

Hoisting Machines

1. Hoisting machines must follow R. 408. 41214 – R. 408. 41216

Planking and Scaffold Platforms

1. If wood planks are used for a work platform, then the planks shall be scaffold-grade lumber that has a minimum of 1,500 lbs. per square inch fiber stress value. The planks shall not be less than 2 inches by 10 inches. The platform shall consist of a minimum of 2 planks laid side by side. Each plank on all working levels of scaffolds shall be fully planked or decked between uprights where practicable. Spaces between the platform and the uprights shall not be more than 9 ½".
2. Wood scaffold planks, laminated planks, manufactured work platforms, and picks that are found to be defective shall be removed from service and shall not be used.
3. A manufactured pick shall be permanently marked or tagged to indicate the maximum working load and shall not me less than 14" wide when used in single width, except that a ladder jack scaffold may be used with a minimum 12" manufactured pick.
4. Platform planks shall be laid with their edges together so the platform is tight and does not have spaces through which tools or fragments of material can fall.
5. Planking shall comply with all the following provisions:
    a. Extend over the end bearer not less than 6", but not more than 12".
    b. Be cleated or otherwise fastened to prevent shifting and be uniform in thickness, except where lapped as prescribed in sub-rule (8) of R 408.41217.
    c. Where 16' planks are used as prescribes in sub-rule (7) of R 408. 41217, tie downs are not required unless wind uplift may occur.
6. Hook-on-type manufactured work platforms may be used if they are secured to the bearer.
7. Where planks are lapped, each plank shall lap its bearer not less than 6", which will provide a minimum overlap of 12".
8. Where a scaffold turns a corner, the planks shall be laid to prevent tipping. The planks that meet the corner bearer at an angle shall be laid first and shall extend over the diagonally placed bearer far enough to have a good bearing, but not far enough to tip. The planks that run in the different direction shall be laid to extend over the rest of the first layer of planks.
9. When moving a platform to the next level, an employee shall leave the old platform undisturbed until the new platform supports have been set in place and are ready to receive the platform planks.
10. A platform shall not deflect more than 1/60 of the span when loaded.
11. A wood platform shall not be covered with opaque finishes, except that platform edges may be covered or marked for identification. A platform may be coated periodically with wood preservatives, fire-retardant finishes, and slip-resistant finishes; however, the coating may not obscure the top or bottom wood surfaces.
12. The front of a platform shall be no more than 14" from the face of the work unless a guardrail system is erected along the front edge, or unless a personal fall arrest system is used pursuant to Construction Safety Standard Part 45. "Fall Protection" as referenced in R 408. 41202 / Subpart – M Fall Protection, except that the maximum distance from the face of the work for plastering and lathing operations shall be not more than 18".

Plywood Scaffold Platforms

1. If plywood is used as a work platform, the plywood shall be supported by 2" by 10" planks. The planks shall support 2 parallel edges of the plywood and shall also be spaced not more than 24" center to center.
2. The plywood work surface shall be secured to the planks.

3. If the plywood work surface is a load-carrying member, it shall have a minimum thickness of 5/8".

Protection from Falling Objects

1. In addition to wearing a hard hat, an employer shall provide an employee on a scaffold with additional protection from falling hand tools, debris, and other small objects through the installation of toe boards, screens, or guardrail systems or through the erection of debris nets, catch platforms, or canopy structures that contain or deflect the falling objects. If the falling objects are too large or heavy to be contained or deflected by any of the measures specified, then the employer shall place the potential falling objects away from the edge of the surface from which they could fall and shall secure the objects as necessary to prevent them from falling.
2. If there is a danger of tools, material, or equipment falling from a scaffold and striking employees below, then all the following provisions apply:
    a. The area below the scaffold to which objects can fall shall be barricaded and employees shall not be permitted to enter the hazards area.
    b. A toe board shall be erected along the edge of a platform that is more than 10' above lower levels. The toe board shall span a distance sufficient to protect employees below.
    c. If tools, material, or equipment are piled to a height higher that the top edge of a toe board, then paneling or screening extending from the toe board or platform to the top of the guardrail shall be erected for a distance sufficient to protect employees below.
    d. A guardrail system shall be installed with openings small enough to prevent the passage of potential falling objects.
    e. A canopy structure, debris net, or catch platform that is strong enough to withstand the impact forces of potential falling objects shall be erected over employees below.
3. Canopies, when used for falling object protection, shall comply with all the following criteria, as applicable:
    a. A canopy shall be installed between the falling object hazard and employees.
    b. If a canopy is used on a suspension scaffold for falling object protection, then the scaffold shall be equipped with additional independent support lines equal in number to the number of points supported and equivalent in strength to the strength of the suspension ropes.
    c. Independent support lines and suspension ropes shall not be attached to the same points of anchorage.
4. If used, toe boards shall be:
    a. Capable of withstanding, without failure, a force of not less than 50 lbs. applied in any downward or horizontal direction at any point along the toe board.
    b. Not less than 3-1/2" high from the top edge of the toe board to the level of the walking/working surface. A toe board shall be securely fastened in place at the outermost edge of the platform and have not more than ¼" of clearance above the walking/working surface. A toe board shall be solid or have openings of not more than 1" in the greatest dimension.

Tube and Coupler Scaffold

1. A tube and coupler scaffold shall have all posts, bearers, runners, and bracing of not less than a nominal 2" steel tubing or equivalent.
2. The material used for couplers shall be of a structural type, such as drop-forged steel, malleable iron, or structural grade aluminum. Dissimilar metals shall not be used.

3. The posts of a tube and coupler scaffold shall not be spaced more than 6’ apart in width and not more than 10’ along the length for a light-duty rated scaffold, 8’ along the length for a medium-duty rated scaffold, and 6’ along the length for a heavy-duty rated scaffold.
4. Drawings and specifications for a tube and coupler scaffold over 125’ in height above the base plate shall be designed by a qualified engineer who is knowledgeable in scaffolding. Drawings and specifications shall be readily available at eh jobsite. A scaffold that is less than 125’ in height shall conform to the requirements in table 3.
5. Runners shall be erected along the length of the scaffold and located on both the inside and the outside posts at even heights. When tube and coupler guardrails and mid-rails are used on the outside posts, they may be used in place of runners. Runners shall be interlocked to form a continuous length and coupled to each post. The bottom runner shall be located as close to the base as possible. The runners shall be placed not more than 6’ 6” on centers.
6. A bearer shall be installed transversely between posts and shall be securely coupled either to a post bearing on a runner coupler or directly to a runner and shall be kept as close to the post as possible.
7. A bearer shall not be less than 4”, but not more than 12”, longer than the post spacing or runner spacing. A bearer may be cantilevered for use as brackets to carry two 2” by 10” planks. The bearer for a cantilevered section shall not be more than 24” and the section shall be limited to 25lbs. per square foot.
8. Cross bracing shall be installed across the width of the scaffold at both ends and at least every third set of posts horizontally and every fourth runner vertically. The bracing shall extend diagonally from the inner and outer runners upward to the next outer and inner runners.
9. Longitudinal diagonal bracing on the outer rows of poles shall be installed at a 45-degree angle from near the base of the first outer post upward to the extreme top of the scaffold. Where longitudinal length of the scaffold permits, the bracing shall be duplicated beginning at every fifth post. In a similar manner, longitudinal diagonal bracing shall also be installed from the last post extending back and upward toward the first post. Where conditions preclude the attachment of this bracing to the posts, it may be attached to the runner.
10. Guys, ties, and braces shall be installed according to the scaffold manufacturer’s recommendations or at the closest horizontal member to the 4-to-1 ration height and be repeated vertically at locations of horizontal members every 20’ or less thereafter for a scaffold 3’ wide or less and every 26’ or less thereafter for a scaffold more than 3’ wide. The top guy, tie, or brace of a completed scaffold shall be placed no farther than a 4-to-1 ration from the top. The top guys, ties, and braces shall be installed at each end of the scaffold and at horizontal intervals of not more than 30’, measured from 1 end, not both, towards the other end. Outriggers, when used, may be considered a part of the base dimension. The outriggers shall be installed on both sides of the scaffold at each frame line.
11. Table 3 reads as follows:

TABLE 3

TUBE AND COUPLER SCAFFOLDS	LIGHT DUTY	MEDIUM	HEAVY
Maximum uniformly distributed load	25 pounds per square foot	50 pounds per square foot	75 pounds per square foot
Post spacing (Longitudinal)	10 feet	8 feet	6 feet
Post spacing (Transverse)	6 feet	6 feet	6 feet

Work Levels	1	2	3	1	2	1
Maximum allowable additional planked levels	8	4	0	6	0	6
Maximum height (Feet)	125	125	91	125	75	125

Tubular Welded Frame Scaffold; Fabricated Frame Scaffold

1. A tubular welded frame scaffold, also known as a fabricated frame scaffold, shall be braced by cross bracing or diagonal braces, or both, for securing vertical members together laterally. The cross braces shall be of sufficient length so that the erected scaffold is always plumb, square, and ridged. All brace connections shall be made secure.
2. The frames shall be placed on top of the other with coupling or stacking pins to provide proper vertical alignment of the legs.
3. Where uplift may occur, frames shall be locked together vertically by pins or other equivalent suitable means.
4. A guy, tie, and brace shall be installed according to the scaffold manufacturer's recommendations or at the closest horizontal member to the 4-to-1 ration height and be repeated vertically at locations of horizontal members every 20' or less thereafter for a scaffold 3' wide or less and every 26' or less thereafter for a scaffold more than 3' wide. The top guy, tie, or brace of a completed scaffold shall be placed no farther than a 4-to-1 ratio height from the top. A guy, tie, and brace shall be installed at each end of the scaffold and at horizontal intervals of not more than 30' measured from one end, not both, towards the other. Outriggers, when used may be considered as part of the base dimension when installed on each corner of the long side at intervals of not more than 20'.
5. Drawings and specifications for all tubular welded frame scaffolds over 125' in height above the base plates shall be designed by a qualified engineer who is knowledgeable in scaffolding. The plans shall be available at the jobsite.
6. Brackets used to support cantilevered loads shall comply with the following provisions:
    a. Be seated with side brackets parallel to the frames and end brackets at 90 degrees to the frame.
    b. Not be bent or twisted from the positions specified above in (a).
    c. Be used only to support personnel, unless the scaffold has been designed for other loads by a qualified engineer and built to withstand the tipping forces caused by the other loads being placed on the bracket-supported section of the scaffold.

Mobile Scaffold

1. When a freestanding mobile scaffold is used, the height shall not be more than 4 times the minimum base dimension.
2. Outriggers, when used, may be considered as part of the base dimension. The outriggers shall be installed on both sides of the scaffold at each frame line.
3. Locking devices shall be used to secure the casters to the frame or adjusting screw. The adjusting screw shall not extend more than 12". The casters shall be provided with a positive locking device to prevent movement of the scaffold. The device shall be used when the scaffold is in use, except where the work platform is 4' or less from the floor.

4. Vertical members of the scaffold shall be braced by cross bracing and diagonal bracing. Not less than 2 horizontal diagonal braces shall be installed, 1 as close to the casters as possible, at intervals of not more than 4 times the least-based dimension. The horizontal diagonal brace may be omitted on a scaffold that is specifically designed to absorb racking.
5. A scaffold platform shall cover the full width of the scaffold, except for a necessary entrance opening. A platform shall be secured in place. A platform shall not extend outward beyond the base supports of the scaffold unless outrigger frames or equivalent devices are used to ensure stability.
6. A ladder or stairway that is provided on a manually propelled mobile scaffold shall be affixed or built into the scaffold and shall be so located that, when in use, the ladder or stairway does not tend to tip the scaffold. A landing platform shall be provided at intervals of not more than 30'.
7. In place of a ladder or stairway, the requirements of R 408. 41211(2) may be complied with.
8. Only manual force shall be used to move a scaffold covered in this section. The force shall be applied near or as close to the base as practical, except for a scaffold with a work platform that is 4' or less from the floor.
9. When being used, a mobile scaffold shall rest upon a suitable footing and shall stand plumb. Where leveling of the scaffold is necessary, screw jacks or an equivalent means shall be used.
10. An employee shall not be allowed to ride on a mobile scaffold, unless all the following conditions exist:
    a. The floor or surface is within 3 degrees of level and is free from pits, holes, or obstructions.
    b. The minimum base dimension of the scaffold when ready for rolling is not less than ½ of the height.
    c. The casters are equipped with rubber or similar resilient tires.
    d. All tools and materials are secured or removed from the platform before the mobile scaffold is moved.
    e. The scaffold is equipped with guardrails on all sides.
    f. Before a scaffold is moved, each employee on the scaffold is made aware of the move.
11. A mobile scaffold shall comply with OSHA/MIOSHA rules and regulations.
12. A power system used to propel a mobile scaffold shall be designed to propel a mobile scaffold. A forklift, truck, similar motor vehicle, or add-on motor shall not be used to propel a scaffold unless the scaffold is designed to be propelled by a forklift, truck, similar motor vehicle, or add-on motor.
13. If a power system is used to propel a scaffold, then the propelling force shall be applied directly to the wheels and shall not produce a speed of more than 1' per second.
14. An employee shall not be on any part of a powered mobile scaffold that extends outward beyond the wheels, casters, or other supports.
15. A powered mobile scaffold shall be stabilized to prevent tipping during movement.

Rough Terrain Forklift Truck Scaffolds; Equipment Requirements; Employee Safety Requirements

1. The scaffold platform shall be attached to the forks by enclosed sleeves and shall be secured against the back of the forks with a mechanical device so that the platform cannot tip or slip.
2. A work platform shall comply with the following requirements:
    a. The guardrail shall be of welded mild steel construction that has a minimum safety factor of 4 times the maximum intended load.
    b. Have a continuous guardrail system constructed as follows:

iv. Have a top rail which is located not less than 36", nor more than 42", above the platform floor and which is constructed to withstand a minimum of 200 lbs. of force in any direction.

v. Have a mid-rail which is installed at mid-height between the top rail and platform floor and which is constructed to withstand a 200-lb. side thrust.

vi. Have a toe board which is not less than 4" in nominal height and which is installed not more than ¼" above the floor around the periphery of the work platform. If the platform has a gate, then the toe board shall be installed on the gate.

c. Have a wood planking, steel plate, or a steel grating bolted or welded to the bottom of the platform and be maintained free of slip or trip hazards.

d. Have a permanently affixed sigh on the platform that specifies the maximum number of passengers allowed, the work platform identification number, and the maximum rated load.

e. Be easily identifiable by high-visibility color or marking.

3. The work platform shall be level when in use.
4. If an employee is elevated in a platform on a variable reach lift truck, a personal fall arrest system, including the anchorage required in Construction Safety Standard Part 45 "Fall Protection", Construction Safety Standard Part 6 "Personal Protective Equipment" as referenced in R 408.41202 / Subpart- M Fall Protection is required and shall be worn when an employee is elevated.
5. The rough Terrain fork truck or the lift truck shall rest on firm footing. Leveling devices and outriggers shall be used where provided on equipment.
6. A trained operator shall remain at the operator station of a lift truck to control the lift truck while an employee is elevated. The lift truck control or controls shall be in neutral and the parking brake set. The operator of the lift truck scaffold platform shall be able to see the elevated platform always.
7. A lift truck platform shall be returned to the ground before a lift truck is repositioned. The forklift shall be moved as close to the work area as possible for final positioning. An employee shall exit the landed platform and reenter the platform only after the lift truck repositioning is completed.
8. The combined mass weight of the platform, load, and the employees shall not be more than 1/3 of the rated capacity of the rough terrain forklift truck on which the platform is used.
9. An employee shall maintain firm footing on the platform. Railings, planks, ladders, or other materials shall not be used on the platform to achieve reach or height.
10. The guardrail system of the platform shall not be used to support any of the following:
    a. Materials
    b. Other work platforms
    c. Employees
11. The platform shall be lowered to ground level for an employee to enter or exit, except where elevated work areas are inaccessible or hazardous to reach. An employee may exit the platform with the knowledge and consent of their employer. When exiting to unguarded work areas, fall protection shall be provided and used as required in Construction Safety Standard Part 45 "Fall Protection" a referenced in R 408.41202 / Subpart M-Fall Protection. An employee shall not climb on any part of a lift truck when attempting to enter or exit the platform.
12. A platform shall not be modified if the modification is detrimental to its safe use.

13. Floor dimensions parallel to the truck longitudinal centerline shall not be more than 2 times the load center distance listed on the rough terrain forklift truck nameplate. The floor dimension width shall not be more than the overall width of the truck measured across the load-bearing tires plus 10” on either side. The minimum space for each employee on the platform shall not be less than 18” in either direction.
14. A wood pallet shall not be used as a platform for a lift truck scaffold.
15. If arc welding is performed by an employee on the platform, then the electrode holders shall be protected from contact with the metal components of the work platform.
16. A work platform shall not be used during high wind, electrical storms, snow, ice, sleet, or other adverse weather conditions that could affect the safety of the employees on the work platform or the operator of the truck.

Operator Training

1. An employer shall ensure that an employee has been trained before the employee’s assignment as an operator of a rough terrain forklift truck that is used to elevate employees. An employee shall be trained in all the following areas:
    a. The capabilities of the equipment and its attachments.
    b. The purpose, use, and limitations of the controls.
    c. How to make daily checks.

B.11. Fire Protection and Prevention

Superintendents / Onsite Safety Manager will be responsible for ensuring that the following conditions are maintained throughout all phases of demolition and construction.

1. Establishing and maintaining a means of egress from all areas of a building occupied by employees to provide free and unobstructed egress from all parts of the building or structure always when the building or structure is occupied.
2. Post fire rules or by other means, informing the employees of the evacuation signal, escape routes, and emergency phone numbers.
3. Exits shall be marked and readily visible signs in all cases where the exit or way to reach the exit is not immediately visible to the occupant.
4. Housekeeping and cleanup up will be completed at the end of each task if possible. At a minimum cleanup of scrap material, and debris will be completed at the end of shift.

Portable Fire Extinguishing Equipment; Selection and Installation

1. All portable fire extinguishers shall bear an approved label of a nationally recognized testing laboratory.
2. A fire extinguisher, rated not less than 2A, shall be provided for each 3,000sq. ft. of the protected building area, or major fraction thereof. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 100 feet.
3. One or more fire extinguishers, rated not less than 2A, shall be provided on each floor. In multistory buildings, at least 1 fire extinguisher shall be located adjacent to stairway.
4. Firefighting equipment shall be located where it will be readily seen and accessible along normal paths of travel in the protected area.
5. One 55-gallon open drum of water and 2 fire pails may be substituted for a fire extinguisher that has a 2A rating. Extinguishers and water drums, subject to freezing, shall be protected from freezing.
6. A ½ inch or larger interior diameter garden hose that is not more than 100 feet in length and that is equipped with a nozzle may substitute for a 2A fire extinguisher if it can reach all points in the area that would be covered by the replaced extinguisher and is capable of discharging not less than 5 gallons per minute with a horizontal hose stream of not less than 30 feet. Not more than ½ of the total number of required fire extinguishers may be replaced by the hose.
7. In addition to the requirements above, fire extinguishers shall be supplied as follows:
    a. Not less than 1 portable fire extinguisher that has a rating of not less than 20 BC units shall be located as follows:
        i. Outside of, but not more than 10’ from, a door opening to a room used for the storage of more than 60 gallons of flammable liquids.
        ii. Not less than 25’, nor more than 75’, from an outside storage area.
        iii. On each tank truck or other vehicle used to transport or dispense flammable liquids.

        A fire extinguisher, rated not less than 10B, shall be provided within 50’ of wherever more than 5 gallons of flammable or combustible liquids or 5 lbs. of flammable gas are being used on the jobsite. This does not apply to the integral fuel tank of motor vehicles.

b. Each service or fueling area shall have at least 1 portable fire extinguisher which has not less than a 20 BC unit rating and which is located within 75' of each pump, dispenser, underground fill opening, and lubricating or service area.

c. Storage locations for liquefied petroleum gas (L.P.G.) shall be provided with at least 1 approved portable fire extinguisher that has a rating of not less than 20 BC.

d. Each site of a hazardous process shall be provided with a portable fire extinguisher of an appropriate size and type. Other means for safety or control may be provided if approved or required by the process.

8. Portable fire extinguishers shall be inspected periodically and maintained in accordance with NFPA 10A "Maintenance and Use of Portable Fire Extinguishers," 1970 edition, as adopted by reference in R 408.41802.

Ignition Hazards

1. Internal combustion engine powered equipment shall be so located that the exhaust piping is at a distance away from flammable and combustible materials to prevent ignition. When the exhaust is piped to outside the building under construction, a clearance of not less than 6" shall be maintained between the piping and flammable and combustible material.
2. Smoking shall not be permitted within 25' of flammable material. The area shall be posted with a sign "**No Smoking or Open Flame**."
3. Electrical wiring equipment and portable battery-powered lighting equipment used in connection with the storage, handling, or use of flammable material shall be of the type approved for the hazardous location.

Temporary Buildings

1. A temporary building shall not be erected where it will adversely affect a means of egress.
2. Temporary buildings, when located within another building or structure, shall be of either noncombustible construction or of combustible construction having a fire resistance of not less than 1 hour.
3. Temporary buildings, located other than inside another building and not for the storage, handling, or used of flammable or combustible liquids, flammable or combustible liquids, flammable gases, explosives, or blasting agents, or similar hazardous occupancies, shall be located at a distance of not less than 10 feet from another building or structure.

Open Yard Storage

1. Combustible materials shall be piled with due regard to the stability of piles and in no case higher than 10 feet.
2. Driveways between and around combustible storage piles shall be at least 15 feet wide and maintained free from accumulation of rubbish, equipment, or other article of materials.
3. Driveways shall be so spaced that a maximum grid system unit of 50' by 150' is produced.
4. The entire storage site shall be kept free from accumulation of unnecessary combustible materials, Weeds and grasses shall be kept down and regular procedure provided for the periodic cleanup of the entire area.
5. When there is danger of an underground fore, that land shall not be used for combustible or flammable storage.
6. Method of piling shall be solid wherever possible and in orderly and regular piles. No combustible material shall be stored outdoors within 10' of a building or structure.
7. Portable fire extinguishing equipment suitable for the fire hazard involved shall be provided at convenient, conspicuously accessible locations in the yard area. Portable fire extinguishers rated not less than 2A shall be placed so that maximum travel distance to the nearest unit shall not exceed 100'.

Indoor Storage

1. Storage shall not obstruct, or adversely affect, means of exit.
2. All materials shall be stored, handled, and piled with due regard to their fire characteristics.
3. Noncompatible materials that may create a fire hazard shall be segregated by a barrier having a fire resistance of at least 1 hour.
4. Material shall be piled to minimize the spread of fire internally and to permit convenient access for firefighting. Stable piling shall be maintained always. Aisles space shall be maintained to safely accommodate the widest vehicle that may be used within the building for firefighting purposes.
5. Clearance of at least 36" shall be maintained between the top level of the stored material and the sprinkler deflectors.
6. Clearance shall be maintained around lights and heating units to prevent ignition of combustible materials.
7. A clearance of 24" shall be maintained around the path of travel of fire doors unless a barricade is provided in which case no clearance is needed.
8. Material shall not be stored within 36" of a fire door opening.

FLAMMABLE LIQUIDS

Transportation of Flammable Liquids

1. Only approved containers and portable tanks shall be used for storage and handling of flammable liquids.
2. Approved safety cans or department of transportation approved containers shall be used for handling and use of flammable liquids in quantities of 5 gallons or less, this does not apply to those flammable liquid materials that are highly viscid (extremely hard to pour), which may be used and handled in original shipping containers.
3. For quantities of 1 gallon or less, the original container may be used for storage, use, and handling of flammable liquids.
4. Cabinets used to store flammable liquids shall be labeled **"Flammable Keep Away from Open Flames"**

Outside Storage

1. Containers of flammable liquids with not less than 60 gallons in each container shall not be stored more than 1,100 gallons in any outside storage area.
2. Portable tanks stored outside shall not be closer than 20' from any building. Two or more portable tanks, grouped together, having a combined capacity more than 2,200 gallons, shall be separated by a 5' clear area. Individual portable tanks exceeding 1,100 gallons shall be separated by a 5' clear area. Piles or groups of containers shall be separated by a 5' clearance.
3. Within 200' of each portable tank, there shall be a 12' wide access way to permit approach of fire control apparatus.
4. A flammable liquid in an outdoor storage area shall be stored not less than 20' from a building.
5. Storage of L.P. gas within a building is prohibited.
6. Within 200' of each pile or group of flammable containers, a 12' wide access way shall be maintained to permit the approach of fire control equipment.
7. An outside storage area for flammable liquids shall be graded in a manner to divert a possible spill away from a building or other hazards, or shall be surrounded by a curb or earth dike not less than 12" high. If a curb or dike

is used, provisions shall be made to drain off accumulations of water or a spill of flammable liquids in such a manner that the spill cannot create a hazard for an employee.

8. All outside storage areas for flammable liquids shall be kept free of weeds, papers, debris, and other combustibles not necessary to the storage.
9. A flammable or combustible liquid outdoor storage area shall not occupy an area used as a means of egress.
10. Not more than 1 day's supply, but not to exceed 25 gallons of flammable liquid, shall be permitted to stand outside a cabinet at a place of usage.

Temporary Heating Devices

1. Fresh air shall be supplied in sufficient quantities to maintain the health and safety of workers. Where natural means of fresh air supply is inadequate, mechanical ventilation shall be provided.
2. When heaters are used in confined spaces, special care shall be taken to provide sufficient ventilation to ensure proper combustion, maintain the health and safety of workers, and limit temperature rise in the area.
3. A temporary heating device shall not be located less than 50' from a point where a flammable liquid is used or dispensed.
4. A temporary heating device that is set on a combustible floor shall be separated from the floor by insulating material or 1" of concrete. The insulating material shall not extend more than 2' beyond the heater in all directions.
5. A temporary heating device shall be located not less than 10' from combustible covering, such as, but not limited to, canvas, tarpaulins, unless the covering is fastened to prevent its dislodgement due to wind action.
6. A temporary heating device using L.P. gas, other than in an integral heating-container unit, shall be located not less than 6' from any L.P. gas container.
7. Integral heaters may be used if designed and installed so to prevent direct or radiant heat application to the container.
8. If 2 or more heater units are located within the same unpartitioned area, then the containers of each unit shall be separated from the containers of any such unit by not less than 20'.
9. Heating devices, including portable heaters and salamanders using a liquid flammable fuel such as, but not, limited to, fuel oil or kerosene, shall be equipped with an approved automatic shutoff safety control device which will, in the event of flame failure, shut off the flow of fuel to the main burner and pilot if used. The device shall not be relit while the combustion chamber is hot.
10. A temporary heating device shall be installed horizontally level.
11. A solid fuel salamander shall not be used in a building or on a scaffold.
12. L.P. gas containers valves, connectors, regulators and manifolds, piping, and tubing shall not be used as structural supports for heaters and shall be located to minimize exposure to high temperatures or physical damage.

B.12. Tools

Tools General

1. A tool or part of a tool with a defect that could cause an injury shall be replaced or repaired before use.
2. When a guard is provided on a tool, the guard shall not be made inoperative. The guard may be removed only for repair, service, or setup, and it shall be replaced before the tool is returned to use.
3. Hand tools or portable powered tools shall not be left on a scaffold, ladder, or work platform after completion of the work operation or day. Before the scaffold, ladder, or work platform is moved, all tools shall be removed or properly secured against displacement.
4. A tool shall be visually inspected by the user for safe operation before each daily use and, when found defective, shall be removed from service and tagged.
5. A tool that is used in a potentially explosive atmosphere shall be designed and approved for such atmosphere.
6. A safety device or operating control shall not be made inoperative, except for the removal of lock-on control devices.

Electric-powered tools

1. An electric-powered tool, such as a saw, drill, motor, and router, shall be grounded.
2. A portable, power-driven circular saw shall be equipped with a guard above and below the base plate or shoe. The upper guard shall cover the saw to the depth to the teeth, except for the minimum arc required to allow proper retraction and contact with the work. When the saw is withdrawn from the work, the lower guard shall return automatically and instantly to the covered position.
3. The trailing cord of a portable powered tool shall not be used to hoist or lower the tool.
4. A powered tool shall be disconnected from its power source when it is serviced or when the point of operation device is changed by a device or tool.

Portable pneumatic-powered tools

1. Safety clips or retainers shall be installed on pneumatic impact tools to prevent dies and tools from being accidentally expelled from the barrel.
2. Pressure shall be shut off by means of a valve and exhausted from lines before disconnecting the lines from tools or connections, except when using a quick makeup coupling.
3. Safety fasteners shall be provided at connections between tools and hose lines and at all quick makeup-type connections to prevent accidental disengagement.
4. The rated pressure capacity of hoses, pipes, filters, valves, and fittings shall be not less than the rated pressure capacity of the tool. The pneumatic tool and its accessories shall not be operated at a pressure that is more than the rated capacity.
5. Defective hose or connections shall be removed from service.
6. A hose shall not be used for hoisting or lowering a pneumatic-powered tool.
7. A pneumatic-powered tool that has a hose which has an inside diameter of more than ½” shall have a safety device at the source of supply or branch line to reduce the pressure in case of hose failure.

Cleaning with Compressed Air

1. Compressed air shall not be used for blowing dirt or dust from the hands, face, or clothing.
2. Air pressure at the discharge end of a portable air gun or hose used for cleaning shall not exceed 30lbs per square inch gauge except the pressure may exceed 30 psig when sandblasting, cleaning concrete forms, or for joint cleaning. When air pressure exceeding 30 psig is used for the above mentioned, a pipe extension of not less than 4 feet shall be used at the end of the hose.
3. When air under pressure is used to remove chips or dust, a chip guard, such as a fixed or removable shield, safely located, shall be provided to protect the operator and any employee in an adjoining area.
4. The employee using air under pressure shall use personal protective equipment provided for as prescribed in Construction Safety Standard Part 6. “Personal Protective Equipment,” as referenced in R. 408.41902 / OSHA Subpart E- Personal Protective and Life Saving Equipment, to protect against hazards created by the operation.

Powered Staplers and Nailers

1. A portable powered stapler or nailer shall not be pointed or discharged at anything other than the workpiece.
2. The operator of a portable powered stapler or nailer and those employees within the striking distance of its fastener shall wear eye protection provided for as prescribed in Construction Safety Standard Part 6. “Personal Protective Equipment,” as referenced in R. 408.41902 / OSHA Subpart E- Personal Protective and Life Saving Equipment.
3. A positive actuation of the operator control shall be required to propel each fastener from a powered stapler or nailer.
4. When relieving a jam-up of a fastening device, the source of power shall be disconnected.
5. Before use, a portable powered stapler and nailer shall be tested for safe operation.

Hand Tools

1. A pipe, socket, end or adjustable wrench or pliers having sprung or worn jaws that allow slippage shall not be used.
2. Impact tools such as, but not limited to, a drift pin, chisel, wedge, or hammer, shall be kept free of mushroomed heads.
3. A wooden handle of a hand tool that is split, cracked, or splintered shall not be used.
4. A measuring tape or device that is metal or contains conductive strands shall not be used when working on or near electrically energized parts.

Powered-Actuated Tool Operation

1. An operator of a powder-actuated tool shall have an operator’s card that should be in the operator’s possession at all times while using the tool and be presented upon request or an employer may establish and maintain at the jobsite a list of employees qualified to operate a powder-actuated tool.
2. An operator and assistant using a powder-actuated tool shall be safeguarded by means of eye protection. Head and face protection shall be used as required by the working conditions. Eye, head and face protection shall be provided as prescribed in Construction Safety Standard Part 6. “Personal Protective Equipment,” as referenced in R. 408.41902 / OSHA Subpart E- Personal Protective and Life Saving Equipment.

3. Before using a powder-actuated tool, the operator shall inspect it to determine, to the operator's satisfaction, that it is clean, that all moving parts operate freely, and that the barrel is free from obstructions. A tool found not to be in proper working order, or that develops a defect during use, shall be immediately removed from service, tagged, and not used until repaired.

4. A powder-actuated tool shall not be loaded until just prior to the intended firing time. An unattended powder-actuated tool shall not be left loaded.

5. A powder-actuated tool shall not be left unattended in a place where it is available to unauthorized persons.

6. Neither a loaded nor an empty powder-actuated tool shall be pointed at any employee; hands should be kept clear of the open barrel end.

7. A fastener shall not be driven under any of the following conditions:
   a. Through an existing hole, unless a positive guide is used to secure accurate alignment.
   b. Into a material that can be easily penetrated, unless the material is backed by a substance that will prevent the fastener from passing completely through and creating a flying projectile hazards on the other side.
   c. Into very hard or brittle material, such as cast iron, glazed tile, surface hardened steel, glass block, live rock, face brick, or hollow tile, unless designed for such use.
   d. Directly into material, such as brick or concrete, closer than 3" from the unsupported edge or corner, or into a steel surface closer than ½" from the unsupported edge or corner, unless a special guard, fixture or jig is used.

8. A fastener shall not be driven into a spalled area caused by an unsatisfactory fastening.

9. A powder-actuated tool shall be used with correct guard, shield, or attachment recommended by the manufacturer.

10. A powder-actuated tool shall be tested each day before loading to see that safety devices are in proper working order.

11. The methods of testing shall be pursuant to the manufacture's recommended procedure.

Stationary Machine Tools

1. Machine tools, such as band saws, drill presses, and pipe-cutting and pipe-threading machines, which are set up on a construction project in a temporary stationary position shall have a stop device which is within reach of the operator's designated position and shall have power on/off switch. The switch shall be located and guarded to prevent unintentional activation by contact with objects or part of the body.

2. A foot control shall be provided with a cover or guard that can prevent accidental activation.

Fuel-Powered Tools

1. A fuel-powered tool shall be stopped before being refueled, serviced, or maintained.

2. When using a fuel-fire power tool in an enclosed area, the toxic fumes shall be exhausted a prescribed by Occupational Health Standard Part 621 "Health Hazards Control of Specific Equipment and Operations for Construction," as referenced in R 408.41902 / and outlined in OSHA Subparts D – Occupational Health and Environmental Controls.

3. A fuel-fired portable tool shall be moved a minimum of 10 feet from the place where it was refueled before starting.

Abrasive Wheels

1. Except for the following operations or tools, an abrasive wheel shall be provided with a guard that cover's the spindle end, nut, and flange projections as well as the periphery:
   a. Internal grinding while within the work being ground.
   b. Mounted wheels that are not more than 2" in diameter.
   c. A cup wheel operated at less than 500 revolutions per minute.
   d. A tuck-point grinder wheel.
   e. Masonry or concrete saws.
2. An abrasive wheel shall not be run at a speed that is greater than the rated speed on the wheel.
3. A cracked or broken abrasive wheel shall not be used.
4. Eye and face protection shall be provided to, and used by, each employee operating an abrasive wheel.

Offhand Grinders; Safety Devices

1. Offhand grinders shall be equipped with either a work rest or a device that shall prevent the workpiece from jamming between the abrasive wheel and the wheel guard.
2. A work rest shall be adjusted and maintained to within 1/8 of an inch of the abrasive wheel.
3. A work rest shall be designed and constructed of metal that can support the workpiece. A work rest shall be of ridged construction and designed to be adjustable to compensate for wheel wear.

Hand-Held Grinders; Safety Devices

1. A guard on a right-angle head or vertical portable grinder shall have the guard located so that it is between the operator and the abrasive wheel during use.
2. A cup wheel on a portable grinder shall be protected by a band-type or revolving cup guard.

Hydraulic Power Tools

1. A hydraulically powered tool shall use approved fire-resistant fluid which do not change the performance characteristics during temperature extremes.
2. The rated capacity of hydraulic hose, valves, pipes, filters, and other fittings shall not be exceeded.

Chain Falls, Hoist, and Pullers; Capacity

1. A chain fall or hoist and puller shall be used at not more than its rated capacity.
2. The capacity of a chain fall, hoist, or puller shall be permanently labeled or marked on it.
3. An accessory, such as a chain or cable, used to secure or support a chain fall, hoist, or puller shall have a capacity of not less than the chain fall, hoist, or puller.
4. An object subject to a lift or pull by a chain fall shall have a capacity to absorb the lift or pull without creating a hazard to an employee in the area.

Chain Falls, Hoists, and pullers; Use

1. A chain fall, hoist, or puller shall be secured to an anchorage and the load attached to the chain fall, hoist, or puller in a manner which prevents inadvertent disengagement.

2. When a chain fall, hoist, or puller is under tension of a load, a positive action shall be required to release the tension.
3. A hoist and puller lever handle shall not be operated with an extension handle, except as furnished by the manufacturer.
4. A chain fall, hoist, or puller shall be visually inspected for observable defects before each job use by the employee using the tool.

Powered Benders

A power bender shall have 1 of the following:

1. A barrier or enclosure guard designed to protect the operator from the clamping point of operation.
2. Either a single-stroke, hand-controlled actuation device which allows 1 hand to hold the workpiece and which is remote from the point of operation or a single-stroke, foot-controlled device which allows both hands to hold the workpiece and which is remote from the point of operation.
3. A 2-hand, single-stroke control device.

B.13. Demolition

Demolition General

1. Before the start of demolition operation, all the following must be done:
   a. An engineering survey of the structure and equipment is conducted by a competent person knowledgeable in demolition to determine all the following:
      I. The condition of the foundation, roof, walls, and floors.
      II. Whether any adjacent structure will be affected by the demolition.
      III. The utility service entering the building.
      IV. Any other conditions and equipment affecting the safety of an employee.
   b. Ensure that there is a written report of the survey at the field office until the completion of the job. The report shall include information such as the name of the person conducting the survey, date of the survey, and hazardous substances and dangerous conditions found and their location.
   c. Utility companies shall be informed of the planned demolition. Ensure that utility services are shut off, capped, or otherwise protected from damage.
   d. Ensure that glazed sash and doors and other glass that might cause an injury are protected or removed before demolition starts.

2. If an employee is required to work in a structure that has been damaged by fire, flood, or explosion, their employer shall ensure that the affected walls and floors are shored or braced before manual demolition starts.

3. If an area or item, such as a pipe, tank, or bin, is known or suspected to contain a hazardous substance, it shall be tested and the hazards eliminated before demolition is permitted to begin.

4. Ensure that manual demolition of structural components starts at the top of the structure and proceeds downward so that each level is completely dropped, except that if a connection portion is a different level, then that portion may be removed first. This does not prohibit the cutting of a floor for the removal of materials if the requirements of MIOSHA Part 20. “Demolition,” R 408.42044 / OSHA Subpart T- Demolition 1926.855 are complied with.

5. Ensure that employees shall not be exposed to weather conditions during demolition work if weather conditions constitute a hazard.

6. During manual demolition of a structure of skeleton steel construction, the steel framing may be left in place, but all structural supports shall be cleared of loose material as the demolition proceeds downward.

7. Ensure that an employee is not permitted to work on a floor below a floor opening when demolition is conducted on the upper level, unless the employee is protected by a solid barricade not less than 42” high and located not less than 6’ back from the projected edge of the opening above.

8. During demolition, an employer or his or her designated representative shall make daily inspections to detect hazards and unsafe conditions. Employers shall ensure that an employee is not permitted to work where hazards exist until the hazards are corrected by shoring, bracing, or other effective means.

Guarding Floor and Wall openings

The provisions of MIOSHA Part 45. “Fall Protection,” being R 408.44051 / OSHA Part M – Fall Protection 29 C.F.R 1926.500 “Scope, Application, and definitions,” 29 C.F.R 1926.501 “Duty to have fall protection,” 29 C.F.R 1926.502 “Fall protection systems criteria and practices,” and 29 C.F.R 1926.503 “Training requirements” shall be complied with for all portions of the structure where there is employee exposure to the conditions covered by those parts.

Means of Egress

1. When an employee is required to be inside a structure being demolished, only a means of egress designated by the employer shall be used and maintained. All other means of egress shall be closed off.

2. The means of egress shall be free of hazards. During manual demolition, the means of egress shall be supplied with an illumination of not less than 10 candlepower.

3. A means of egress shall be guarded to protect an employee from falling material.

4. An employee entrance to a multistory structure to be demolished shall be protected by a roof canopy for a distance of not less than 8’ from the structure. The canopy shall be not less than 1’ wider on each side than the entrance and shall be capable of sustaining a load if 150 lbs. per square foot.

Material Chutes and Drops

1. The area onto and through which material is to be dropped shall be completely enclosed with barricades not less than 42” high and not less than 6’ back from the opening and the area receiving the material. Signs warning of the hazard of falling materials shall be posted on the barricades at each level containing the barricades.

2. Where material is dropped through more than 1 level, the opening shall be enclosed between the upper and lower levels, and enclosed chute shall be provided, or intermediate levels shall be barricaded as prescribed above in (1). If the drop is more than 40 feet inside a building, only an enclosed opening or chute shall be used. The chute or enclosure shall extend through the ceiling of the receiving level.

3. A material chute shall be constructed to withstand any impact load imposed on it without failure.

4. A material chute, or section thereof, at an angle more than 45 degrees from the horizontal shall be entirely enclosed, except for an opening equipped with a closure at or about each floor level for insertion of materials. The opening shall not be more than 48” in height measured along the wall of the chute. At all stories below the top floor, the openings shall be kept closed when not in use. The chute shall fit the floor or wall opening or the open space shall be closed.

5. Where material is dumped from mechanical equipment or a wheelbarrow, a toe board or bumper not less than 4” thick by 6” high nominal size secured to the floor shall be provided at each material chute opening.

Removal of Chimneys, Stacks, and Walls

1. During manual demolition, a wall or ceiling shall not be permitted to fall on a floor of a building unless the floor can sustain the impact.

2. A chimney, stack, or wall shall not be permitted to stand alone without lateral bracing unless it can withstand the force of the wind or other uncontrolled forces. A chimney, stack, or wall shall be left in a stable condition at the end of each shift.

3. During manual demolition, a wall serving as a retaining wall to support earth shall not be demolished until the load against the wall has been removed.

4. A wall serving as a retaining wall for debris shall be capable of supporting the imposed load.

5. A wall serving as a bearing wall for an adjoining structure shall not be demolished until the adjoining structure has been underpinned.

6. Safety access to and from the top of the chimney or stack shall be provided during manual demolition.

Removal of Structural Steel

1. During manual demolition, structural steel shall be removed column length by column length and tier by tier without overstressing any member.

2. Structural steel members shall be lowered from an upper level by mechanical means.

Manual Removal of Ceiling and Floor Systems

1. A floor upon or above which an employee is working and which will be weakened by manual demolition shall be shored to support the intended load.

2. An opening that is cut into a floor for disposal of material shall not be more than 25% of the total floor area, unless the lateral supports of the removed flooring remain in place.

3. An opening that is cut into a floor shall extend the full span of the floor between supports.

4. Before a floor opening is demolished, debris and other material shall be removed from the area and adjacent areas for a distance of not less than 20'.

5. Before demolishing a floor arch, debris and other material shall be removed from the arch and other adjacent floor area. Planks that are not less than 2" by 10" in cross section, full size undressed, shall be provided for, and used by, an employee to stand on while breaking down a floor arch between beams. The planks shall be located to provide a safe support for the employee if the arch between the beams collapses. The open space between planks shall not be greater than 16".

6. A safe walkway, not less 18" wide, formed of planks not less than 2" thick if wood, or of equivalent strength if metal, shall be provided for, and used by, employees when necessary to enable them to reach any point without walking upon exposed beams.

7. Planks shall be laid together over solid bearings with the ends overlapping a least 1'.

8. A floor arch to an elevation of not more than 25' above grade may be removed to provide storage area for debris, if the removal does not endanger the stability of the structure.

Mechanical Demolition

1. Mechanical equipment shall not be used on a floor or other working surface unless the floor or surface is capable of supporting the imposed load of the equipment and the anticipated material loads.

2. Equipment used in mechanical demolition shall comply with all applicable MIOSHA / OSHA rules.

3. A floor or wall opening shall have curbs or stop logs, as prescribed in R 408.42034 /1926.852.

4. Only those employees necessary to the operation of mechanical demolition equipment shall be permitted in the demolition area at any time.

5. The weight of a demolition ball shall not be more than 50% of the crane's rated load based on the boom length and the maximum angle of the operation that the ball will be used, or the weight shall not be more than 25% of the nominal breaking strength of the line and connection by which it is suspended, whichever is the lesser.

6. The crane boom and load line shall be as short as possible to accomplish the job.

7. The ball shall be positively connected to the load line with a swivel connector to prevent accidental disconnection and to prevent twisting of the line.

8. Roof cornices and other ornamental stonework shall be removed before pulling a wall over, except when balling or clamming.

Demolition by use of Explosives

Explosives handled, transported, stored, and used in demolition shall be as prescribed in General Industry Safety Standard Part 27. “Blasting and Use of Explosives,” R 408.42701 / OSHA Subpart U- Blasting and the Use of Explosives.

Storage of Debris

1. Storage of debris or salvaged material on a floor shall not exceed the allowable floor load.

2. Storage space into which material is placed shall be blocked off by a barricade or wall when hazardous to an employee, except for an opening used to place or remove the material. The opening to the storage space shall be kept closed always when not in use.

3. In a building having wooden floor construction, the flooring boards may be removed from not more than 1 floor above grade to provide storage space for debris, if falling material is not permitted to endanger the stability of the structure.

B.14. Guarding of Walking and Working Areas

Access to Other Elevations

1. A means of access, such as a stairway, ladder, or ramp, shall be provided at all personnel points of access where there is a break in elevation of 19” or more and a runway, sloped embankment, or personnel hoist is not provided.
2. When a building or structure has only 1 point of access between levels, that point of access shall be kept clear to permit the free passage of employees. When work must be performed or equipment must be used such that the free passage of employees at that point of access is restricted, a second point of access shall be provided and used.
3. When a building or structure has 2 or more points of access between levels, at least 1 point of access shall be kept clear to permit the free passage of employees.
4. Employees shall not use any spiral stairways that will not be a permanent part of the structure on which construction work is being performed.

Stairway Protection Systems

1. Employers shall provide and install all stairway fall protection systems required by MIOSHA / OSHA standards and shall comply with all other pertinent requirements of the standards before employees begin the work that necessitates the installation and use of stairway and their fall protection systems.

Stairways; Landings; Installation; Rise Height and Tread Depth; Metal Pan Landings and Metal Pan Treads; Guardrail Systems Required

1. Stairways that will not be a permanent part of the structure on which construction work is being performed shall have landings that are not less than 30” in the direction of travel and extend not less than 22” in width at every 12’ or less of vertical travel.
2. Stairs shall be installed between 30 degrees and 50 degrees from horizontal.
3. Riser height and tread depth shall be uniform within each flight of stairs, including any foundation structure used as 1 or more treads of the stair. Variations in riser height or tread depth shall not be more than ¼ of an inch in any stairway system.
4. Metal pan landings and metal pan treads, when used, shall be secured in place before filling with concrete or other material.
5. Unprotected sides and edges of stairway landings shall be provided with guardrail systems.

Stairways

1. A stairway shall be equipped with a stair railing of handrail as follows:
   a. A stairway which is not more than 44” wide and which has enclosed sides shall have a handrail on the right descending side.
   b. A stairway which is not more than 44” wide and which has 1 open side shall have a stair railing on the open side.
   c. A stairway which is not more than 44” wide and which has 2 open sides shall have a stair railing on each side.
   d. A stairway that is more than 44” wide shall have 1 handrail on each enclosed side and 1 stair rail on each open side.
   e. A stairway that is 88” or wider shall have 1 handrail on each enclosed side, 1 stair rail on each open side, and 1 intermediate stair rail located in the middle of the stairway.
2. Where a door or gate opens directly on a stairway more than 6’ in height and is used as a required means of egress, a stair landing shall be provided. The swing of the door shall not reduce the landing which leads to the stairway to less than 20” unless specified in another code.

Guardrail Specifications for Scaffolding and Catch Platforms

1. A guardrail for scaffolding and catch platforms shall consist of a top rail, intermediate rail, and supporting posts. The top rail shall have a smooth surface and shall be located not less than 36", and not more than 42" above the floor, ramp, platform, or runway. The intermediate rail shall be located halfway between the top rail and the floor, ramp, or runway. The top rail shall not overrun the terminal posts unless such projection does not constitute a hazard.
2. A top rail and its supporting posts shall be constructed of wood that is not less than 2" x 4" nominal size with a 1" x 6" or 2" x 4" nominal size intermediate rail. The construction and fastenings shall produce a guardrail capable of withstanding a 200lb. side thrust applied at the top rail. Other material may be used if the finished product has the 200lb. capability. A guardrail that is subject to additional loads shall be constructed of heavier stock and the supporting post shall be more closely spaced.
3. Vertical supporting posts shall be placed not more than 8' apart.
4. Banding Steel shall not be used for guardrail construction.
5. Welded re-steel members shall not be used for guardrail construction.

Runway and Ramp Specifications

1. A ramp or runway that is used exclusively by employees as a means of access to or egress from a walking or working surface shall meet the following requirements:
   a. Be capable of supporting not less than 2 times the maximum intended load.
   b. Consist of a minimum of two 2" by 10" nominal size planks placed side by side or other material of equal width that provides equivalent strength if guardrails are not required.
   c. Consist of a minimum of three 2" by 10" nominal size planks placed side by side or other material of equal width that provides equivalent strength if guardrails are required.
   d. Not be constructed steeper than the ration of 1' of vertical rise to 2' of horizontal run.
   e. Have a slip-resistant surface or have cleats that are not more than 2" by 4" nominal size and which are uniformly spaced not more than 24" apart.
   f. Be constructed to avoid excessive deflection and springing action.
   g. Be secured at each end to prevent displacement.
   h. Not be used for the storage of materials or equipment.
   i. Be maintained free of debris, other loose materials, and slip or trip hazards.
2. A ramp or runway used by employees with wheelbarrows shall meet both the following requirements.
   a. Be constructed and used in as prescribed above in (1)(a), (d), (e), (f), (g), (h), and (i).
   b. Consist of three 2" by 10" nominal size planks placed side by side or other material of equal width that provides equivalent strength.
3. A ramp or runway used by concrete buggies, forklift trucks, or other motorized material handling equipment shall meet the following requirements.
   a. Be capable of supporting not less than 4 times the maximum intended load.
   b. Be not less than 5' wide.
   c. Be constructed and used as prescribed in (1)(a), (d), (f), (g), (h), and (i).
4. A ramp or runway constructed of 2 or more planks placed side by side shall have the planks securely fastened together.

Specifications for Stair Rail

1. A stair railing shall consist of a stair rail, a vertical support, and an intermediate rail or its equivalent to prevent an employee from falling through the opening between the stair rail and the stairs. The stair rail shall parallel the slope of the stairway.
2. A stair rail shall be smooth, made of 2" by 4" nominal sized lumber, and constructed in a manner to withstand a side thrust of not less than 200lbs. The height of the stair rail shall be as follows:
   a. A stair rail that is installed after March 15, 1991, shall be not less than 36" from the upper surface of the stair rail system to the tread and in line with the face of the riser at the forward edge of the tread.

b. A stair rail that is installed before March 15, 1991, shall not be less than 30” nor more than 34” from the upper surface of the stair rail system to the surface of the tread and in line with the face of the riser at the forward edge of the tread.

3. The vertical post shall be constructed of not less than 2” by 4” nominal sized lumber and shall be spaced not more than 6’ apart.
4. An intermediate rail or mid-rail shall be constructed of not less than 1” by 6” or 2” by 4” nominal sized lumber and shall be installed midway between the stair rail and the treads.
5. Screens, mesh, intermediate vertical members, or equivalent intermediate structural members shall be provided between the top rail and the stair rail system and the stairway steps.
6. Screen or mesh, when used, shall extend from the top rail to the stairway step and along the entire opening between the top rail supports.
7. When intermediate vertical members, such as balusters, are used between posts, they shall be not more than 19” apart.
8. Other structural members, when used, shall be installed such that there are no openings in the stair rail system that are more than 19” wide.
9. A stair rail shall not have protruding nails, rough or sharp corners, and shall not constitute a projection hazard.
10. Other material may be used if the stair railing meets the 200lbs. side thrust requirement.
11. A stairway that has 4 or more risers or risers more than 30” whichever is less, shall be equipped with at least 1 handrail and at least 1 stair rail system along each unprotected side or edge. When the top edge of a stair rail system also serves as a handrail, the provisions of R.408.42156(3) shall apply.
12. Winding and spiral stairways shall be equipped with a handrail that is sufficiently offset to prevent walking on those portions of the stairways where the tread width is less than 6”.

Handrail Specifications

1. A handrail shall be of a configuration that provides a handhold when grasped to avoid a fall and shall follow the slope of the stairway.
2. A hand rail shall be vertically installed not more than 37”, nor less than 30”, above the front edge of the treads.
3. When the top edge of a stair rail system also serves as a handrail, the height of the top edge shall be not more than 37” nor less than 36” from the upper surface of the stair rail system to the surface of the tread and in line with the face of the riser at the forward edge of the tread.
4. A handrail shall have a smooth surface along the top and sides and the ends shall not present a projection hazard.
5. Handrails that will not be a permanent part of the structure being built shall have a minimum clearance of 3” between the handrail and walls, stair rail systems, and other objects.
6. The ends of stair rail systems and handrails shall be constructed so as not to constitute a projection hazard.

Temporary Stairways

1. All wooden components that are necessary to construct and guard a temporary stairway shall be of construction grade lumber.
2. The minimum width of a temporary stairway shall be 22”.
3. The total vertical rise of a temporary stairway shall not be more than 12’, unless stair platforms are provided.
4. The rise shall not be less than 6” nor more than 8”.
5. The ratio of rise to tread width shall be uniform for all sets of stairs.
6. The sides of a temporary stairway shall be guarded as required by the provisions of R 408.42155 and R 408.42156, except that a stairway used as access to material storage trailers is required to be guarded on only 1 side.
7. If used during construction, permanent steel or other metal stairways and landings with hollow pan-type treads that are to be filled with concrete or other materials shall be filled to the level of the nosing with solid material. This requirement shall not apply during the period of actual construction of the stairways. Metal landings shall

be secured in place before filling. Such temporary treads and landings shall be replaced when worn below the level of the top edge of the pan.
8. A stairway shall be free of hazardous projections, such as nails, sharp top rails, and handrail projections.
9. A stairway shall have a minimum vertical clearance of 7’ from any overhead object, unless the overhead object is padded and caution signs or paint is used on the object.
10. Except during stairway construction, foot traffic is prohibited on skeleton metal stairs where permanent treads or landings are to be installed later, unless the stairs are fitted with secured temporary treads and landings long enough to cover the entire tread or landing area.
11. Treads for temporary service shall be made of wood or other solid material and shall be installed the full width and depth of the stair.

Maintenance

1. A floor, platform, stair tread, or landing shall be maintained free of tripping or slipping hazards.
2. A floor, platform, stair tread, or landing shall be maintained free of hazardous projections.

B.15. Concrete Construction

Construction Equipment and Material

Equipment and material used in concrete construction and masonry work shall meet the applicable requirements prescribed in American National Standard Institute standard ANSI A10.9, “Concrete Construction and Masonry Work,” 1983 edition.

Reinforcing Steel

1. A route designated as a means of access or egress across reinforcing steel for general traffic shall be provided with a walkway.
2. All protruding reinforcing steel, onto and into which employees could fall, shall be guarded to eliminate the hazard of impalement.
3. Reinforcing steel or walls, piers, columns, and other similar vertical structures shall be guyed, braced, or otherwise supported to prevent collapse.
4. Reinforcing steel shall not be used as a scaffolding hook or stirrup or as a load-bearing member in a lifting device.
5. Reinforcing steel shall not be welded and used a load-bearing member.
6. Roll wire mesh shall be secured at each end to prevent dangerous recoiling action.

Concrete Mixing, Pouring, and Floating

1. A concrete mixer that is equipped with a 1 yard or larger loading skip shall be equipped with a mechanical device to clear the skip of material
2. A guardrail that can withstand a 200-pound side thrust shall be provided on each side of a skip on a mixer that has a capacity of 1 or more yards.
3. The handles on a bull float that is used where it may contact an energized electrical conductor shall be constructed of nonconductive material or shall be insulated with a nonconductive sheath that has electrical and mechanical characteristics which provide the equivalent protection of a handle constructed of nonconductive material.
4. A powered and rotating-type concrete troweling machine that is manually guided shall be equipped with a control switch that will automatically shut off the power when the operator removes his or her hands from the equipment handles or switch.
5. The handles of a concrete buggy shall not extend horizontally beyond the wheels on either side of the buggy.
6. A concrete bucket that is equipped with a hydraulically or pneumatically operated gate shall have a positive safety latch or a similar safety device installed to prevent premature or accidental dumping. The bucket shall be designed to prevent aggregate and loose material from accumulating on the top and sides of the bucket.
7. An Employee shall not be permitted to ride a bucket or walk or work under a bucket that is suspended from a crane or cableway.
8. A concrete bucket that is positioned by a crane or cableway shall be suspended from an approved swivel safety -type hook.

9. A pumpcrete or similar system using discharge pipe shall have pipe supports that are designed for a 100% overload. Compression air hoses in the system shall be provided with positive fail-safe joint connectors to prevent the separation of sections when pressurized.

10. A runway, ramp, or scaffold shall be provided for placement of concrete in areas such as walls, piers, columns, and beams, as prescribed in Construction Safety Standards Part 12. “Scaffolds and Scaffold Platforms,” Part 21. “Guarding of Walking and Working Areas,” and Part 45. “Fall Protection,” as referenced in R 408.42503. / OSHA Subpart L- Scaffolds, Subpart M- Fall protection.

11. A concrete mixer, or other equipment, such as a compressor, screen, or pumps used for concrete construction activities, where inadvertent operation of the equipment may occur and cause injury, shall be locked out when an employee is performing maintenance or repair. An employee who is inside a concrete mixer performing maintenance or repair shall have the only key to the lock.

12. Sections of tremies and similar concrete conveyance shall be secured with wire rope, or equivalent materials, in addition to the regular couplings or connections.

Forms and Shoring Generally

1. Formwork, shoring, and reshoring shall be designated, erected, supported, braced, and maintained so that they will support all vertical and lateral loads that may be imposed upon them during placement of concrete or until the loads can be supported by the concrete structure.

2. Drawings or plans which are prepared by the qualified person, except as required in R. 408.42527(5) and R 408.42533(1) / 1926.703(8) and 1926.705, and which show the jack layout, formwork, shoring, working decks, and scaffolding shall be available at the jobsite.

3. No construction loads shall be placed on a concrete structure or portion of a concrete structure unless the employer has determined, based on information received from a person who is qualified in structural design, that the structure or portion of the structure is capable of supporting the loads.

Placing and Removing Forms

1. Forms shall not be completely removed until a determination has been made that the concrete can support its own weight and any currently superimposed load. Such determination shall be based on compliance with either of the following:
   a. The plans and specifications stipulate conditions for removal of forms and shores, and such conditions have been followed.
   b. The concrete has been properly tested with appropriate ASTM standard test method designed to indicate the concrete compressive strength, and that the test results indicate that the concrete has gained sufficient strength to support its weight and superimposed loads.

2. Vertical, horizontal, and overhead forms that are being raised or removed by lifting equipment shall be braced or secured before being released from the load line.

Vertical Slip Forms

1. Field operation for vertical slip forms shall be under the supervision of a qualified person. The qualified person shall be present on the deck during slipping operations.

2. A lift shall proceed steadily and uniformly and shall not exceed the predetermined rate of lift.

3. The steel rods or pipe on which the jacks climb or by which the forms are lifted shall be specifically designed for such climbing or lifting. Such rods shall be adequately braced if they are not encased in concrete.

4. Jacks and vertical supports shall be positioned so that the vertical loads are distributed equally and do not exceed the capacity of the jacks.

5. The jacks or other lifting devices shall be provided with mechanical dogs or other automatic holding devices to prevent slippage due to the failure of the power supply of the lifting mechanism.

6. Vertical lift forms shall be provided with scaffolding or work platforms that completely encircle the area of placement. The scaffolds shall be as prescribed in Construction Safety Standard Part 12. “Scaffolds and Scaffold Platforms,” as referenced in R 408.42503 / OSHA Subpart L- Scaffolds.

7. Lateral and diagonal bracing of vertical slip forms shall be provided to prevent excessive distortion of the structure during the jacking operation.

8. During a jacking operation, a qualified person shall maintain the form structure in line and plumb.

Vertical Shoring General

1. When temporary storage of reinforcing rods, material, or equipment on top of formwork becomes necessary, these areas shall be strengthened to support the intended loads.

2. The sills for shoring shall be sound, rigid, and capable of carrying the maximum intended load.

3. When shoring from soil, the soil shall be capable of supporting the load and the soil shall be inspected after occurrence which could affect its load-bearing capacity. Soil weakened from any occurrence that reduces its load-bearing capacity to less than that required to support a specific load shall be strengthened by compacting or other equivalent means.

4. Baseplates, shore heads, extension devices, and adjustment screws shall be in firm contact with the footing sill and the form.

5. Eccentric loads on shore heads and similar members or shoring are prohibited, unless the shore heads are designed for the loading.

6. Shoring equipment shall be inspected by a qualified person before erection to determine that it is as specified in the shoring drawings or plans. Any equipment found to be damaged shall not be used for shoring.

7. Before concrete is placed in the forms, all shoring equipment shall be inspected by a qualified person to determine whether it was erected as specified in the shoring drawings or plans.

8. Erected shoring shall be inspected by a qualified person during and immediately after pouring concrete. Shoring that is found to be damaged or weakened shall be reinforced or re-shored.

9. Only designated employees shall be permitted on the first floor immediately under the forms during concrete placing work.

10. Shoring equipment shall not be released or removed without the approval and assurance of a qualified person that the remaining equipment will support the load.

11. Construction or superimposed loads shall not be placed on an uncured pour unless either of the following provisions is complied with:
    a. The strength of the concrete in the previous pour has been determined by testing to be capable of withstanding the load.
    b. A qualified person indicates that the concrete had developed sufficient strength to support the load. This does not apply to slip form operations and slabs built at grade elevation.

12. Reshoring shall be provided, when necessary, to support slabs and beams after stripping or where the members are subjected to superimposed loads due to the construction work done.

13. Vertical shoring shall not be adjusted to raise formwork after concrete is in place, unless specifically provided for in the design specifications.

Metal Frame Shoring

Locking devices on frames and braces shall be in good working order; coupling pins shall be align the frame or panel legs; pivoted cross braces shall have their center pivot in place, and all components shall be without defects.

Tube and Coupler Shoring

1. The couplers or clamps shall not be used if they are deformed, broken, have defective or missing threads on bolts, or have other defects.

2. The interlocking of the tubular members and the tightness of the couplers shall be checked before pouring concrete.

Single-post Shores

1. For stability, a single-post shore shall be horizontally braced in both the longitudinal and transverse directions, and diagonal bracing shall also be installed. The bracing shall be installed as the shores are being erected.

2. The top of single-post shores shall be restricted from movement using retainers or other equivalent means.

3. Timber and fabricated single-post shores and the adjusting devices shall be inspected before erection. Timber for single-post shores shall not be used if it contains splits, cuts, rotting, or structural damage.

4. A metal single-post shore and the adjusting devices shall not be used if the shore or devices are heavily rusted, bent, dented, or rewelded of have broken weldments or other defects.

5. A single-post shore that is used in more than 1 tier shall be designed by a registered engineer and inspected by a qualified person. All the following shall apply:
   a. The single post shores shall be vertically aligned.
   b. The single post shores shall be spliced to prevent misalignment.
   c. The single post shores shall be adequately braced in 2 mutually perpendicular directions at the splice level. Each tier shall also be diagonally braced in the same 2 directions.

6. When formwork is at an angle or is sloping or when the surface shored is sloping, the shoring shall be designed for this loading by a qualified engineer.

Flying Forms

1. Nothing shall be allowed on the forms during movement unless it is securely fastened to the forms.

2. A person, other than the rigger, shall not be permitted on top of the deck form after rollout operations have been completed.

3. Rigging of the deck form shall be completed before the line from the crane takes the total load of the form.

Pre-stressed and Post-stressed concrete operations

1. An expendable strand deflection device that is used to pretension concrete members shall have a designated safety factor of not less than 2. A reusable device shall have a safety factor of not less than 3.

2. Expendable and reusable strand deflection devices shall not be loaded in excess of their maximum intended load.
3. An employer shall designate a qualified person to inspect all jacking and pulling equipment before each use and during use.
4. Tensioning strands that have kinks, bends, nicks, and other defects shall not be used.
5. Welding or cutting is prohibited near strand that has been unrolled, strung, or tensioned or at any other location where strand is stored.
6. During jacking operations of any tensioning elements or group of tensioning elements, the anchor shall be kept turned up close to the anchor plate.
7. An employee shall not stand in the line of, behind, or over the jacking equipment during tensioning operations.
8. Only an employee who is operating tensioning equipment shall be permitted in the immediate vicinity when tensioning is in progress.
9. Stress members shall be lifted with the lifting devices at the points specifically designed. An employee shall not be under stressed members during lifting an erection.
10. Audible or visual signaling devices shall be operates to warn employees when tensioning operations are under way.
11. All employees who are not directly involved in the tensioning operations shall be cleared from the area and shall remain clear until tensioning operations are completed and the signaling devices are turned off.

Precast and Tilt-up operations

1. Lifting inserts which are embedded or otherwise attached to tilt-up precast concrete members shall be capable of supporting at least 2 times the maximum intended load applied or transmitted to them. Lifting inserts which are embedded or otherwise attached to precast concrete members, other than the tilt-up members, shall be capable of supporting at least 4 times the maximum intended load applied or transmitted to them. Lifting hardware shall be capable of supporting at least 5 times the maximum intended load applied or transmitted to the lifting hardware.
2. An erection and procedure plan, including placement of connections, shall be prepared by a qualified employee knowledgeable in precast concrete erection and be kept available at the jobsite.
3. Precast concrete wall units and vertical panels shall be braced to prevent collapse. A permanent connection may be used in place of bracing if it can withstand all loads imposed during construction.
4. An employee, except for a connector, shall not be permitted under precast sections, wall, or panels during lifting and tilting operations.

Lift-slab operations

For lift-slab operations to take place all applicable lift-slab operation rules and regulations shall be followed as prescribed in Construction Safety Standard Part 25. “Concrete Construction,” R 408.42533 / OSHA Subpart Q-Concrete and Masonry Construction 1926.70.

B.16. Steel Erection

Site layout, Erection Plan and Construction Sequence

1. Before authorizing the commencement of steel erection, Granger Construction shall ensure that the steel erector is provided with the following written notifications:
    a. The concrete in the footings, piers, and walls and the mortar in the masonry piers and walls has attained, on the basis of an appropriate ASTM standard test method of field-cured samples, either 75% of the intended minimum compressive design strength or sufficient strength to support the loads imposed during steel erection.
    b. Any repairs, replacements, and modifications to the anchor bolts were conducted in accordance with the applicable standards.
2. The steel erection contractor shall not erect steel unless they have received written notification that the concrete has received written notification that the concrete in the footings, piers, and walls and the mortar in the masonry piers and walls has attained, on the basis of a appropriate ASTM standard test method of field-cured samples, either 75% of the intended minimum compressive design strength or sufficient strength to support the loads imposed during steel erection.
3. Granger Construction shall ensure that the following are provided and maintained:
    a. Adequate access roads into and through the site for the safe delivery and movement of derricks, cranes, trucks, along with other necessary equipment, and the material to be erected and means and methods for pedestrian and vehicular control. However, this will not apply to roads outside of the construction site.
    b. A firm, properly graded, drained area which is readily accessible to the work and which has adequate space for the safe storage of materials and the safe operation of the erector's equipment.
4. The steel erector shall provide Granger Construction with a Site-Specific Erection Plan, along with a pre-tsk analysis that has been developed by a qualified person and reviewed by the Granger on site safety manager or superintendent before the steel erection process begins. The site erection plan and pre-task analysis will be available at the work site and must be reviewed and signed by all employees engaged in steel erection. Guidelines for establishing a site-specific erection plan are contained in appendix A of Part 26. "Steel Erection," and appendix A of Subpart R- Steel erection [1926.752(e)]. A site erection plan should include the following:
    a. The sequence of erection activity, developed in coordination with Granger Construction, which has included the following:
        i. Material deliveries
        ii. Material staging and storage; and
        iii. Coordination with other trades and construction activities.
    b. A description of the crane selection and placement procedures, including the following:
        i. Site preparation
        ii. Path for overhead loads; and
        iii. Critical lifts, including rigging supplies and equipment.
    c. A description of steel erection activities and procedures, including the following:
        i. Stability consideration requiring temporary bracing and guying
        ii. Erection bridging terminus point
        iii. Anchor bolt notification regarding repair, replacement and modification.

iv. Columns and beams
v. Connections
vi. Decking, ornamental and miscellaneous iron.

d. A description of the fall protection procedures that will be used to comply with Granger Constructions 100% fall protection policy at or above 6'.

e. A description of the procedures that will be used to comply with R 408.42644 of Construction Safety Standard, Part 26. "Steel Erection," and OSHA Subpart R- Steel Erection.

f. A description of the special procedures required for hazardous non-routine tasks.

g. Certification for each employee who has received training for performing steel erection operations.

h. A list of qualified and competent persons.

i. A description of the procedures that will be utilized in the event of rescue or emergency response.

The site erection plan should also include the identification of the site and project; and be signed and dated by the qualified person(s) responsible for its preparation and modification.

Hoisting and Rigging

1. The steel erector shall provide certified riggers and signal persons for all steel erection activities on Granger projects.
2. Only Certified Crane Operators will be allowed to operate a crane. (With documentation turned into Granger Construction prior to the start of steel erection activities).
3. Safety latches on hooks shall not be deactivated or made inoperable, except in either of the following situations:
   a. When a certified rigger has determined that the hoisting and placing of purlins and single joists can be performed more safely by doing so.
   b. When equivalent protection is provided in a site-specific erection plan.
4. Routes for suspended loads shall be preplanned to ensure that no employee is required to work directly below a suspended load, except for the following employees:
   a. Employees engaged in the initial connection of the steel.
   b. Employees necessary for the hooking or unhooking of the load.
5. When working under suspended loads, all the following criteria shall be met:
   a. Materials being hoisted shall be rigged to prevent unintentional displacement.
   b. Hooks with self-closing safety latches or their equivalent shall be used to prevent components from slipping out of the hook.
   c. All loads shall be rigged by a certified rigger.
6. A multiple lift shall only be performed if all the following criteria are met:
   a. A multiple lift rigging assembly is used.
   b. A maximum of 5 members are hoisted per lift.
   c. Only beams and similar structural members are lifted.
   d. All employees engaged in the multiple lift have been trained in multiple lift procedures.

e. A crane shall not be used for a multiple lift where such use is not allowed by the manufacturer's specifications and limitations.

7. Components of the multiple lift rigging assembly shall be specifically designed and assembled with a maximum capacity for total assembly, and for each individual attachment point. This capacity, certified by the manufacturer or a certified rigger, shall be based on the manufacturer's specifications with a 5 to 1 safety factor of all components.
8. The total load shall not exceed wither of the following:
   a. The rated capacity of the hoisting equipment specified in the hoisting equipment load charts.
   b. The rigging capacity specified in the rigging rating chart.
9. The multiple lift rigging assembly shall be rigged with members attached at their center of gravity from the top down, and rigged not less than 7' apart.
10. The members on the multiple lift rigging assembly shall be set from the bottom up.
11. Controlled load lowering shall be used whenever the load is over the connectors.

Structural Steel Assembly

1. Structural stability shall be maintained always during the erection process.
2. All the following additional requirements shall apply for multistory structures:
   a. The permanent floors shall be installed as the erection of the structural members progresses, and there shall be not more than 8 stories between the erection floor and the uppermost permanent floor, except where the structural integrity is maintained because of the design.
   b. There shall not be more than 4 floors or 48', whichever is less, of unfinished bolting or welding above the foundation or uppermost permanently secured floor, except where the structural integrity is maintained because of the design.
   c. A fully planked or decked floor or nets shall be maintained within 2 stories or 30', whichever is less, directly under any erection work being performed.

Walking and Working Surfaces

1. Shear connectors, such as headed steel studs, steel bar, or steel lugs, reinforcing bars, deformed anchors, or threaded studs shall not be attached to the top flanges of beams, joists, or beam attachments so that they project vertically from or horizontally across the top flange of the member until after the metal decking or other walking/working surface has been installed.
2. If shear connectors are used in the construction of composite floors, roofs, and bridge decks, then employees shall lay out and install the shear connectors after the metal decking has been installed, using the metal decking s a work platform. Shear connectors shall not be installed from within a controlled decking zone (CDZ).
3. Slip resistance of skeletal structural steel. Workers shall not be permitted to walk the top surface of any structural steel member installed after July 18, 2006, that has been coated with paint or similar material, unless documentation or certification that the coating has achieved a minimum average slip resistance of .50.

Plumbing-up

1. Turnbuckles and other apparatus used in plumbing up shall be accessible to the employees for adjustment and dismantling. Connectors of the equipment used in plumbing up shall be secured. The turnbuckles shall be secured to prevent unwinding while under stress.

2. When deemed necessary by a competent person, plumbing-up equipment shall be installed in conjunction with the steel erection process to ensure the stability of the structure.
3. When used, pluming-up equipment shall be in place and properly installed before the structure is loaded with construction material such as loads of joists, bundles of decking, or bundles of bridging.
4. Plumbing-up equipment shall be removed only with the approval of a competent person.

Metal Decking and Decking Bundles

1. Bundle packaging and strapping shall not be used for hoisting unless specifically designed for that purpose.
2. If loose items such as dunnage, flashing, or other materials are placed on the top of metal decking bundles to be hoisted, such items shall be secured to the bundles.
3. Bundles of metal decking on joists shall be landed in accordance with Construction Safety Standard Part 26. “Steel Erection” R 408.42638(4) / OSHA Subpart R- Steel Erection Sec. 1926.757(e)(4).
4. Metal decking bundles shall be landed on framing members so that enough support is provided to allow the bundles to be unbanned without dislodging the bundles from the supports.
5. At the end of the shift or when environmental or jobsite conditions require, metal decking shall be secured against displacement.

Roof, Holes and Openings

1. Framed metal deck openings shall have structural members turned down to allow continuous deck installation, except where not allowed by structural design constraints or constructability.
2. Roof and floor holes and openings shall be decked over. If hole or opening size, configuration, or other structural design does not allow openings to be decked over, such as with elevator shafts, stair wells, then the employees shall be protected from fall hazards by guardrail system, safety net system, personal fall arrest system, positioning system, of fall restraint system.
3. Metal decking holes and openings shall not be cut until immediately before being permanently filled with the equipment or structure needed or intended to fulfill its specific use and which meets the strength requirements of the applicable standard, or shall be immediately covered.
4. Covers for roof and floor openings shall support, without failure, twice the weight of the employees, equipment, and materials that may be imposed on the cover at any one time.
5. All covers shall be secured when installed to prevent accidental displacement by the wind, equipment, or employees.
6. All covers shall be painted with high-visibility paint or shall be marked with the word “Hole” or “Cover” to provide warning of the hazard.
7. Smoke dome or skylight fixtures that have been installed are not considered covers, unless they can support without failure, twice the weight of the employees, equipment, or materials that may be imposed on the smoke dome or skylight fixtures at any one time.
8. Decking gaps around columns. Wire mesh, exterior plywood, or the equivalent, shall be installed around columns where planks or metal decking do not fit tightly. The materials used shall be of sufficient strength to provide fall protection for personnel and prevent objects from falling through.

Column Anchorage, Erection Stability, Repair, Replacement, and Anchor Bolts

1. All columns shall be anchored by a minimum of 4 anchor bolts.

2. Each column anchor bolt, including the column-to-base plate weld and the column foundation, shall be designed to resist a minimum eccentric gravity load of 300lbs. located 18” from the extreme outer face of the column in each direction at the top of the column shaft.
3. Columns shall be set on level finished floors, pre-grouted leveling plates, leveling nuts, or shim packs that are adequate to transfer the construction loads.
4. All columns shall be evaluated by a competent person to determine whether guying or bracing is needed. If guying or bracing is needed, then the employer shall have it installed.
5. Anchor bolts shall not be repaired, replaced, or field-modified without the approval of the project structural engineer of record.
6. Before the erection of a column, Granger Construction shall provide written notification to the steel erector if there has been any repair, replacement, or modification of the anchor bolts of that column.

Beams and Columns; Diagonal Bracing; Column Splices; Perimeter Columns

1. During the final placing of solid web structural members, the load shall not be released from the hoisting line until the members are secured with not less than 2 bolts per connection, of the same size and strength as shown in the erection drawings, drawn up wrench-tight or the equivalent as specified by the project structural engineer of record, except solid web structural members used as diagonal bracing which shall be secured by at least 1 bolt per connection drawn up wrench-tight or the equivalent as specified by the project structural engineer of record.
2. A competent person shall determine if more than 2 bolts are necessary to ensure the stability of cantilevered members; if additional bolts are needed, they shall be installed.
3. Solid web structural members used as diagonal bracing which shall be secured by at least 1 bolt per connection drawn up wrench-tight or the equivalent as specified by the project structural engineer of record.
4. Each column splice shall be designed to resist a minimum eccentric gravity load of 300lbs. located 18” from the extreme outer face of the column in each direction at the top of the column shaft.
5. Perimeter columns shall not be erected unless the following provisions are satisfied:
    a. The perimeter columns extend a minimum of 48” above the finished floor to permit installation of perimeter safety cables before erection of the next tier, except where constructability does not allow.
    b. The perimeter columns have holes or other devices in or attached to perimeter columns at 42 to 45” above the finished floor and the midpoint between the finished floor and the top cable to permit installation of perimeter safety cables, except where constructability does not allow.

Double Connections

1. If 2 structural members on opposite sides of a column web, or a beam web over a column, are connected sharing common connection holes, then at least 1 bolt with its wrench-tight nut shall remain connected to the first member unless a shop-attached or field-attached seat or equivalent connection device is supplied with the member to secure the first member and prevent the column from being displaced.
2. If a seat or equivalent device is used, then the seat, or device, shall be designed to support the load during the double connection process. The seat or equivalent device shall be adequately bolted or welded to both a supporting member and the first member before the nut on the shared bolts are removed to make the double connection.

Open Web Joists; Field-bolted Joists

1. Except where constructability does not allow a steel joist to be installed at the column; where steel joists are used and columns are not framed in at least 2 directions with solid web structural steel members, a steel joist shall be field-bolted at the column to provide lateral stability to the column during erection. For the installation of this joist the following provisions apply:
    a. A vertical stabilizer plate shall be provided on each column for steel joists. The plate shall be a minimum of 6” by 6” and shall extend not less than 3” below the bottom chord of the joist with a 13/16” hole to provide an attachment point for guying or plumbing cables.
    b. The bottom chords of steel joists at columns shall be stabilized to prevent rotation during erection.
    c. Hoisting cables shall not be released until the seat at each end of the steel joist is field-bolted, and each end of the bottom chord is restrained by the column stabilizer plate.
2. If constructability does not allow a steel joist to be installed at the column, then the following provisions apply:
    a. An alternative means of stabilizing joists shall be installed on both sides near the column and the alternative means shall satisfy all the following:
        i. Provide stability equivalent to MIOSHA Construction Safety Standard Part. 26 “Steel Erection” R408.42634(1) / OSHA Subpart R- Steel Erection 1926.757(a)(1)
        ii. Be designed by a qualified person
        iii. Be shop-installed
        iv. Be included in the erection drawings
    b. Hoisting cables shall not be released until the seat at each end of the steel joist is field-bolted and the joist is stabilized.
3. If steel joists at or near columns span more than 60’ or less, then the joists shall be designed with sufficient strength to allow 1 employee to release the hoisting cable without the need for erection bridging.
4. If steel joists at or near columns span more than 60’, then the joists shall be set in tandem with all bridging installed, unless an alternative method of erection, which provides equivalent stability tot eh steel joist, is designed by a qualified person and is included in the site-specific erection plan.
5. A steel joist or steel girder shall not be placed on any support structure unless the structure is stabilized.
6. If steel joists are landed on a structure, then they shall be secured to prevent unintentional displacement before installation.
7. A modification that affects the strength of a steel joist girder shall not be made without the approval of the project structural engineer of record.
8. The following apply to field-bolted joists:
    a. Except for steel joists that have been preassembled into panels, connections of individual steel joists to steel structures in bays of 40’ or more shall be fabricated to allow for field-bolting during erection.
    b. The connections shall be field-bolted unless constructability does not allow.
9. Steel joists and steel joist girders shall not be used as anchorage points for a fall arrest system unless written approval to do so is obtained from a qualified person.
10. Bridging terminus point shall be established before bridging is installed.

Steel Joist Attachment

1. Each end of “k” series steel joist shall be attached to the support structure with a minimum of 2 1/8” fillet welds 1” long or with 2 1/2” bolts, or the equivalent.
2. Each end of “LH” and “DLH” series steel joists and steel joist girders shall be attached to the support structure with a minimum of 2 1/4” fillet welds 2” long, or with 2 3/4" bolts, or the equivalent.
3. Each steel joist shall be attached to the support structure, at least 1 end on both sides of the seat, immediately upon placement in the final erection position and before additional joists are placed.
4. Panels that have been preassembled from steel joists with bridging shall be attached to the structure at each corner before the hoisting cables are released.
5. Both sides of the seat of 1 end of each steel joist that requires bridging under tables A and B shall be attached to the support structure before hoisting cables are released.
6. For joists that are more than 60’ long, both ends of the joist shall be attached as specified by the MIOSHA / OSHA before the hoisting cables are released.
7. On steel joists that do not require erection bridging under table A and B, only 1 employee shall be allowed on the joist until all bridging is installed and anchored.
8. Employees shall not be allowed on steel joists where the span of the steel joist is equal to or greater than the span shown in tables A and B, except in accordance with MIOSHA Construction Safety Standard Part 26. “Steel Erection” R 408.4263 (10), (11), (12), (13), (14), and (15) / OSHA Subpart R- Steel Erection 1926.757(d)(1), (2), (3), (4), (5), and (6).
9. When permanent bridging terminus points cannot be used during erection, additional temporary bridging terminus points are required to provide stability.
10. If the span of the steel joist is equal to or greater than the span shown in tables A and B, then all the following apply:
    a. A row of bolted diagonal erection bridging shall be installed near the mid span of the steel joist.
    b. Hoisting cables shall not be released until the bolted diagonal erection bridging is installed and anchored.
    c. Not more than 1 employee shall be allowed on spans of steel joist that is equal to or greater than the span shown in tables A and B, until all other bridging is installed and anchored.
11. If the span of the steel joist is not less than 60’ and not more than 100’, then the following apply:
    a. All rows of bridging shall be bolted diagonal bridging.
    b. Two rows of bolted diagonal erection bridging shall be installed near the third points of the steel joist.
    c. Hoisting cables shall not be released until bolted diagonal erection bridging is installed and anchored.
    d. Not more than 2 employees shall be allowed on spans of steel joist not less than 60’ and not more than 100’ until all other bridging is installed and anchored.
12. If the span of the steel joist is not less than 100’ and not more than 144’ then the following apply:
    a. All rows of bridging shall be bolted diagonal bridging.
    b. Hoisting cables shall not be released until all bridging is installed and anchored.
    c. Not more than 2 employees shall be allowed on spans of steel joists that are not less than 100’ and not more than 144’ until all bridging is installed and anchored.

13. For steel members spanning more than 144', the erection methods shall be in accordance with all applicable MIOSHA / OSHA standards.
14. If bolted diagonal erection bridging is required, then all the following shall apply:
    a. The bridging shall be indicated on the erection drawing.
    b. The erection drawing shall be the exclusive indicator of the proper placement of the bridging.
    c. Shop-installed bridging clips, or functional equivalents, shall be used where the bridging bolts to the steel joists.
    d. If 2 pieces of bridging are attached to the steel joist by a common bolt, then the nut that secures the first piece of bridging shall not be removed from the bolt for the attachment of the second.
    e. Bridging attachments shall not protrude above the top chord of the steel joist.

Landing and Placing loads

1. During the construction period, the steel erector placing a load on steel joists shall ensure that the load is distributed so as not to exceed the carrying capacity of any steel joist.
2. Except in subrule (4) of MIOSHA Construction Safety Standard "Steel Erection" R 408.42638/ OSHA Subpart R- Steel erection [1926.757(e)(4)], a construction load is not allowed on a steel joist until all bridging is installed and anchored and all joist-bearing ends are attached.
3. The weight of a bundle of joist bridging is not more than a total of 1,000 lbs. A bundle of joist bridging shall be placed on a minimum of 3 steel joists that ate secured at 1 end. The edge of the bridging bundle shall be positioned within 1' of the secured end.
4. A bundle of decking shall not be placed on steel joists until all bridging has been installed and anchored and all joist bearing ends attached, unless all the following conditions are met:
    a. The steel erector has determined from a qualified person and documented in a site-specific erection plan that the structure or portion of the structure can support the load.
    b. The bundle of decking is placed on a minimum of 3 steel joists.
    c. The joists supporting the bundle of decking are attached at both ends.
    d. At least 1 row of bridging is installed and anchored.
    e. The total weight of the bundle of decking is not more than 4,000 lbs.
    f. Placement of the bundle of decking shall be placed within 1' of the bearing surface of the joist end.

Falling Object Protection

1. All materials, equipment, and tools that are not in use while aloft shall be secured against accidental displacement.
2. Protection from falling objects other than materials being hoisted. Granger Construction will not allow any other construction activity below steel erection unless overhead protection for the employees below is provided.

Criteria for Fall Protection Equipment; Custody of Fall Protection

1. Granger Construction requires 100% fall protection for all work activities that expose employees to a fall of 6' or greater. The steel erection contractor shall indicate in their site-specific erection plan how they intend to keep their employees protected from fall hazards at or above 6'. The steel erector must also provide a rescue plan

from heights in the case of a fall arrest. All employees are required to be trained in the proper selection, use, and maintenance of fall protection equipment being used on this project.

2. Guardrail systems, safety not systems, personal fall arrest systems, positioning device systems and their components shall conform with all applicable OSHA / MIOSHA standards.
3. Fall arrest system components shall be used in fall restraint systems and shall conform to all applicable OSHA/ MIOSHA standards.
4. On multistory structures, perimeter cable shall be installed at the final interior and exterior perimeters of the floors as soon as the metal decking has been installed.
5. Fall protection provided by the steel erector shall remain in the area where steel activity has been completed, to be used by other trades, only if Granger Construction has or our authorized representative has done the following:
    a. Directed the steel erector to leave the fall protection in place.
    b. Inspected and accepted control and responsibility of the fall protection before authorizing persons other than steel erectors to work in the area.

Training & Specialized Training

1. Granger Construction requires that all employees be trained by a qualified person.
2. The steel erection contractor shall provide a training program for all employees exposed to fall hazards. The training program shall include training and instructions in the following areas:
    a. The recognition and identification of fall hazards in the work area.
    b. The use and operation of the following:
        i. Guardrail systems, including perimeter safety cable systems
        ii. Personal fall arrest systems
        iii. Positioning device systems
        iv. Fall restraint systems
        v. Safety net systems
        vi. Other protection to be used
    c. The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection system to be used.
    d. The procedures to be followed to prevent falls to lower levels and through or into holes and openings in walking/working surfaces and walls.
3. The steel erector shall ensure that each employee who performs multiple lift rigging has been provided training in the following areas:
    a. The nature of the hazards associated with connecting.
    b. The proper procedures and equipment to perform multiple lifts.
4. A steel erector shall ensure that each connector has been provided in the following areas:
    a. The nature of the hazards associated with connecting.

b. The establishment, access, proper connecting techniques, and work practices required by all applicable OSHA / MIOSHA standards.

c. Specific training on personnel hoisting.

5. Where CDZs are being used, the steel erector shall assure that each employee has been provided training for the following:

   a. The nature of the hazards associated with work within a controlled decking zone.

   b. The establishment, access, proper connecting techniques, and work practices required by all applicable OSHA / MIOSHA standards.

B.17. Aerial Work Platforms

1. At the start of each shift, the operator of the Aerial Work Platform shall perform a daily documented inspection of the equipment. This inspection shall be turned in to Granger at the end of the work week.
2. An operator shall promptly report any defects to the employer.
3. An operator shall report all accidents involving injury to an employee or damage to buildings and equipment to Granger Construction immediately.
4. A permit shall be carried by the operator or be available upon request by Federal or State Representative at all times during working hours.
5. A permit shall indicate the type of Aerial Work Platform an operator has been trained on and is qualified to operate.
6. A permit to operate an Aerial Work Platform is valid only for the employer who issued the permit and the permit shall be issued for a period of not more than 3 years.
7. Aerial work platforms shall not be field-modified for uses other than those intended by the manufacturer, unless the modification has been certified in writing by the manufacturer or by any other equivalent entity, such as a nationally recognized testing laboratory, to be in compliance with the applicable ANSI standard, and to be at least as safe as the equipment was before modification.
8. Aerial work platforms shall be equipped with emergency controls at ground level.
9. Emergency ground level control shall be clearly marked as to their intended function and can override the platform controls.
10. Attachment points shall be provided for fall protection devices for personnel who occupy the platform on aerial work platforms.

Insulated aerial device testing

If the aerial work platform is rated and used as an insulated aerial device, an employer shall test the electrical insulating components for compliance with the rating of the aerial work platform in accordance with ANSI standard A92.2, 2002 edition. Such testing shall comply with all the following provisions:

a. The test shall be performed not less than annually.
b. Written, dated, and signed test reports shall be made available by the employer for examination by a department representative.
c. The insulated portion of an aerial device shall not be altered in any manner that might reduce its insulating value.

Permits & Training

1. An employer shall provide the operator of an aerial work platform with an aerial work platform permit.
2. All requirements shall be met before an employee is issued a permit.
3. A permit shall be carried by the operator or be available at the job site and shall be displayed upon request by a department of licensing and regulatory affairs representative.
4. A permit shall indicate the type of aerial work platforms and operator had been trained on and is qualified to operate.
5. A permit to operate an aerial work platform is valid only when performing work for the employer who issued the permit. A permit shall be issued for a period of not more than 3 years.

6. A permit shall contain all the following information:
    a. Firm name.
    b. Operator's name.
    c. Name of the issuing authority. (Authorized by)
    d. The following types of aerial work platform the operator is authorized to operate:
        I. Vehicle-mounted elevating work platform such as the following:
            a. Extensible boom aerial devices.
            b. Aerial ladders.
            c. Articulating boom aerial devices.
            d. Vertical towers.
        II. Manually propelled elevating work platforms.
        III. Boom-supported elevating work platforms.
        IV. Self-propelled elevating work platforms.
    e. Date issued.
    f. Expiration date.
7. An employer shall provide each employee who will operate the aerial work platform with instruction and training regarding the equipment before a permit is issued or reissued. Such instruction and training shall ensure that each operator is in compliance with the minimum following provisions:
    a. Is instructed by a qualified person in the intended purpose and function of each of the controls.
    b. Is trained by a qualified person or reads and understands the manufacturer's or owner's operating instructions and safety rules.
    c. Understands by reading or by having a qualified person explain, all decals, warnings, and instructions displayed on the aerial work platform.
    d. Reads and understands the provisions
8. The manufacturer's operating instructions and safety rules shall be provided and maintained in a legible manner on each unit by the employer.

Preoperational Procedures

1. An employer shall ensure before the commencement of operation near power lines and when clearances cannot be maintained that the owner, owner representative, or utility are notified with all the pertinent information about the job.
2. Any overhead wire shall be considered to be an energized line until the owner of the line, his or her authorized representative, or a utility representative assures either of the following:
    a. The line is de-energized and has been visibly grounded.
    b. The line is insulated for the system voltages and the task will not compromise the insulation of the conductor and/or cause an electrical hazard.

Electrical hazards

1. An employer shall ensure that an aerial work platform shall operate so that the distance from energized power lines and equipment prescribed in Table 1 of Part 32. Aerial Work Platforms are maintained.
2. A qualified lineman or a qualified line clearance tree trimmer shall maintain distances as prescribed in Table 2 of Part 32. Aerial Work Platforms when performing work from an aerial work platform on or near an exposed power line unless any of the following conditions exist:
    a. The employee is insulated or guarded from the energized part by gloves or sleeves.
    b. The employee is insulated, isolated, or guarded from any other conductive part.
    c. The energized part is insulated from the employee.
3. A qualified telecommunications employee shall maintain the distance prescribed in Table 3 of Part 32. Aerial Work Platforms when working from an aerial lift, unless the employee is insulated, isolated, or guarded from any other conductive part or the energized part is insulated from the employee.
4. Employees shall use insulated buckets, gloves and sleeves that are rated at more than the voltage to be worked on or that with which they might come into contact.
5. The clearance, as prescribed in Tables 1-3 of Part 32. Aerial Work Platforms do not apply when the owner of the line or his or her authorized representative, or a utility representative assures that the conductor is insulated from the system voltages and the task will not compromise the insulation of the conductor and/or cause an electrical hazard.

Fall Protection

1. Granger Construction requires a safety harness and self-retracting lifeline (SRL) which is affixed to attachment points provide and approved by the manufacturer for all occupants or anyone operating an extensible boom aerial device, aerial ladder, articulating boom aerial device, or a vertical tower.
2. Workers are prohibited from belting off to an adjacent pole, structure, or equipment while working from an aerial work platform.
3. Employees are not allowed to exit an elevated aerial work platform, except where elevated work areas are inaccessible or hazardous to reach. Employees may exit the platform with the knowledge and consent of the employer. When employees exit to unguarded work areas, fall protection shall be provided and used as required in MIOSHA Construction Safety Standard Part 45. “Fall Protection,” R 408.44501 to R 408.44502 / OSHA Subpart M - Fall Protection.

Operating Procedures

1. The aerial work platform shall be used only in accordance with the manufacturers or owners operating instructions and safety rules.
2. The designated rated capacity for a given angle of elevation shall not be exceeded.
3. The guardrail system of the platform shall not be used to support any of the following:
    a. Materials.
    b. Other work platforms.
    c. Employees.
4. Employees shall maintain firm footing on the platform while working on the platform. The use of railings, planks, ladders, or any other device on the platform for achieving additional height is prohibited.

5. Only aerial work platforms that are equipped with a manufacturer's installed platform controls for horizontal movement shall be moved while in the elevated position.
6. Before and during driving while elevated, an operator of a platform shall do the following:
    a. Look in the direction of, and keep a clear view of, the path of travel and make sure that the path is firm and level.
    b. Maintain a safe distance from all the following:
        I. Obstacles
        II. Debris
        III. Drop-offs
        IV. Holes
        V. Depressions
        VI. Ramps
        VII. Overhead obstructions
        VIII. Overhead electrical lines
        IX. Other hazards to safe elevated travel
7. Outriggers or stabilizers, when provided, are to be used in accordance with the manufacturer's instructions. Brakes shall be set and outriggers and stabilizers shall be positioned on pads or a solid surface.
8. Aerial work platforms shall be elevated only when on a firm and level surface or within the slope limits allowed by the manufacturer's instructions.
9. A vehicle-mounted aerial work platform shall have its brakes set before elevating the platform.
10. A vehicle-mounted aerial work platform shall have wheel chocks installed before using the unit on an incline.
11. Climbers shall not be worn while performing work from an aerial work platform.
12. Platform gates and chains shall be whenever moving the platform and while operating in an elevated position.
13. Altering, modifying, or disabling safety devices or interlocks is prohibited.

B.18. Confined Space

PURPOSE

The purpose of this written Permit-Required Confined Space Program for Construction is to ensure safe practices are utilized prior to and during all construction activities in permit-required confined spaced on all Granger Construction Company projects. Our program is designed to prevent personal injuries, illness and fatalities in confined spaces. As an employer, Granger Construction Company has developed and implemented this document to meet the written program requirements.

This overall program is intended to control and, where appropriate, to protect employees from permit space hazards and to regulate employee entry into permit spaces. Our written program provides the basis for construction-related permit space entry operations, as well as a reference for guiding supervisors and employees (including contract employees) that we direct as an "entry employer". It also serves to assign accountability for all functions related to permit space entry and will aid in avoiding mistakes and misunderstandings.

SCOPE

The elements contained in this Permit-Required Confined Space Program for Construction must be implemented and followed in all construction work situations where entry into permit spaces is necessary. Entry means the action by which any part of a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space, whether or not such action in intentional or any work activities are actually performed in the space.

However, the program elements do not apply to construction work regulated by Construction Safety Standard Part 9 Excavations; Part 665 Underground Construction, Caissons, Cofferdams and Compressed Air Standard; Part 504 Diving Standard.

GENERAL REQUIREMENTS

1. Employers must ensure that a competent person identifies all the confined spaces that company workers may enter.
2. A competent person is required to perform evaluations to identify all the permit confined spaces.
3. Where permit confined spaces exist, the employer must:
   a. Inform all affected workers by posting danger signs or equivalent means;
   b. Inform affected workers' authorized representatives about the spaces, their locations and potential dangers; and
   c. Inform the controlling employer about the spaces, their locations and potential dangers.
4. Employers must ensure that workers who are not authorized to enter confined spaces do not enter the spaces, and comply with other applicable requirements of the standard.
5. A comprehensive permit space program, as described in the standard, must be in place before affected workers can enter permit spaces.
6. Under specified conditions, employers may proceed with permit space entry using alternate procedures in lieu of the procedures established in the written program.
7. The conditions for using the alternate procedures include:
   a. All physical hazards in the space must be eliminated or isolated with engineering controls so that the only potential hazard is atmospheric;
   b. Continuous forced air ventilation alone must maintain the space safe for entry;
   c. Monitoring and inspection data must support that the physical hazards are safely eliminated or isolated, and that the only potential hazard is atmospheric;
   d. When entry is required to obtain monitoring and inspection data, permit space program procedures must be used;

e. Supporting monitoring and inspection data must be carefully documented and made available to affected workers;
f. Conditions making it unsafe to remove an entrance cover must be eliminated before the cover is removed;
g. When entrance covers are removed, the opening must be immediately guarded by a railing or equivalent alternative;
h. The internal atmosphere must be tested before entry with a calibrated direct-reading instrument for oxygen content, flammable gases and vapors and toxic air contaminants, in that order;
i. There must be no hazardous atmosphere when a worker is inside the space;
j. Continuous forced air ventilation must be used before entry to eliminate any hazardous atmosphere, and it must be directed to the immediate work areas;
k. The air supply for forced air ventilation must be from a clean source;
l. The atmosphere in the space must be monitored continuously unless the entry employer determines that monitoring equipment is not commercially available or that periodic monitoring is sufficient;
m. When continuous monitoring id performed, the monitoring equipment must have alarms that notify affected entrants of hazardous atmospheric changes or a worker must check the monitor frequently to ensure that all entrants have time to escape should hazardous atmospheric changes develop;
n. When continuous monitoring is not used, periodic monitoring must be performed;
o. If a hazard is detected during monitoring, each worker must exit the space immediately, the space must be evaluated to determine how the hazard developed and the space must be made safe to enter before re-entry occurs;
p. A safe means of entering and exiting the space must be established; and
q. The employer must verify that the space is safe for entry and that established per-entry procedures have been implemented through a written certification.

8. The designated competent person must re-evaluate the space, and re-classify it if necessary, when changes in configuration or use could increase the hazards.
9. Permit spaces may only be reclassified as non-permit spaces when the designated competent person determines that all requirements established in the standard have been met, including:
   a. No atmospheric hazards exist and all hazards inside the space are eliminated or isolated without entry and non-atmospheric hazards remain eliminated or isolated;
   b. The hazards must be eliminated or isolated without entry (if entry is required, the written permit-required confined space procedures must be followed);
   c. The basis for determining that all hazards in the permit space have been eliminated or isolated must be carefully documented through an established certification process; and
   d. If hazards arise in a permit space that has been re-classified as a non-permit space, all workers must exit the space and the space must be re-evaluated and re-classified as a permit space when necessary.
10. Prior to entry into a permit space, the employer must provide the controlling contractor with the location of each space, the hazards or potential hazards of each space, and any precautions taken by the host employer or any previous controlling or entry employer for affected worker protection.
11. In advance of entry, the controlling contractor must obtain the host employer's information about the permit space hazards and previous entry operations, and provide the following information to each entity at the worksite who could be affected by a hazard in the permit space:
    a. The information received from the employer;
    b. Any additional pertinent information from the controlling contractor; and
    c. Any precautions implemented by the host employer, controlling contractor or other entry employers.
12. Before entry, each entry employer must obtain all the controlling contractor's information regarding permit space hazards and entry operations, and inform the controlling contractor of the permit space program he intends to follow.

13. The controlling contractor and entry employer must coordinate entry operations when more than on entity performs permit space entry at the same time, or the permit space entry is performed at the same as another activity that could result in a hazard in the permit space.
14. The controlling contractor must debrief each entry entity regarding the permit space program that was followed, and any hazards that were confronted or created during the entry.
15. When there is no controlling contractor at the worksite, the controlling contractor requirements established in the standard must be executed by the host employer or another designated employer.

PERMIT-REQUIRED CONFINED SPACE PROGRAM: Each entry employer must do the following:

1. Prevent unauthorized entry and identify and evaluate the hazards of permit spaces before workers enter.
2. Establish and implement safe permit space entry operations, including:
   a. Specifying acceptable entry conditions;
   b. Providing each entrant or their authorized representative the opportunity to observe any monitoring or testing of the permit space;
   c. Isolating the permit space and any physical hazards inside the space;
   d. Purging, inverting, flushing or ventilating the permit space to eliminate or control atmospheric hazards;
   e. Ensuring that if the ventilation system stops working the monitoring procedures will detect an increase in atmospheric hazards in time to allow entrants to safely exit the space;
   f. Providing barriers as necessary to protect entrants from external hazards such as vehicles and pedestrians;
   g. Verifying that conditions in the space are acceptable for entry throughout the duration of the entry; and
   h. Eliminating any conditions that could make it unsafe to remove any entry cover.
3. Provide the following equipment:
   a. Testing and monitoring equipment
   b. Ventilation equipment
   c. Communications equipment;
   d. Personal protective equipment;
   e. Lighting equipment (based on OSHA's *Illumination* standard for construction);
   f. Barriers and shields;
   g. Equipment for safe entry and exit;
   h. Rescue and emergency equipment; and
   i. Any other equipment needed to ensure safe entry and exit.
4. Evaluate permit space conditions in accordance with the following conditions:
   a. Permit space conditions must be tested to determine whether acceptable entry conditions exist before changes to the space's natural ventilation are made, and before entry;
   b. If isolation of the space is infeasible, the entry employer must perform pre-entry testing to the extent feasible, and implement other established monitoring and early warning procedures throughout the entry;
   c. When testing atmospheric levels, tests must occur in this order: oxygen content, flammable gases and vapors, then toxic air contaminants;
   d. Reevaluate the permit space when an entrant or his authorized representative request such an evaluation; and
   e. Provide any testing results to the requesting entrant or authorized representative immediately upon request.
5. Provide at least one attendant outside the permit space into which entry is authorized for the duration of entry operations.
6. Ensure that attendants who are responsible for more than one space at the same time include in their permit space program the means and procedures to ensure that the attendant can effectively respond to emergencies affecting one or more of the spaces.

7. Designate each person with an active role (entrants, attendants, entry supervisors, etc.) in the entry and ensure that each designated person has the required training.
8. Develop and implement procedures for summoning rescue and emergency services.
9. Develop and implement a system for preparation, issuance, use and cancellation of entry permits.
10. Develop and implement procedures to coordinate entry operations in consultation with the controlling contractor when workers of more than one employer are working simultaneously in a permit space or elsewhere on the worksite where their activities could result in a hazard within the space.
11. Develop and implement procedures for concluding the entry after entry operations have been completed.
12. Review entry operations when measures in the permit space program may not provide adequate worker protection, and correct deficiencies before subsequent entries are authorized.
13. Review the permit space program using the canceled permits within one year after each entry, and revise the program as necessary to ensure that affected workers are protected from permit space hazards.

PERMITTING PROCESS

1. Prior to entry, each entry employer must prepare an entry permit to document completion of the procedures established in the permit-required confined space program.
2. Prior to entry the entry supervisor must sign the entry permit.
3. The completed permit must be made available at the time of entry to all entrants or their authorized representatives by posting it at the entry portal or equivalent means.
4. The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit.
5. The entry supervisor must terminate entry and take the following measures when necessary:
    a. Cancel the entry permit when the operations covered by the permit are completed; and
    b. Suspend or cancel the permit and reassess the space before entry when a condition not allowed under the permit arises in or near the permit space, and the condition is temporary in nature and does not change the configuration of the space or create new hazards.
6. The entry employer must retain each canceled entry permit for at least one year.

ENTRY PERMIT

1. The space entry permit must identify all the following:
    a. The permit space to be entered;
    b. The purpose of the entry;
    c. The date and authorized duration of entry;
    d. The authorized entrants by name or equivalent means;
    e. Means of detecting increases in atmospheric hazard levels if the ventilation system fails;
    f. The names of each person serving as an attendant;
    g. The name of the entry supervisor;
    h. The hazards in the permit space;
    i. The measures used to isolate the permit space, and to eliminate or control permit space hazards before entry;
    j. Acceptable entry conditions;
    k. The results of tests and monitoring;
    l. The rescue and emergency services that can be summoned if necessary, and the means (equipment used to summon and numbers to call) for summoning the services;
    m. The communications procedures by entrants and attendants to maintain contact during entry;
    n. The equipment that will be used such as personal protective equipment, testing equipment, communications equipment, alarm systems and rescue equipment;

o. Any other necessary information; and
p. Any additional permits (i.e., hot work permits).

TRAINING

1. Each entry employer must provide training to each worker whose work is regulated under the standard.
2. The training must result in the understanding of the hazards in the permit space, and the methods used to isolate, control or in other ways protect all affected workers from the hazards (including those workers who will not enter the space).
3. Training must be provided to each affected worker as follows:
   a. In a language and with vocabulary the worker can understand;
   b. Before the worker is assigned duties covered by the standard;
   c. Before there are any changes in assigned duties;
   d. Whenever there is a change in permit space entry operations that presents a hazard about which the worker has never been training; and
   e. Whenever there is evidence of a deviation from the permit space entry procedures.
4. The training must establish employee proficiency in the duties required by the standard, and must introduce new and revised procedures as necessary.
5. Each entry employer must maintain training records to show that the training requirements have been met.

DUTIES OF AUTHORIZED ENTRANTS

1. Each entry employer must ensure the following:
   a. Entrants are familiar with and understand the hazards that may be faced during entry;
   b. Proper use of the equipment that will be used as established by the permit-required confined space program; and
   c. Communication with the attendant(s) as necessary so that the attendant(s) can assess the entrant(s)' status and alert entrant(s) to evacuate if necessary.
2. Entrants must alert the attendant whenever there is a warning sign or symptom of exposure to danger, or when the entrant detects a prohibited condition.
3. Entrants must exit the space as quickly as possible whenever any of the following occur:
   a. An order to evacuate is given by the attendant(s) or entry supervisor;
   b. There is a warning sign or symptom of exposure to a dangerous situation;
   c. The entrant detects a prohibited condition; or
   d. An evacuation alarm is activated.

DUTIES OF AUTHORIZED ENTRANTS

1. Each entry employer must ensure that each attendant:
   a. Is familiar with and understands the hazards that may be faced during entry;
   b. Is aware of the possible behavioral effects of hazards exposure in the entrants;
   c. Continuously maintains an accurate account of the entrants in the permit space;
   d. Remains immediately outside the permit space during entry operations until relieved by another attendant;
   e. Communicates with entrants as necessary to assess their status and alert them to evacuate if needed; and
   f. Assesses activities and conditions inside and outside the permit space to determine whether it is safe for entrants to remain in the space.
2. The attendant is required to order immediate evacuation of the permit spaces as follows:
   a. Whenever there is a prohibited condition;
   b. If the behavioral effects of a hazard exposure become apparent in an entrant;
   c. If there is a situation outside the space that could endanger the entrant(s); and/or

   d. If the attendant can't effectively and safely perform all his required duties.
3. The attendant must summon rescue and other emergency services as soon as he determines that entrants may need assistance.
4. The attendant is required to take the following actions whenever unauthorized persons' approach or enter a permit space while entry is underway:
   a. Warn the unauthorized persons that they must stay away from the permit space;
   b. If they have entered the permit space, advise the unauthorized persons that they must exit immediately; and
   c. Inform the authorized entrants and entry supervisor that the unauthorized persons have entered the permit space.
5. The attendant must perform non-entry rescues as specified by his employer's rescue procedures.
6. Attendants may not perform other duties that might interfere with their primary duty to assess and protect the entrants.

DUTIES OF ENTRY SUPERVISORS

1. Each entry employer must ensure the following:
   a. The entry supervisor is familiar with and understands the hazards that may be faced during entry;
   b. Before endorsing the permit, the entry supervisor verifies that the appropriate entries have been made on the permit, that the tests specified on the permit have been performed and that the procedures and equipment specified on the permit are in place.
   c. The entry supervisor terminates the entry and cancels the entry permits as required.
   d. The entry supervisor verifies that rescue services are available, the means for summoning them are operable and that the entry employer will be advised immediately if the services become unavailable;
   e. The entry supervisor removes unauthorized individuals who enter or attempt to enter the permit space during entry operations; and
   f. The entry supervisor determines that, when responsibility for permit space entry operations is transferred, operations remain consistent with the terms of the entry permit.

RESCUE AND EMERGENCY SERVICES

1. Employers who designate rescue and emergency services in accordance with the standard must evaluate a prospective rescue and emergency services ability to respond to a summons in a timely manner and to function appropriately if required.
2. The employer must select a rescue team of service that:
   a. Has the capability to reach the victim(s) within a timeframe that is appropriate for the permit space hazards;
   b. Is equipped for a proficient in performing applicable rescue services; and
   c. Agrees to notify the employer immediately when the rescue services become unavailable.
3. Each employer must inform each rescue team or service of the hazards they may confront during rescue operations.
4. The employer must provide the rescue team or service with access to all permit spaces from which rescue may be necessary so that the team or service can develop effective rescue plans and practice rescue operations.
5. An employer whose workers are designated to provide permit space rescue and/or emergency services must provide the equipment and training at no cost to the affected workers.
6. An employer whose workers are designated to provide permit space rescue and/or emergency services must also take the following steps:
   a. Provide affected workers with the personal protective equipment needed for rescue;
   b. Train each affected worker to perform assigned rescue duties and ensure that the training is successfully completed;

c. Train each affected worker in basic first aid and CPR; and
d. Ensure that affected workers practice making permit space rescues before attempting actual rescues.

7. Non-entry rescue is required unless retrieval equipment would increase the risk during entry, or would not contribute to a rescue.
8. When non-entry rescue is used, the entry employer must ensure that retrieval systems or methods are used whenever an entrant enters a permit space, and confirm that emergency assistance is available if non-entry rescue fails.
9. Each entrant must use a chest or full body harness with a retrieval line attached at the center of the entrant's back near shoulder level and above the head.
10. Wristlets or anklets may be used in place of the chest or full body harness if the employer can demonstrate that a chest of full body harness is infeasible or would create a greater hazard.
11. One end of the retrieval line must be attached to a retrieval device or a fixed point outside the permit space.
12. A mechanical retrieval device must be provided for vertical entry permit spaces.
13. Equipment that is not suitable for retrieval must not be use.
14. If an entrant is exposed to a substance for which a Safety Data Sheet (SDS) is required, the SDS or other similar information must be made available to the medical facility treating the exposed entrant.

EMPLOYEE PARTICIPATION

1. Employers must consult with affected workers and their authorized representatives on the development and implementation of all aspects of the permit space program described in the general requirements of the standard.
2. Employers must make all information required to be developed by the standard available to all affected workers and their authorized representatives.

Confined Space Entry Program (PRCSEP) Summary

1. The Safety Director established this Program to protect employees from potential hazards in a Permit Confined Space (PCS) incorporating MIOSHA CSS Part 1, GIS Part 90 & 91, CHS Part 620 & 622, GIH Part 490 CET 5010, 5020, 5310, 5320, 5380, 5381, 5985, and SP 28 as part thereof. All employees may refer to it, get copies and use it.
2. The Safety Director shall oversee the PRCSEP and evaluate the workplace, identify all PCS, and seal or post them with signs, or shall designate personnel to perform these functions. PCS evaluation shall identify all potential hazards including Entrapment, Engulfment, Atmospheric, and other hazards. Signs at PCS shall read "Danger, Confined Space Special Precautions Required. See Authorized Personnel Before Entering" or similar. A Survey of PCS shall be kept on file and available for inspection at each facility.
3. If a PCS may be entered, the Safety Director, or designate, shall determine the means and methods to eliminate, isolate, control and/or protect employees from hazards in the PCS. He shall develop an Entry Permit for the PCS which shall be used for preparation, training, use during entry, records and follow-up procedures.
4. Entry into a PCS is strictly forbidden except by fully trained, authorized and equipped personnel operating in full compliance with the PRCSEP. Consult it and the attachments including the applicable permit and the MIOSHA/OSHA standards.
5. Minimum requirements for PCS entry include performance and documentation of at least:
    a. Duties must be assigned to entrants, attendants and entry supervisors and persons who will test or monitor atmospheric conditions, perform rescue functions, coordinate multiple operations, or perform other required safety tasks.
    b. Training must be adequately performed and documented for employees to perform assigned tasks.
    c. Rescue procedures must be prepared, implemented and readied in case entrants become injured or overcome by hazards within the space.
    d. Entry permits must be developed and the system implemented and followed for their preparation, issuance, use and cancellation.
    e. Multiple operations in the PCS must be coordinated using a procedure developed to prevent unexpected hazards and ensure safety.
    f. Concluding the entry process must be done using procedures developed.
6. The Safety Director or designate shall review entry operations after an entry to determine if current procedures are adequate to ensure safety.
7. The Safety Director shall review all issued permits and entry documents at least annually, and the PRCSEP shall be revised accordingly as needed.
8. Retraining of employees shall be performed when: procedures have changed, or new confined spaces are created, or employee knowledge or proficiency is in question, or deviations from procedures occurred. All training shall be certified.

B.19. Fall Protection and Prevention

Duty To have Fall Protection General

***Walking/working surface* means any surface, whether horizontal or vertical on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runways, formwork and concrete reinforcing steel but not including ladders, vehicles, or trailers, on which employees must be located in order to perform their job duties.**

Each employer shall determine if the walking/working surface on which its employees are to work have the strength and structural integrity to support employees safely. Employees shall be allowed to work on those surfaces only when the surfaces have the requisite strength and structural integrity.

Unprotected Sides and Edges

***Unprotected sides and edges* means any side or edge of a walking/working surface, e.g., floor, roof, ramp, or runway where there is no wall or guardrail system at least 39" high.**

Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6' or more above a lower level shall be protected from falling using a guardrail systems, safety net systems, or personal fall arrest systems.

Leading Edge

***Leading edge* means the edge of a floor, roof, or formwork for a floor or other walking/working surface which changes location as additional floor, roof, decking, or formwork sections are placed, formed, or constructed. A leading edge is considered an "Unprotected Side or Edge" during periods when it is not actively and continuously under construction.**

1. Each employee who is constructing a leading edge 6' or more above a lower level shall be protected from falling by guardrail systems, safety net systems, or personal fall arrest systems. Unless an employer can demonstrate that it is infeasible or creates a greater hazard to use these systems, an employer shall then develop and implement a fall protection plan which meets the requirements prescribed in MIOSHA Construction Safety Standard Part 45. "Fall Protection," / OSHA Subpart - M Fall Protection of paragraph (k) of 1926.502.

2. Each employee on a walking/working surface 6' of more above a lower level where leading edges are under construction, but who is not engaged in the leading-edge work, shall be protected from falling by a guardrail system, safety net system, or personal fall arrest system. If a guardrail system is chosen to provide the fall protection, and a controlled access zone has already been established for leading edge work, the control line may be used in lieu of a guardrail along the edge that parallels the leading edge.

Hoist Areas

Each employee in a hoist area shall be protected from falling 6' or more to lower levels by guardrail systems or personal fall arrest systems. If guardrail systems, [or chain, gate, or guardrail] or portions thereof, are removed to facilitate the hoisting operation (e.g., during landing materials), and an employee must lean through the access opening or out over the edge of the access opening (to receive or guide equipment and materials, for example), that employee shall be protected from fall hazards by a personal fall arrest system.

Holes

***Hole* is defined as a gap or void 2" or more in its least dimension, in a floor, roof, or other walking/working surface.**

1. Each employee on walking/working surfaces shall be protected from falling through holes (including skylights) more than 6' above lower levels, by personal fall arrest systems, covers, or guardrail systems erected around such holes.

2. Each employee on a walking/working surface shall be protected from tripping in or stepping into or through holes (including skylights) by covers.

Formwork and Reinforcing Steel

Each employee on the face of formwork or reinforcing steel shall be protected from falling 6’ or more to lower levels by personal fall arrest systems, safety net systems, or positioning device systems.

Ramps, Runways, and other Walkways

Each employee on ramps, runways, and other walkways shall be protected from falling 6’ or more to lower levels by guardrail systems.

Excavations

1. Each employee at the edge of an excavation 6’ or more in depth shall be protected from falling by guardrail systems, fences, or barricades when the excavations are not readily seen because of plant growth or another visual barrier.

2. Each employee at the edge of a well, pit, shaft, and similar excavation 6’ or more in depth shall be protected from falling by guardrail systems, fences, barricades, or covers.

Dangerous Equipment

1. Each employee less than 6’ above dangerous equipment shall be protected from falling into or onto the dangerous equipment by guardrail systems, or by equipment guards.

2. Each employee 6’ or more above dangerous equipment shall be protected from falling hazards by guardrail systems, personal fall arrest systems, or safety net systems.

Overhand Bricklaying and Related Work

Overhand bricklaying and related work **means the process of laying bricks and masonry units such that the surface of the wall to be joined is on the opposite side of the wall from the mason, requiring the mason to lean over the wall to complete the work. Related work includes mason tending and electrical installation incorporated into the brick wall during the overhand bricklaying process.**

1. Each employee performing overhand bricklaying and related work 6’ or more above lower levels, shall be protected from falling by guardrail systems, safety net systems, personal fall arrest systems, or shall work in a controlled access zone.

2. Each employee reaching more than 10” below the level of the walking/working surface on which they are working, shall be protected from falling by guardrail systems, safety net systems, personal fall arrest systems.

Roofing Work on Low-slope Roofs

Roofing work **means the hoisting, storage, application, and removal of roofing materials and equipment, including related insulation, sheet metal, and vapor barrier work, but not including the construction of the roof deck.**

Low-slope roof **means a roof having a slope less than or equal 4 in 12 (vertical to horizontal).**

Each employee engaged in roofing activities on low-slope roofs, with unprotected sides and edges 6’ or more above lower levels shall be protected from falling by guardrail systems, safety net systems, personal fall arrest systems, or a combination of warning line system and guardrail system, warning line system and safety net system, or warning line system and personal fall arrest systems. Granger Construction will not permit the use of a safety monitoring system alone.

Steep Roofs

***Steep roof* means a roof having a slope greater than 4 in 12 (vertical to horizontal).**

Each employee on a steep roof with unprotected sides and edges 6’ or more above lower levels shall be protected from falling by guardrail systems with toe boards, safety net systems, or personal fall arrest systems.

Precast Concrete Erection

Each employee engaged in the erection of precast concrete members (including, but not limited to the erection of wall panels, columns, beams, and floor and roof tees) and related operations such as grouting of precast concrete members, who are 6’ or more above lower levels shall be protected from falling by guardrail systems, safety not systems, or personal fall arrest systems.

Wall Openings

Each employee working on, at, above, or near wall openings (including those with chutes attached) where the outside bottom edge of the wall opening is 6’ or more above lower levels and the inside bottom edge of the wall opening is less than 39” above the walking/working surface, shall be protected from falling using a guardrail system, safety net system, or personal fall arrest system.

Walking/Working Surfaces Not Otherwise Addressed

Except as prescribed in MIOSHA Construction Safety Standard Part 45. Fall Protection / OSHA Subpart M - Fall protection 1926.500(a)(2) or in 1926.501(b)(1) through (b)(14), each employee on a walking/working surface 6’ or more above lower levels shall be protected from falling by a guardrail system, safety net system, or personal fall arrest system.

Protection from Falling Objects

Employees are required to wear hard hats at all time while on site, but if they are exposed to falling objects then an employer must also implement one of the following measures:

1. Erect toe boards, screens, or guardrail systems to prevent objects from falling from higher levels.
2. Erect a canopy structure and keep potential fall objects far enough from the edge of the higher level so that those objects would not go over the edge if they were accidentally displaced.
3. Barricade the area to which objects could fall, prohibit employees from entering the barricaded area, and keep objects that may fall far enough away from the edge of a higher level so that those objects would not go over the edge if they were accidentally displaced.

Fall Protection Systems General

1. Fall protection systems required shall comply with the applicable provisions of MIOSHA Construction Safety Standard Part 45. Fall Protection / OSHA Subpart M - Fall Protection.

2. Employers shall provide and install all fall protection systems required for an employee, and shall comply with all other pertinent requirements of MIOSHA Construction Safety Standard Part 45. Fall Protection / OSHA Subpart M - Fall Protection before that employee begins the work that necessitates the fall protection.

Guardrail Systems

***Guardrail system* means a barrier erected to prevent employees from falling to lower levels.**

Guardrail systems and their use shall comply with the following requirements:

1. Top edge height of top rail, or equivalent guardrail system members, shall be 42” plus or minus 3” above the walking/working level. When conditions warrant, the height of the top edge may exceed the 45” height, provided

the guardrail system meets all other criteria of MIOSHA Construction Safety Standard Part 45. Fall Protection / OSHA Subpart M - Fall Protection "Guardrail Systems."

a. If an employee is using stilts, the top edge height of the top rail, or equivalent member, shall be increased an amount equal to the height of the stilts.

2. Mid-rails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members shall be installed between the top edge of the guardrail system and the walking/working surface when there is no wall or parapet wall at least 21" high.

3. Mid-rails, when used, shall be installed at a height midway between the top edge of the guardrail system and the walking/working surface.
4. Screens and mesh, when used shall extend from the top rail to the walking/working level and along the entire opening between top rail supports.

5. Intermediate members (such as balusters), when used between posts, shall be not more than 19" apart.

6. Other structural members (such as additional mid-rails and architectural panels) shall be installed such that there are no openings in the guardrail system that are more than 19 inches wide.

7. Guardrail systems shall be capable of withstanding, without failure, a force of at least 200 lbs. applied within 2" of the top edge, in any outward or downward direction, at any point along the top edge.

8. When the 200-pound test is applied in a downward direction, the top edge of the guardrail shall not deflect to a height less than 39" above the walking/working level.

9. Mid-rails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members shall be capable of withstanding, without failure, a force of at least 150lbs. applied in any downward or outward direction at any point along the mid-rail or other member.

10. Guardrail systems shall be so surfaced as to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing.

11. The ends of all top rails and mid-rails shall not overhang the terminal posts, except where such overhang does not constitute a projection hazard.

12. Steel and plastic banding shall not be used as top or mid-rails.

13. Top rails and mid-rails shall be at least ¼" nominal diameter or thickness to prevent cuts, and lacerations. If wire rope is used for top rails, it shall be flagged at not more than 6' intervals with high-visibility material.

14. When guardrail systems are used at hoisting areas, a chain, gate, or removable guardrail section shall be placed across the access opening between guardrail sections when hoisting operations are not taking place.

15. When guardrail systems are used at holes, they shall be erected on all unprotected sides or edges of the hole.

16. When guardrail systems are used around holes for the passage of materials, the hole shall have not more than two sides provided with removable guardrail sections to allow the passage of materials. When the hole is not in use, it shall be closed over with a cover, or a guardrail system shall be provided along all unprotected sides or edges.

17. When guardrail systems are used around holes which are used as points of access (such as ladderways), they shall be provided with a gate, or be so offset that a person cannot walk directly into the hole.

18. Guardrail systems used on ramps and runways shall be erected along each unprotected side or edge.

19. Manila, plastic or synthetic rope being used for top rails or mid-rails shall be inspected as frequently as necessary to ensure that it continues to meet the strength requirements as prescribed in MIOSHA Construction Safety Standard Part 45. Fall Protection / OSHA Subpart - M Fall Protection 1926.502(b)(3).

Safety Net Systems

Safety net systems and their use shall comply with MIOSHA Construction Safety Standard Part 45. Fall Protection / OSHA Subpart M - Fall Protection 1926.502(c)(1) through (c)(9).

Personal Fall Arrest Systems

Personal fall arrest system **means a system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, a body belt or harness and may include a lanyard, deceleration device, lifeline, or suitable combination of these. The use of a body belt for fall arrest is prohibited.**

1. Connectors shall be drop forged, pressed or formed steel, or made of equivalent materials.

2. Connectors shall have a corrosion-resistant finish, and all surfaces and edges shall be smooth to prevent damage to interfacing parts of the system.

3. Dee-rings and snap-hooks shall have a minimum tensile strength of 5,000lbs.

4. Snap-hooks shall be sized to be compatible with the member to which they are connected to prevent unintentional disengagement of the snap-hook by depression of the snap-hook keeper by the connected member, or shall be locking type snap-hook designed and used to prevent disengagement of the snap-hook by the contact of the snap-hook keeper by the connected member.

5. Unless the snap-hook is a locking type and designed for the following connections, snap-hooks shall not be engaged:
   a. Directly to webbing, rope, or wire rope;
   b. To each other;
   c. To a dee-ring to which another snap-hook or other connector is attached;
   d. To a horizontal lifeline; or
   e. To any object which is incompatibly shaped or dimensioned in relation to the snap-hook such that unintentional disengagement could occur by the connected object being able to depress the snap-hook keeper and release it.

6. On suspended scaffold or similar work platforms with horizontal lifelines which may become vertical lifelines, the device used to connect to a horizontal lifeline shall be capable of locking in both directions on the lifeline.

7. Horizontal lifelines shall be designed, installed, and used, under the supervision of a qualified person, as part of a complete personal fall arrest system, which maintains a safety factor of at least two.

8. Lanyards and vertical lifelines shall have a minimum breaking strength of 5,000lbs.

9. When vertical lifelines are used, each employee shall be attached to a separate lifeline, except for:
   a. During the construction of elevator shafts, two employees may be attached to the same lifeline in the hoist way, provided both employees are working atop a false car that is equipped with guardrails; the strength of the lifeline is 10,000lbs. [5000lbs. per employee attached]; and all other criteria specified in MIOSHA Construction Safety Standard Part 45. Fall Protection / OSHA Subpart M - Fall Protection.

10. Lifelines shall be protected against being cut or abraded.

11. Anchorages used for attachments of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5,000lbs. per employee attached, or shall be designed, installed, and used as follows:
    a. As part of a complete personal fall arrest system which maintains a safety factor of at least two.
    b. Under the supervision of a qualified person.

12. Personal fall arrest systems, when stopping a fall shall:
    a. Limit maximum arresting force on an employee to 900lbs. when used with a body belt.
    b. Limit maximum arresting force on an employee to 1,800lbs. when used with a body harness.
    c. Be rigged such that an employee can neither free fall more than 6', nor contact any lower level.
    d. Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5', and
    e. Have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of 6', or the free fall distance permitted by the system, whichever is less.

13. The attachment point of a body belt shall be in the center of the wearer's back. The attachment point of a body harness shall be in the center of the wearer's back near shoulder level, or above the wearer's head.

14. Body belts, harnesses, and components shall be used only for employee protection and not used to hoist materials.

15. Personal fall arrest systems and components subject to impact loading shall be immediately removed from service and shall not be used again for employee protection until inspected and determined by a competent person to be undamaged and suitable for reuse.

16. An employer shall provide for prompt rescue of employees in the event of a fall or shall assure that employees are able to rescue themselves.

17. Personal fall arrest systems shall be inspected prior to each use for wear, damage, and other deterioration, and defective components shall be removed from service.

18. Personal fall arrest systems shall not be attached to guardrail systems.

19. When a personal fall arrest system is used at hoist areas, it shall be rigged to allow the movement of the employee only as far as the edge of the walking/working surface.

Positioning Device Systems

Positioning device system **means a body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning.**

1. Positioning devices shall be rigged such that an employee cannot free fall more than 2'.

2. Positioning devices shall be secured to an anchorage capable of supporting at least twice the potential impact load of an employee's fall or 3,000lbs., whichever is greater.

3. Only locking type snap hooks shall be used.

4. Positioning device systems shall be inspected prior to each use for wear, damage, and other deterioration, and defective components shall be removed from service.

5. Body belts, harnesses, and components shall be used only for employee protection and not used to hoist materials.

Warning Line Systems

***Warning line system* means a barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge, and which designates an area in which roofing work may take place without the use of guardrail, body belt, or safety net systems to protect employees in the area.**

1. Warning lines shall be erected around all sides of the rook work area.

2. When mechanical equipment is not being used, the warning lie shall be erected not less than 6' from the roof edge.

3. When mechanical equipment is being used, the warning line shall be erected not less than 6' from the roof edge which is parallel to the direction of mechanical equipment operation, and not less than 10' from the roof edge which is perpendicular to the direction of mechanical equipment operation.

4. Point 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.

5. When the path to a point of access is not in use, a rope, wire, chain, or other barricade, equivalent in strength and height to the warning line, shall be placed across the path at the point where the path intersects the warning line erected around the work area, or the path shall be offset such that a person cannot walk directly into the work area.

6. Warning lines shall consist of ropes, wires, or chains, and supporting stanchions erected as follows:
   a. The rope, wire, or chain shall be flagged at not more than 6-foot intervals with high-visibility material.
   b. The rope, wire, or chain shall be rigged and supported in such a way that its lowest point is no less than 34" from the walking/working surface and its highest point is no more than 39" from the walking/working surface.
   c. Stanchion shall be capable of resisting, without tipping over, a force of at least 16lbs. applied horizontally against the stanchion, 30" above the walking/working surface, perpendicular to the warning line, and in the direction of the floor, roof, or platform edge.
   d. The rope, wire, or chain shall have a minimum tensile strength of 500lbs., and after being attached to the stanchions shall be capable of supporting, without breaking, the loads applied to the stanchions as prescribed in MIOSHA Construction Safety Part 45. Fall Protection / OSHA Subpart M - Fall Protection 1926.502(f)(2)(iii).
   e. The line shall be attached at each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.
   f. No employee shall be allowed in the area between a roof edge and warning line unless that employee is protected by a personal fall arrest system.
   g. Mechanical equipment on roofs shall be used or stored only in areas where employees are protected by a warning line system, guardrail system, or personal fall arrest system.

Controlled Access Zone

***Controlled access zones (CAZ)* means an area in which certain work (e.g., overhand bricklaying) may take place without the use guardrail systems, personal fall arrest systems, or safety net systems and access to the zone is controlled.**

1. When used to control access to areas where leading edge and other operations are taking place the controlled access zone shall be defined by a control line or by other means that restricts access.

2. When control lines are used, they shall be erected not less than 6' nor more than 25' from the unprotected or leading edge, except when erecting precast concrete members.

3. When erecting precast concrete members, the control line shall be erected not less than 6’ nor more than 60’ or half the length of the member being erected, whichever is less, from the leading edge.

4. The control line shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected or leading edge.

5. The control line shall be connected on each side to a guardrail system or wall.

6. When used to control access to areas where overhand bricklaying and related work are taking place:
   a. The controlled access zone shall be defined by a control line erected not less than 10’ nor more than 15’ from the working edge.
   b. The control line shall extend for a distance sufficient for the controlled access zone to enclose all employees performing overhand bricklaying and related work at the working edge and shall be approximately parallel to the working edge.
   c. Additional control lines shall be erected at each end to enclose the controlled access zone.
   d. Only employees engaged in overhand bricklaying or related work shall be permitted in the controlled access zone.

7. Control lines shall consist of ropes, wire, tapes, or equivalent materials, and supporting stanchions as follows:
   a. Each line shall be flagged or otherwise clearly marked at not more than 6’ intervals with high-visibility material.
   b. Each line shall be rigged and supported in such a way that its lowest point is not less than 39’ from the walking/working surface and its highest point is not more than 45” from the walking/working surface. (50” when overhand bricklaying operations are being performed).
   c. Each line shall have a minimum breaking strength of 200lbs.

8. On floor and roofs where guardrail systems are not in place prior to the beginning of overhand bricklaying operations, controlled access zones shall be enlarged, as necessary, to enclose all points of access, material handling areas, and storage areas.

9. On floors and roofs where guardrail systems are in place, but need to be removed to allow overhand bricklaying work or leading edge work to task place, only the portion of the guardrail necessary to accomplish that day’s work shall be removed.

Covers

Covers for holes in floors, roofs, and other walking/working surfaces shall meet the following requirements:

1. Covers located in roadways and vehicular aisles shall be capable of supporting, without failure, at least twice the maximum axle load of eh larges vehicle expected to cross over the cover.

2. All other covers shall be capable of supporting, without failure, at least twice the weight of employees, equipment, and materials that may be imposed on the covers at any one time.

3. All covers shall be secured when installed to prevent accidental displacement by the wind, equipment, or employees.

4. All covers shall be color coded or they shall be marked with the word **“HOLE”** or **“COVER”** to provide warning of the hazard.

Protection from Falling Objects

***Toe board* means a low protective barrier that will prevent the fall of material and equipment to lower levels and provide protection from falls for personnel.**

Falling object protection shall comply with the following requirements:

1. Toe boards, when used as falling object protection, shall be erected along the edge of the overhead walking/working surface for a distance sufficient to protect employees below.

2. Toe boards shall be capable of withstanding, without failure, a force of at least 50lbs. applied in any downward or outward direction at any point along the toe board.

3. Toe boards shall be a minimum of 3 ½" in vertical height from the to edge to the level of the walking/working surface. They shall have not more than ¼" clearance above the walking/working surface. They shall be solid or have openings not over 1" in greatest dimension.

4. Where tools, equipment, or materials are piled higher than the top edge of a toe board, paneling or screening shall be erected from the walking/working surface or toe board to the top of a guardrail system's top rail or mid-rail, for a distance sufficient to protect employees below.

5. Guardrail systems, when used as falling object protection, shall have all openings small enough to prevent passage of potential falling objects.

6. During the performance of overhand bricklaying and related work:
   a. No material or equipment except masonry and mortar shall be stored within 4' of the working edge.
   b. Excess mortar, broken or scattered masonry units, and all other materials and debris shall be kept clear from the work area by removal at regular intervals.

7. During the performance of roofing work:
   a. Materials and equipment shall not be stored within 6' of a roof edge unless guardrails are erected at the edge.
   b. Materials which are plied, grouped, or stacked near a roof edge shall be stable and self-supporting.

8. Canopies, when used as falling object protection, shall be strong enough to prevent collapse and to prevent penetration by any object which may fall onto the canopy.

Training

Each employee who may be exposed to fall hazards shall be provided training that will enable the employee to recognize the hazards of falling and the procedures to be followed in order to minimize those hazards. Employers shall ensure that each employee has been trained, as necessary, by a competent person qualified in the following areas:

1. The nature of fall hazards in the work area.

2. The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used.

3. The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, controlled access zones, and other protection to be used.

4. The limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs.

5. The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection.

6. The role of employees in fall protection plans.
7. The applicable standards contained in MIOSHA Construction Safety Standard Part 45. Fall Protection / OSHA Subpart - M Fall Protection.

Retraining

Retraining shall be provided to employees if there is reason to believe that any affected employee who has already been trained does not have the understanding and skill required as specified in MIOSHA Construction Safety Standards Part 45. Fall Protection / OSHA Subpart M - Fall Protection 1926.503(a).

Circumstances where retraining is required include, but are not limited to, situations where:

1. Changes in the workplace render previous training obsolete.
2. Changes in the types of fall protection systems or equipment to be used render previous training obsolete.
3. Inadequacies in an affected employee's knowledge or use of fall protection systems or equipment indicate that the employee has not retained the requisite understanding or skill.

B.20. Electrical Safety

Assured Equipment Grounding Conductor Program (AEGCP)

This AEGCP covers all extension cords, receptacles which are not a part of the permanent wiring of the building or structure, and equipment connected by cord and plug which are available for use or used by employees in construction operations.

Ground Fault Circuit Interrupters (GFCIs) shall be used for all 120-volt, single phase 15 and 20 ampere receptacle outlets on temporary wiring. GFCIs are not required for receptacles on a 2-wire, single phase portable or vehicle mounted generator rated at not more than 5 kilowatts, where the circuit conductors of the generator are insulated from the generator frame and all other grounded surfaces.

If GFCIs are not used then, this AEGCP requires:

1. This AEGCP be available in writing at jobsites for inspection and copying.
2. A competent person(s) shall be designated to implement the program. This shall be the job-site foreman unless he delegates this responsibility to another competent person in writing. The competent person must be capable of identifying hazards, and shall have the authority, responsibility and knowledge to promptly eliminate the hazards.
3. Each extension cord, attachment cap, plug and receptacle of cord sets, and any equipment connected by cord and plug, except extension cords and receptacles which are fixed and not exposed to damage, shall be visually inspected before each day's use for external defects, such as deformed or missing pins or insulation damage, and for indications of possible internal damage. Equipment found damaged or defective shall not be used until repaired.
4. The following tests shall be performed on all extensions cords, receptacles which are not a part of the permanent wiring of the building or structure, and cord and plug connected equipment required to be grounded:
    a. All equipment grounding conductors shall be tested for electrical continuity.
    b. Each receptacle and attachment cap or plug shall be tested for correct attachment of the equipment grounding conductor. The equipment grounding conductor shall be connected to its proper terminal.
    c. All required tests shall be performed at the following time:
        i. Before first use.
        ii. Before equipment is returned to service following any repairs.
        iii. Before equipment is used after any incident which can be reasonably suspected to have caused damage, for example, when an extension cord is run over.
        iv. At intervals not exceeding 3 months, except that extension cords and receptacles which are fixed and not exposed to damage shall be tested at intervals not exceeding 6 months.
5. Equipment which does not meet the requirements shall not be available, or used.
6. Tests shall be recorded. The test record shall identify each receptacle, extension cord, and cord and plug connected equipment that passed the test, and shall indicate the last date it was tested or the interval for which it was tested. This record shall be kept by means of logs, color coding, or other effective means, and shall be maintained until replaced by a more current record. The record shall be made available at the jobsite for inspection by the Director, department representative, and any affected employee.

Electrical Installations

1. Electrical apparatus and equipment used for construction operations shall bear an approved label or marking.
2. Before work begins, a competent person shall find out if any part of an electric power circuit, exposed or concealed, is so located that, in performance of the work, contact by an employee, tool, or equipment can be made with the circuit.
3. An employee shall not be permitted to be in proximity to any part of an electric power circuit that he/she may contact unless the employee is protected against electric shock by de-energizing the circuit, locking out and tagging it, or unless the employee working on an energized circuit is guarded by insulation, insulated tools, or insulating matting or blankets sufficient to protect against the voltage involved.
4. Where an electric power circuit exists that can be contacted by an employee, the employer shall do the following:
    a. Post and maintain accident prevention signs.
    b. Advise the employee of the location of the lines, hazard involved, and protective measures taken or to be taken.
5. When an employee is using a jack hammer, bar, other tool which could contact an underground line, the energy source shall ne de-energized.
6. A work space of not less than 3' wide and 6 ½' high, in addition to space necessary to open equipment doors not less than 90 degrees, shall be provided and maintained in the area of electrical equipment.
7. Barriers or other means shall be provided to ensure that the work space for electrical equipment is not used as a passageway during periods when energized parts of electrical equipment is exposed.

Wiring; Attachment Plug Receptacles: Extension and Trailing Cords: headlamps; Portable Electric Tools Used in Wet Environment; Convertor Supplying Equipment at More Than 300 Volts

1. When electrical wiring is used in a tank or other confined space, a properly identified disconnect switch shall be provided at the entrance.
2. A receptacle for an attachment plug shall meet the following requirements:
    a. Be of the concealed type.
    b. Have a contact for extending ground continuity.
    c. Be designed and constructed so that the plug may not be removed without leaving any live parts exposed to contact.
    d. Not be able to receive attachment plugs for a voltage, frequency, or type of current different from that for which the receptacle is intended, nor shall a plug of a different style be forced into a receptacle.
3. An extension cord used with a portable electric tool or appliance shall be a 3-wire type.
4. Conductors supplying temporary wiring shall be the minimum protective qualities of type NM wire for use indoors, or type UF wire for use outdoors.
5. A brass shell, paper lined lamp holder and a pin type lamp holder which damages the insulation shall not be used.
6. Wiring for temporary lighting in excess of 12 volts used on barricades, fences, and sidewalk coverings shall be protected against abrasion of accidental damage to the insulation.
7. Trailing cords and extension cords shall:
    a. Be protected against damage.
    b. Hung in a manner which does not damage the covering.
    c. Retain their insulating value and dielectric and physical strength when spliced.
    d. Be insulated to prevent shock or shorts.

   e. Have a plug body or receptacle which is either molded to the cord or is equipped with a cord clamp to prevent strain on the terminal screws, or a receptacle installed in a steel box with a cover and cord clamp.
8. A portable headlamp shall be made of molded composition or other approved material and shall have a molded handle with bulb guard attached to it.
9. A portable light used in moist or other hazardous areas, such a drum, tank, or vessel, shall be operated at a minimum of 12 volts, or shall be protected by an approved ground-fault interrupter.
10. A portable electric tool used in a wet atmosphere or environment shall be protected by an approved GFCI.
11. An attachment plug or other connector supplying equipment at more than 300 volts shall be of the skirted type or shall be otherwise designed to confine any arcs.

Exposure to Energized Conductors or Switch Gear of 440 volts between Phases

Where work requires exposure to, or handling of, energized conductors or switch gear of 440 volts or more between phases, 2 or more qualified employees shall work together.

Switches, Circuit Breakers, Disconnectors, Transformers, and Boxes

1. Each switch, circuit breaker, and disconnector shall:
   a. Be marked to indicate its purpose unless it is so located that the purpose is evident and it is secured against displacement.
   b. Be of the weatherproof type where damp or wet conditions exists.
2. A box for disconnecting means shall have dead fronts or covers, which shall be kept in place or closed when the panel is energized, or the requirements of all other applicable standards are complied with.
3. An arc shield shall be provided on a disconnect if 60 ampere capacity or larger.
4. A disconnecting means shall be provided to disconnect all energized conductors in a building or structure from the service entrance conductors.
5. An energized transformer, and other related energized equipment over 150 volts to ground, shall be protected to prevent accidental contact. The protection shall be an individual housing or an electrical substation fence. A metallic enclosure shall be grounded. Access to this equipment shall require a key or tool.

Grounding and Bonding

1. A grounding circuit shall be continuous, be capable of carrying the current imposed on it, and have a resistance low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.
2. Non-electrical equipment. The metal parts of the following non-electrical equipment shall be grounded:
   a. Frames and tracks of electrically operated cranes.
   b. Frames of non-electrically driven elevator cars to which electric conductors are attached.
   c. Hand-operated metal shifting ropes or cables of electric elevators.
   d. Metal partitions, grill work, and similar metal enclosures around equipment of over 1 kV between conductors.
3. Driven rod electrodes, either singly or connected, shall have a resistance to ground of not more than 25 ohms.
4. Conductors used for bonding shall be capable of carrying the imposed current. The bonding clamps shall have a secure and positive metal-to-metal contact.

Temporary Lighting

1. A temporary light shall be equipped with a guard to prevent accidental contact with the bulb, except when the bulb is fully recessed in the reflector.

2. A temporary light shall not be suspended by the electric cord unless the cord and light is designed for suspension.

Circuit Protection

1. Circuit protection shall be provided by fuses or circuit breakers for each feeder and branch circuit and shall be based on the current carrying capacity of the conductors and power load.
2. A fuse puller shall be used to install or remove a cartridge fuse when 1 or more terminals are energized.
3. A circuit protection device shall not be placed in a grounded circuit except where the device simultaneously opens both the ground and energized circuit.
4. Circuit protection is existing installations shall not be changed to increase the load in excess of the load rating of the conductor or equipment.

Location and Protection of Electric Lines

1. Electric lines crossing work areas, employee foot or vehicular traffic aisles, shall be fastened overhead or protected by a cover capable of withstanding the imposed loads without creating a tripping hazard.
2. All wiring installed above grade and used for construction operations shall be maintained at a height which provides safe clearance for all work operations.

Electrical Equipment Used in Hazardous Locations

1. Electrical components and equipment used in a hazardous location shall have an approved label for the specific hazardous location.
2. All screws, gaskets, and threaded connections shall maintain a vapor tight, dust tight, or fiber tight condition as required by the type of hazard class.

Inspection and Repair of Electrical Equipment

1. Electrical equipment shall be inspected periodically. The inspection shall be made at reasonable intervals according to the equipment used and the severity of conditions under which it is used. Worn or frayed cable shall not be used.
2. Repairs of electrical equipment shall be made by a licensed electrician.
3. An employer shall assure that an employee does not engage in the installation activities unless the employee is a licensed electrician, or the employee is working with, or under the supervision of, a licensed electrician. A qualified employee is not required to be licensed when working on utility installation or maintenance such as, but not limited to, substations, switch yard, and street or highway lighting.
4. The employer shall insure that all live parts of electrical equipment operating at 50 volts or more are properly guarded against accidental contact.
5. An employer shall do the following:
    a. Limit access to energized electrical equipment such as, but not limited to switch gear, transformers, and service panels, to qualified employees.
    b. Provide, and insure the proper use of, an accident prevention sign on electrical apparatus, equipment, and enclosures. The voltage shall be indicated.
    c. Provide a conductor of an ampacity of not less than the rating of the circuit breaker or fuses protecting that circuit.
    d. Insure that a bare conductor or earth return is not used for any temporary circuit.
    e. Insure that all electrical wiring is protected from physical damage.

Arc Flash & NFPA 70E

Electrical and Arc Flash procedures, training and equipment should follow NFPA 70E & NEC where applicable.

OSHA/MIOSHA compliance is required for protection of all employees.

Recommended training includes:

1. Understanding and identifying electrical shock, arc flash, the hazards and potential injuries and deaths
2. Review of System Analysis Techniques and use of completed data
3. Electrical safety related work practices for qualified workers
4. Voltage-rated tool usage
5. Need, completion and use of Energized Work Permits, signage and labeling of electrical components
6. Determining and using Approach boundaries for shock (Limited, Restricted & Prohibited) & for Arc Flash
7. The Hazard Risk Category method of selecting arc flash PPE
8. Selection, use, care and inspection of appropriate PPE for shock and flash protection
9. Steps to achieve an electrically safe work condition
10. Steps to install/remove temporary protective grounding equipment
11. Understanding “incident energy” and key electrical system variables that affect it

Establish an electrically safe work condition; or if infeasible or if it creates a greater hazard, then before work on electrically energized conductors > 50 volts complete an Energized Electrical Work Permit and:

1. Perform Shock Hazard Analysis (See NFPA 70E Table 2-1.3.4) and Flash Hazard Analysis (per NFPA 70E Sections 110.8(B)(1), 130.2 & 130.3 or follow Table 130.7(C)(9)(A) as applicable). Determine system voltage, Hazard Risk Categories (based on estimated incident energy or tasks in the table), the boundary requirements, PPE and safe work practices.
2. Establish approach boundaries i.e. Limited, Restricted, Prohibited and Arc Flash. Mark and/or barricade the farthest boundary (usually 4’ to 10’) e.g. with red barrier tape lettered DANGER – HIGH VOLTAGE around perimeter and access 42” high. Allow only properly qualified, equipped and protected workers to enter the farthest boundary. Ensure that an approved Electrical Work Plan governs work on energized conductors. [Calculate Arc Flash Boundary as $D_c = (2.65 \times MVA_{bf} \times t)^{1/2}$ where D_c is the distance (in feet) at which incident energy is 1.2 cal/cm^2 (where 2° burn can occur) MVA_{bf} is the available bolted fault capacity (in megavolt-amperes); t is time duration of the fault (in seconds). For systems <600V, with fault clearing times < 5000 amp-seconds (300kA cycles) calculate $D_c = (53 \times MVA \times t)^{1/2}$ where MVA = Transformer capacity in MVA; or use NFPA 70E 130.3(A) default AFB of 4 feet.]
3. Provide and require use of appropriate Personal Protective Equipment (PPE) rated $\geq$ the Incident Energy (E_{mb}); use calculation or Table 130.7(C)(10) [Protective Clothing and Personal Protective Equipment (PPE) Matrix]. Use appropriate arc rated flame retardant clothing (FRC) as well as gloves and tools rated $\geq$ system voltage. For HRC 1 use FRC with ATPV $\geq$ 4 (Arc Thermal Performance Value in cal/cm^2). For HRC 2 use FRC with ATPV $\geq$ 8. For HRC 2* to 3 use FRC with ATPV $\geq$ 25. For HRC 4 use FRC with ATPV $\geq$ 40. [Normally use # layers of AR clothing = to HRC #] Follow garment care and laundering requirements are specified by ASTM F1449 (2001 Edition): *Standard Guide for Care and Maintenance of Flame, Thermally and Arc Resistant Clothing*. Follow inspection requirements for FRC garments as outlined in NFPA 2113 (2001 Edition): *Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire*.
4. Ensure safe electrical work practices, a supervisor approved Electrical Work Permit, job briefings and safety devices e.g. lock-outs, lighting, labels, PPE, current limiting fuses, voltage indicators, infrared scanners, insulated tools, non-conductive rods and ladders, protective shields and guards, clearance distances, avoiding blind reaching and wearing/handling conductive items.

The 2002 National Electrical Code® (NEC) requires field labeling of circuit breaker panels and electrical disconnects to warn qualified employees of the potential arc flash hazards.

B.21. Hazardous Energy Control - Lock-Out / Tag-Out Policy (LOTO)

PURPOSE AND SCOPE

This Program is intended to establish procedures to protect employees from injury due to unintended energization, start-up or release of hazardous energy during servicing or maintenance of machinery and equipment and while working on exposed de-energized electrical conductors and parts. Hazards to be guarded against include being caught in, crushed by, struck by, thrown from, or contacting live electrical circuits or parts. We have or may have employees who could be potentially exposed to such hazards. We therefore intend to ensure that all affected employees are adequately informed, trained and protected, and that the hazards or the potential for exposure is eliminated or controlled where feasible. We will also comply with applicable regulations and meet accepted standards and safe practices. This Program is available for review by all employees in the corporate office and electronically.

APPLICATION

During service and maintenance, machines and equipment will be isolated from hazardous energy sources, protected against re-energization, and residual energy dissipated or restrained; circuits energizing exposed parts will be locked out and tagged. Hazardous energy sources include electrical, mechanical, gravitational, springs, pneumatic, thermal, chemical, hydraulic and others. Specific procedures will be used for affixing lockout and tagout devices to energy isolating devices so that machines are disabled and hazards controlled. Tagout procedures alone will be used only when lockout procedures are not feasible, such as when disconnecting means or other devices are incapable of being locked out, and until lockout capability is provided. Only employees who are trained, authorized and operating in full compliance with this Program are allowed to perform Lockout Tagout Procedures. All others are strictly prohibited.

IMPLEMENTATION

Where possible we are implementing the use of information, procedures and forms from OSHA/MIOSHA and/or other sources including those we may have created. Our basic Program Summary outlines our minimum requirements. It is posted and/or copies distributed during employee training. Failure to use Lockout Tagout procedures is a serious violation of safety rules and Supervisors shall enforce compliance. We will provide appropriate energy control devices and machine-specific procedures, repair machinery making it lockable as appropriate, inspect the program at least annually, coordinate with outside contractors, train and certify authorized, affected, and other employees and retrain when needed.

LOTO Energy Control Procedures Summary

Energy Control Procedures must be used during SERVICING or MAINTENANCE of machines. Only trained Authorized Employees may use them. See and use specific procedures for each Machine by its Number (#) in the Energy Source Evaluations List. Use General Procedure #1 only as specified. Consult Written Energy Control Program.

To SHUT DOWN MACHINE, and LOCK OUT ENERGY SUPPLY

1. Prepare. BE FAMILIAR with all Sources of hazardous energy for the machine being serviced. Know all energy types, magnitude, hazards, control methods and means including location and type of energy isolating devices and lockout devices.
2. NOTIFY AFFECTED EMPLOYEES that the machine will be shut down and locked out for service. Instruct them to Stand Clear of the machine, and to Avoid Switches, Control Devices, Locks, Tags, and not to attempt to operate the machine until further notice.
3. SHUT DOWN the machine using normal stopping procedures and energy controls.
4. ISOLATE all Energy Sources and disable the machine using the Isolating Devices and combination of procedures as specified for that machine in the Energy Sources Evaluations List and other applicable safety measures. **USE BUDDY SYSTEM FOR REMOTE ISOLATION**.
5. APPLY LOCKS AND TAGS to all isolation devices operated in step 4 and ensure that they hold the Isolating Devices in the Neutral or Off position. Always use assigned Locks; Tags alone are NOT adequate. If machine will be serviced by MORE THAN ONE AUTHORIZED EMPLOYEE, ensure that Management designates a Primary Authorized Employee, and use a Group Lock-out to which each Employee must apply his own Lock and Tag.
6. Control Stored Energy. BLOCK OR DISSIPATE stored energy as described in Special Procedures.
7. VERIFY that the machine is locked out. Ensure that all personnel are clear of the machine, then test the machine by operating all Controls and ensure that machine is de-energized. RETURN all controls o the Neutral or Off position after testing.

When TRANSFERRING RESPONSIBILITIES outgoing Employees must remove their Locks and Tags and incoming Employees must IMMEDIATELY replace them with their own Locks and Tags.

If OUTSIDE CONTRACTORS perform Lock-Out, see your Supervisor for instructions.

TO RESTORE ENERGY AND RESTART MACHINE

1. Ensure that machine is OPERATIONALLY INTACT, tools removed, and guards replaced.
2. Safeguard bystanders. Ensure that all employees are SAFELY POSITIONED clear of hazards.
3. NOTIFY all Affected Employees that you will remove locks and start the machine.
4. Each Employee must REMOVE all and only the Lock-out DEVICES he applied. If any such

Employee is unavailable, DO NOT remove his Lock; see your Supervisor. When locks are removed operate isolation devices and test energy restoration with controls or other verification.

Hardware specifications. Use lock out devices that are durable, standardized, substantial and identifiable.

B.22. Hot Work

Hot Work Permit Requirements

The purpose of a Hot Work Permit is to protect Granger employees, contractors, vendors, and visitors against fire resulting from welding, spark generating, open flame and other hot work activities. The purpose of this section is to outline the requirements of the Hot Work Permit Program.

A Hot Work Permit shall be used whenever work within a building or structure involves and actual or possible source of ignition; or may cause the activation of a fire alarm system; or may cause occupants of a building or area to contact emergency personnel to report the smell of smoke, heat, etc. This includes, but is not limited to brazing, cutting, grinding, soldering, torch-applied roofing and welding.

A Hot Work Permit will not be required when working outside where no flammable or combustible material are present within 35'.

Who's involved in the Hot Work Permit process?

1. **Supervisors** oversees the Hot Work Permit program for hot work operations under their supervision. Supervisors are responsible for designating workers who may issue Hot Work Permits.
2. **Permit Authorizing Individual** inspects hot work areas prior to the start of hot work operations using the checklist on the Hot Work Permit form. The PAI designates fire watch expectorations and any specific duties during fire watch. Once all the requirements on Part 1 of the hot work permit have been satisfied and the form is signed by a PAI, it's placed in the active Hot Work designated location for the project. Hot Work Permit Part 2 must be posted where hot work is to be performed.
3. **Fire Watch Personnel** monitor the safety of hot work operations and watch for fires. Fire watchers are posted when the hot work permit requires, during hot work, and for at least 30 minutes after work has been completed. Any employee who has successfully completed Hot Work Safety and Fire Extinguisher training can serve as fire watch. Fire monitoring may be required for longer durations to meet contractual agreements.

The 35-Foot Rule

1. All flammable and combustible materials within a 35-foot radius of hot work must be removed.
2. When flammable and combustible materials within a 35-foot radius of hot work cannot be removed, they must be covered with flame retardant tarps and a fire watch must be posted.
3. Floors and surfaces within a 35-foot radius of the hot work area must be swept free of combustible dust or debris.
4. All openings or cracks in the walls, floors, or ducts hat are potential travel passages for sparks, heat and flames must be covered.

Fire Detection and Suppression

1. A suitable fire extinguisher must be readily available and accessible.
2. If hot work it is taking place for or in an Aerial Work Platform, a fire extinguisher must be inside the basket always.
3. Entire building smoke detection and alarm systems cannot be shut down. Instead smoke detectors around the hot work may be covered for the duration of hot work to prevent false alarms.
4. Automatic sprinkler systems may not be shut down to perform hot work. Instead individual sprinkler heads around the hot work may be covered with a wet rag to prevent accidental activation.

Fire Watch

A fire watch must be posted by a PAI if the following condition exist:

1. Combustible materials cannot be removed from within a 35-foot radius of the hot work.
2. Wall or floor openings within a 35-foot radius of hot work expose combustible materials in adjacent areas, including concealed spaces in walls or floors.
3. Combustible materials are adjacent to the opposite side of partitions, walls, ceilings or roofs and are likely to be ignited.

General Permit Guidelines

1. Work should be performed using alternative methods other than hot work whenever possible.
2. Hot work should be performed in designated hot work areas whenever practical.
3. Hot Work Permit must be fully completed – be specific in location & description of work performed.
4. Hot work permit is only valid for the time period written on the permit.
5. The PAI shall file Hot Work Permit Part 1 in the designated location for the project.
6. The PAI shall post Hot Work Permit Part 2 in the hot work area for the duration of the activity.
7. When Hot Work or Fire Watch responsibilities span shift changes, the PAI shall ensure resources are in place to ensure the protection expected by this program.
8. Hot Work Permit Part 2 must be turned in at the completion of hot work and only after the fire watch or monitor has completed the final check, signed and noted the time of the final check.

B.23. Employee Protection

Defensive Driving

1. Defensive driving requires a driver to constantly manage three aspects of their vehicle, namely
   a. Speed
   b. Position and
   c. Path of travel.
2. These 3 aspects of the vehicle should be managed according to three main factors, namely:
   a. Visibility
   b. Time involved for an event
   c. Space.
3. Allow yourself a Visual Lead Time of 20-30 seconds to:
   a. Choose a safe path of travel
   b. Adjust your vehicle speed and position and
   c. Identify alternate or emergency paths.
4. At 25 mph, the distance required for 20-30 seconds Visual Lead Time is about 1½ - 2 city blocks, while at 55 mph it is about 1/3 – ½ miles.
5. Identify objects and conditions that could interfere at least 12 –15 seconds ahead.
6. Be alert for actions or changes in conditions that could increase risk; anticipate the actions of other vehicles, pedestrians etc. and be prepared to act.
7. Decide what actions to take at least 4-5 seconds ahead.
8. Execute actions as soon and as safely as possible.
9. Position your vehicle where you have the best chance of seeing and being seen, where you have a safe path and an alternate path of travel.
10. Allow a minimum Safe Following Distance of 2-3 seconds; this is accepted only in heavy traffic and good conditions; it only allows time to steer or slow, but not stop unless you stop in response to actions 4 or 5 vehicles ahead of you.
11. If your vision is blocked by a large vehicle, increase following distance to 3-4 seconds; in adverse road or weather conditions, increase following distance to 6 seconds or more.
12. In good conditions with good brakes and tires Stopping Time from 30 mph is about 3 seconds or 100 feet, while stopping time from 55 mph is about 5 seconds or 300 feet. Note, as the speed doubled, stopping distance tripled.
13. To achieve the desired time factors, determine your vehicle's distance by counting the number of 1 second intervals ("1001, 1002, 1003" …) you travel at a set speed to a fixed road mark such as a sign or crack in the pavement.
14. Position your vehicle with safe distances to the front, rear and sides (lateral position) to allow for action and reaction to vehicles and other potential dangers.
15. Adjust your speed, vehicle position and path so as to separate dangers and encounter only one at a time, such as parked cars, bicycles, pedestrians, blind corners or hills, and large or passing vehicles.
16. Always choose lanes, vehicle positions, speed and travel path so as to allow room and time to maneuver safely.
17. Driving rain, blowing snow, heavy fog and ice can be so dangerous as to prevent safe driving.
18. In a rear-wheel skid, don't brake or accelerate and gently steer in the direction you want anticipating fishtailing. Learn other techniques and your vehicle.

Ergonomics and Injury Prevention

1. Identify ergonomic risk factors including:
    a. Forcefulness
    b. Awkward posture
    c. Repetitiveness
    d. Static loading or sustained exertion
    e. Mechanical contact stress
    f. Extreme temperatures
    g. Vibration
    h. Unsuitable clothing, gloves or shoes
2. Determine causes for risk factors including the:
    a. Method used for the task
    b. Effort or strength required
    c. Location
    d. Position
    e. Design] of parts, equipment or tools
    f. Speed or frequency of work
    g. Duration or repetition of tasks
    h. Environmental factors e.g. light, noise, temperature, air quality
3. Implement use of indicated
    a. Engineering controls
    b. Work practice controls
    c. Personal protective equipment
4. Engineering Controls include:
    a. Workstation design such as:
        i. Workplace layout
        ii. Work surfaces promoting neutral posture
        iii. Walking/standing surfaces: non-slip, anti-fatigue, footrests, stools
        iv. Seating: supports back, legs, feet, padded, adjustable
        v. Storage
        vi. Work fixtures: mechanical devices to lift, hold and move materials, tools and fixtures reducing strain
    b. Work methods/technique design so that worker location, posture and motion minimizes risk factors
    c. Design of parts, tools and equipment so that size, weight, handles, controls, displays, connectors, fasteners, valves and products minimize risk factors avoiding strain
5. Work Practice Controls include:
    a. Training in work methods
    b. Gradual introduction to work
    c. Monitoring of jobs and techniques
    d. Recovery pauses
    e. Job rotation
    f. Job design
    g. Maintenance and housekeeping

6. Personal Protective Equipment includes:
    a. Gloves suited to the hands, conditions and activity involved
    b. Footwear of suitable size, type, soles and anti-fatigue insoles
    c. Knee pads; Note - Medical devices such as joint and back braces should be used under advice of a qualified health-care practitioner
7. Medical Management includes
    a. Injury prevention
    b. Injury management/early intervention
    c. Chronic injury management
8. Injury Prevention includes:
    a. Ergonomic management as outlined
    b. Personal health and fitness
    c. Body mechanics reducing risk factors
    d. Warm-up and stretch for at least ten minutes before exerting
        i. Warm-ups, including stretch, running or jogging in place, or other aerobic exercise is especially important prior to working in cold weather.
        ii. Stretching prior to starting work each day and after all breaks will decrease physical stress and muscle fatigue.
        iii. Stretches should be done gently – pulling NOT pain
        iv. Stretch your entire body See the following recommended stretches from the federal OSHA "Job Hazard Analysis (JHA) for Health Hazards in Construction", copyright Construction Safety Council (https://www.osha.gov/dte/grant_materials/fy09/sh-19495-09/health_hazards_field_guide.pdf):

Pre-Work Stretch & Flex Exercises

WARNING: *Before beginning any stretching program, check with your healthcare provider. If you question any of the following stretches, or feel any discomfort while doing any of these stretches, stop immediately and check with your healthcare provider before continuing.*

Trunk & Low Back

Side Bend

- Feet shoulder width apart, arms at side.
- With one hand, reach up overhead and slowly lean towards opposite side. Keep both feet flat on ground.
- Hold for 3 – 5 seconds.
- Return to starting position and repeat as desired.

Back Bend

- Feet shoulder width apart, hands on hips.
- Looking straight ahead slowly and gently bend backwards.
- Caution – you should feel tension, not pain in the low back.
- Hold for 3 – 5 seconds (do not hold your breath).
- Return to starting position and repeat as desired.

Legs

Hamstring Stretch

- Raise your foot on an elevated surface, at least 10" to 12" high (a truck's running board or overturned bucket).
- Looking forward, slowly bend at the hip keeping raised leg straight.
- Stop when you feel tension and hold 3 – 5 seconds.
- To increase tension, pull toes towards body.
- Switch legs and repeat stretch.

Quadriceps Stretch

- Holding on for balance with your left hand, grab your right foot or ankle with your right hand.
- Hold for 3 – 5 seconds and feel the pull in the front of your thigh.
- Repeat on opposite side.

Upper Body

Chest & Shoulder Stretch

- Standing up straight, raise your arms with your elbows bent so that your upper arms are parallel to the floor, fingers pointing up.
- Slowly squeeze your shoulder blades together and hold for 3 – 5 seconds.
- Return to the starting position and repeat.

Forearm Stretch

- Hold your arms out straight in front of you with your palms facing down.
- Make a loose fist with your hands.
- Slowly and gently bend your fists down towards the floor.
- Now, slowly and gently rotate your fists.
- Hold for 3 – 5 seconds. You should feel a stretch from the topside of the wrists out to the elbow.
- Relax and shale out your hands and arms.

e. Lifting techniques include:
   v. Plan the lift
   vi. Position the feet
   vii. Bend the knees, not the waist
   viii. Tighten stomach muscles
   ix. Test the load
   x. Lift with the legs, not the back
   xi. Keep the load close
   xii. Maintain natural curves in back throughout the process
   xiii. Pivot, don't twist
   xiv. Lift smoothly, don't jerk
   xv. Use special techniques and procedures where appropriate

9. Consult references such as NIOSH- Work Practices Guide for Manual Lifting, MIOSHA- A Better Way to a Better Back and others.

C. Supporting Items – Appendix of Forms (tab page)

C.1. Attachments

Listed forms are attached in Form Number order.

SUBJECT	NUMBER	PAGE
Trade Contractor Project Specific Safety Plan ***Reference Guide***	SF025FR	1 of 1
	VERSION	**DATE REVISED**
	2	03/26/2013

TRADE CONTRACTOR PROJECT SPECIFIC SAFETY PLAN

REFERENCE GUIDE

Complete and submit a full Site-Specific Safety Plan containing the information below.

This form must be filled out and submitted for approval at least 1 week before work starts.

Submit answers with the following heading (include the following information):

- Title: “Project Specific Safety Plan – SF025FR”
- Project name
- Your company name
- Date this plan is being submitted
- Bid Category / Work Description (Excavation, Steel Erection, etc.)
- Name, Phone Number and Email for the person who has completed this document

In answering the questions, you may reference your company safety/health policy, BUT any references must include specific page/section detail as to where the information may be found AND the policy referenced must be submitted with this document.

1. Briefly explain your Company Safety Commitment.
2. Briefly explain your Sub-Contractor Safety Selection Criteria.
3. Briefly explain your Substance Abuse Policy.
4. How do you handle Workplace Violence?
5. What is your Disciplinary Action Policy regarding Safety Violations?
6. Who is responsible on this project for administrating and enforcing your Company Safety Policy?
7. Who is responsible for maintaining your SDS Sheets and all MIOSHA Recordkeeping?
8. Briefly explain your Job-site Safety Orientation.
9. What is your procedure for submitting reports on a Serious Injury or Incident, Illness or Near Miss Notification and Investigation?
10. Identify your on-site safety representative.
11. Identify your onsite qualified First Aid/CPR/AED personnel.
12. Identify your Medical Service Provider for this project (name, address, phone number).
13. Briefly state your Emergency Procedure Policy for all applicable emergencies.
14. Provide two 24-hour emergency phone numbers.
15. What is your procedure for handling outside agency inspections; (i.e. MIOSHA, Insurance Reps)?
16. Briefly explain what regular Safety meetings, including Tool Box topics, your company conducts. Identify who is responsible throughout the project for conducting them. How are they documented?
17. What are your greatest Risk Exposures to your work and how are you going to mitigate those Exposures?
18. Please submit all applicable equipment operator and other certifications.

SUBJECT	NUMBER	PAGE
GCC Site Specific Safety Plan ***Reference Guide***	SF026FR	1 of 5
	VERSION	**DATE REVISED**
	1	01/20/2016

REFERENCE GUIDE

GCC Site Specific Safety Plan
{List Project Name and Location}

1. **INTRODUCTION**
   a. Granger Construction Company is committed to the health and safety of our employees.
   b. Granger Construction Company has a SAFETY & HEALTH MANUAL, which is a crucial part of this sites specific safety plan. *(Every Superintendent should have a copy or has access to one at any time)*
   c. The health and safety of our employees, our subcontractors, vendors and the general public is the first consideration in the operation of our business, and in particular, this project: *(insert project name here.*
   d. It is our goal to establish and maintain safety policies and practices which are in full compliance with all applicable federal, state and local laws, regulations and guidance, especially those issued by Federal OSHA.

2. **HEALTH AND SAFETY DOCUMENTS**
   a. Contract Documents
   b. All Federal, State and Local Health & Safety requirements

3. **EMERGENCY NUMBERS**
   a. Owner's specific requirements: _____
   b. Medical Emergency Facility - *(for self-perform only-Subcontractors required to Facilitate their own plan):* _____
      (name of the nearest facility)
      Address: *(physical address, city, state and zip code)*
      Telephone: *((area code) and phone number)*
   c. Occupational Health Care Services *(for non-life threatening during available hours):* _____
      Address: *(physical address, city, state and zip code)*
      Telephone: *(area code) and phone number*
   d. Superintendent's Number:
      Mobile number: _____
      Jobsite Trailer number: _____
   e. Local Police Dept.: _____
   f. Local Fire Dept.: _____
   g. Miss Dig (*if applicable):* _____
   h. Hazmat (for chemical spills and/or toxic releases): _____

4. **EMERGENCY and FIRST AID PROTOCOL**
   a. Each contractor will provide first aid stations, well-marked and available to site personnel during all working shifts.

b. One person holding a valid first aid and CPR certificate will be responsible for the proper use and maintenance of the first aid station.
c. Each contractor will responsible for their own emergency plan.
d. There will be a minimum of one (*site wide)* ***known*** person per site with a valid CPR/First Aid certification.
e. Emergency procedures are as follows:
   - ✓ Call _____ for all emergencies

   Evacuation signals and meeting place:
   - ✓ Fire mustering point is _____ signal is _____ all clear is _____
   - ✓ Tornado shelter is _____ signal is _____ all clear is _____
   - ✓ Hazardous chemical mustering point _____ signal is _____ all clear is ____

f. In case of a Severe Accident or Crisis, the following steps should be taken:
   1. Stay calm, highest level of authority at site takes charge. Follow Emergency Action Plan.
   2. If injury occurs, seek medical treatment immediately. If emergency situation, call 911. Project Leadership must accompany injured individual to medical facility.
   3. Think about accident investigation protocol. Secure the accident site and any equipment involved. Get witness name(s), phone number(s) and contact information.
   4. Contact the Safety Director/Crisis Team Members.
   5. Notify Company Leadership (CEO, COO, CFO/Risk Manager, or President). They will manage Owner contact and any outside public questions.
   6. Have Senior Site Management notify immediate family of whereabouts and condition of the injured party. In the case of a fatality, have the Company President contact the family member.
   7. Site Superintendent and Safety Director document the event in writing and photos or video. Interview/take statements from witnesses as soon as possible. Err on the side of too much information and documentation.
   8. CFO/Risk Manager contacts Insurance Agent by phone.
   9. Be thoughtful and plan your post-accident communication with the Owner, onsite personnel and the entire project team.
   10. Contact Granger's Safety Administrator or Safety Director for notifications to MIOSHA.

5. **SPECIAL NEEDS of THE CUSTOMER**
   a. Shift times (e.g. 1st shift, 2nd shift, etc.)
   b. Weekend work
   c. Restricted Areas
   d. Smoking Areas
   e. Other public Safety concerns

6. **PROTECTION of the GENERAL PUBLIC**
   a. Walkways, Sidewalks, Parking Lots cleared and accessible
   b. Barricades, Flashing Barrels, "DANGER DO NOT ENTER" postings
   c. Project signage

7. **PROTECTION of SITE WORK PERSONNEL**
   a. Jobsite/New Hire Safety Orientation
   b. SDS's and Chemical Inventory Location
   c. Job Board Location

d. Hardhats, Safety glasses with side shields, gloves, face shields, Safety Vests, and all applicable Personal Protection Equipment
e. Any other specialized training that may be specific to this site but not limited to the following:
   - ✓ Excavation
   - ✓ Confined space
   - ✓ Scaffold erection
   - ✓ Critical Rigging
   - ✓ Lock Out/ Tag Out

8. **PROJECT SAFETY SITE LOGISTICS MAP**
   a. Site Drawing highlighting
   b. Hazardous areas
      - ✓ Excavation areas
      - ✓ Demolition areas
      - ✓ Trenching areas, etc.
   c. Emergency exit routes
   d. First Aid station
   e. Employee parking
   f. Employee breaks areas, etc.
   g. Job Board

9. **SPECIAL PROJECT HAZARDS**

   This is determined and discussed on a daily basis as the project progresses and the circumstances, project site etc., **develops and changes.**

   All Contractors/Subcontractors and/or supervisor must review and document the plan for performing the work task to the employee prior to hazardous operation beginning**.** ***(****This is not an all-inclusive list; each supervisor must use common sense when determining the degree of hazard associate with the task). Note: Pre-Task Planning and Pre-Construction Forms to be utilized (enclosed herein)*

   a. Excavation / Trenching / Caissons
   b. Crane lifts and rigging operations
   c. Confined Space
   d. Steel Erection/ working from heights
   e. Roof Top Work-penetrations, roofing installation and or repair etc.
   f. Working on or around high tension wires
   g. Demolition
   h. Traffic Control
   i. Scaffolds / Ariel lift work
   j. Working on or around energized equipment or systems
   k. Use of chemical materials
   l. Cutting and capping utilities
   m. Working on or around substations
   n. Working on or around pits
   o. Any respirator type activities
   p. Any use of tar, asphalt kettle or tankers

10. **SITE SIGNAGE REQUIREMENTS**

Project Sign will detail specific information regarding ownership, architectural firm, contractor, etc.

a. Any Hazardous chemicals
b. Confined Space
c. Overhead Wires
d. *DANGER DO NOT ENTER*
e. *DANGER HARD HATS REQUIRED*
f. *DANGER EYE AND EAR PROTECTION REQUIRED*
g. SDS for this are located
h. First Aid station
i. Job Board complete with all the following current Federal and State postings:
j. Right-to-Know postings - One complete set for the site office/Gang box
   - ✓ Note: Failure to comply with Right-To-Know, Hazardous Materials Communications regulations may result in a fine up to $10,0000 per violation
   - ✓ OSHA and/or MIOSHA 300 Log *(to be posted a minimum from February 1 until April 30)*
   - ✓ Project Safety Site Drawing
   - ✓ Emergency Procedure
   - ✓ Emergency Phone Numbers
   - ✓ Safety progress *(if applicable*) man-hours verses accidents
k. First Aid Stations

11**. EMPLOYEE ORIENTATION (NEW HIRE)**

a. Drug screening per MUST and/or Owner requirements
b. Safety Training Certifications
c. Documentation of equipment certifications
d. Documentation of First Aid and CPR certifications

12. **SAFETY MEETINGS**

a. Tool Box Talks will be held with employees every _____*(week)*_____.
   Note: *Subcontractors are required to complete their own Tool Box Talks every* ____*(week)*_____.
b. Progress meetings will be held every _____ with Safety as the first topic. Any and all problems will be listed and a method for corrective action will be determined and implemented as a result of the meeting.
c. Superintendents will walk the project site every _*(week)*_ with all contractors completing a site inspection of all areas.

13. **PROJECT SAFETY DOCUMENTATION**

Note: all safety related documents will be kept at the job site until the end of the project and then will be stored in accordance with the Granger Construction record storage policies.

a. A completed OSHA/MIOSHA 300A "Summary of work Related Injuries and Illness"
b. A safety and Health Plan from each Contractor/Subcontractor
c. A site safety plan for each contractor/subcontractor
d. All completed Pre-task plans for self-perform (and subcontractors)
e. All completed Job Site / New Hire Safety Orientation Forms (and *subcontractors)*
f. All meeting minutes
g. All completed site inspections

h. All daily reports for self-perform *(and subcontractors if applicable)*
i. All completed Accident/Incident and Near Miss Reports for the project

14. **REPORTING REQUIRMENTS**
    a. Accident /Incident or any near misses will be reported as follows:
        - ✓ Verbal immediately
        - ✓ Draft report before the end of the business day
        - ✓ Final report within (3) business days
    b. Any unsafe acts that are life threatening and/or repeat offenders

15. **ACCIDENT/INCIDENT FOLLOW-UP**
    a. Root cause Analysis (5 why's)-document
    b. Corrective Actions-document

SUBJECT	NUMBER	PAGE
Trade Contractor Pre-Task Hazard Analysis Plan	SF030FR	1 of 3
	VERSION	DATE REVISED
	3	06/10/2015

Trade Contractor Pre-Task Hazard Analysis Plan

Task Name:			**Contractor Name:**		**Date:**	
Foreman Name:			**Your company's onsite person responsible for Safety, MSDS, Toolbox Talks**	**Name:**	**Your Safety Director's**	**Name:**
Phone #				**Phone#:**		**Phone#:**
Qualified persons on site CPR / First Aid trained:	**Name**	**Phone #**	**List your Medical Service provider for this project**			
			List two 24-hour emergency contacts and phone #s for this project:	**Name:**		**Phone #**

WORK TASK	POTENTIAL HAZARD	HAZARD CONTROL MEASURES & SAFE WORK PRACTICES	CONTINGENCY PLAN
			EMERGENCY NUMBER: ADDRESS TO NEAREST URGENT CARE:
			ADDRESS OF WORK SITE:
WORK TASK	**POTENTIAL HAZARD**	**HAZARD CONTROL MEASURES & SAFE WORK PRACTICES**	**CONTINGENCY PLAN**

Table 1
Minimum Clearance Distances for Equipment

Voltage	Clearance With Boom Raised	Clearance Boom Lowered and No Load in Transit
To 50 kV	10 feet	4 feet
Over 50 kV	10 feet + .4 inch per each 1 kV over 50 kV	10 feet
50 to 345 kV	--	10 feet
346 to 750 kV	--	15 feet

Copy and Submit all Operator and other Certifications

Trade Contractor Employee Review of Job Pre-Task Safety / Hazard Analysis Plan Sign-In Sheet

Contractor Name: _____ Date: _____

Review conducted by: _____ Title: _____

Pre-Task Plan Name: _____

Name: (Print)	Name: (Signature)

SUBJECT	NUMBER	PAGE
Pre-Task Safety Analysis	SF036FR	1 of 4
	VERSION	DATE REVISED
	1	12/18/17

Pre-Task Safety Analysis

Supervisor: _____ Company Name: _____ Date: _____

Location of Task: _____

Task Activity-List Basic Job Steps: _____

Potential Hazards:

A- Electrocution/Shock Hazard	H- Hot Surfaces	O- Excavations	V- Chemicals (SDS Review)
B- Falls from Heights	I- Pinch Points	P- Lead Exposure	W- Lifting (Manual/Mech.)
C- Overhead Work/Loads	J- Flying Particles	Q- Silica Exposure	X- Environmental (Hot/Cold)
D- Poor Lighting	K- Vehicle Traffic	R- Asbestos Exposure	Y- Compressed Air
E-Rough/Sharp Materials	L- Impalement	S- Poor Work Position	Z- Other:
F- Slippery Surfaces	M- Toxic Atmosphere	T- High Noise Area	
G- Rotating Equipment	N- Welding Arc/Flash	U- Flammable Materials	

(Enter Letter of Potential Hazard and Corrective Action for Each)

Letter	Corrective Action

Safety Checklist

Check all items required for your task

PPE NEEDED	REQ	PERMITS REQUIRED	REQ	FIRE PROTECTION	REQ
Safety Glasses W/Side Shields		Confined Space Permit		Welding Shields in Place	
Hard Hats		Hot Work Permit		Flammables Removed	
Face Shield		Line Breaking Permit		Fire Blankets Needed	
Proper Work Gloves		Excavation Permit		Fire Extinguishers Inspected	
Hearing Protection		Roof Work Permit		Fire Watch Posted	
Rubber Boots		Critical Lift Checklist		Sparks Contained	
Chemical Suits		Railroad/Blue Flag		**ENERGIZED EQUIPMENT**	
Full Body Harness / Lanyard		**BARRICADES/COVERS**		Lockout/Tag out Required	
Foot Guards		Yellow (Caution) Tape		Electrical Tools Inspected	
Sleeves for Hot Work		Red (Danger) Tape		Power Tool Guards in Place	
Respiratory Protection		Hard Barricades Required		GFCI Required	
Electrical Flash Gear		Hole Covers Required		High Voltage Lines Identified	
Eye Wash Located		Flashing Lights Required		**EQUIPMENT**	
Safety Shower Located		**HOUSEKEEPING**		Rigging Equipment Inspected	
WORK PLATFORMS		Cords/Leads Elevated		Mobile Crane Inspected	
Scaffolds Inspected		Walk Ways Clear		Overhead Cranes Inspected	

Ladder Secured/ Inspected	Trash/Scrap Secured	Boom Trucks Inspected
Boom Lift Inspected	Work Area Kept Clean	Fork Truck / Forklifts Inspected
Scissor Lift Inspected	Tools are Secured	Operators are Certified

Specific Remarks to Crew

All crew members must sign in and out on the back of this form daily

Crew Sign-In Before Work Shift Begins

I understand the safety precautions and have the training necessary to perform this task incident-free

NAME	TIME	NAME	TIME
1		9	
2		10	
3		11	
4		12	
5		13	
6		14	
7		15	
8		16	

Crew Sign-Out After Shift

I have worked safely today and have not been injured

NAME	TIME	NAME	TIME
1		9	
2		10	
3		11	
4		12	
5		13	
6		14	
7		15	
8		16	

Post Task Follow Up

	Y/N/NA		Y/N/NA		Y/N/NA
Locks Removed		Rail/Railway Clear		Injuries/Near Misses Reported	
Barricades Removed		Equipment/Material Secured		Fire Watch Posted for 30 Min.	
Barricades Erected		Gas Bottles Secured		Air Monitor Returned to Safety	
Open Holes Secured		Work Area Clean		Employees Signed Out	

All injuries and near misses must be reported to the supervisor or safety director the day that they happen

Signature of Supervisor: _____

Describe all Reported Injuries Below

_____

_____

_____

_____

Signature of Injured Employee(s): _____ **Date:** _____

Additional Crew Sign-In Before Work Shift Begins (If Needed)

NAME	TIME	NAME	TIME
17		24	
18		25	
19		26	
20		27	
21		28	
22		29	
23		30	

Additional Crew Sign-Out After Shift (If Needed)

NAME	TIME	NAME	TIME
17		24	
18		25	
19		26	
20		27	
21		28	
22		29	
23		30	

SUBJECT	NUMBER	PAGE
SEVERE ACCIDENT – CRISIS POSTER	SF055WI	1 of 1
	VERSION	**DATE REVISED**
	1	3/29/16

GRANGER
ADVANCE THE ART OF BUILDING

In case of a Severe Accident or Crisis…

1. Stay calm, highest level of authority at site takes charge. Follow Emergency Action Plan.
2. If injury occurs, seek medical treatment immediately. If emergency situation, call 911. Project Leadership must accompany injured individual to medical facility.
3. Think about accident investigation protocol. Secure the accident site and any equipment involved. Get witness name(s), phone number(s) and contact information.
4. Contact the Safety Director/Crisis Team Members.
5. Notify Company Leadership (CEO, COO, CFO/Risk Manager, or President). They will manager Owner contact and any outside public questions.
6. Have Senior Site Management notify immediate family of whereabouts and condition of the injured party. In the case of a fatality, have the Company President contact the family member.
7. Site Superintendent and Safety Director document the event in writing and photos or videos. Interview/take statements from witnesses as soon as possible. Err on the side of too much information and documentation.
8. CFO/Risk Manager contacts Insurance Agent by phone.
9. Be thoughtful and plan your post-accident communication with the Owner, onsite personnel and the entire project team.
10. Contact Granger's Safety Administrator or Safety Director for notifications to MIOSHA.

SUBJECT	NUMBER	PAGE
Emergency Action Plan	SF061WI	1 of 3
	VERSION	DATE REVISED
	1	12/18/17

Purpose

To provide an orderly action plan to enact during and after jobsite emergencies.

Scope

Project specific.

Definitions

Emergency Contacts:

Owner Project Manager:	[Job Specific Cell Number]
Owner DPS: 911 or	[Job Specific]
Owner OSEH:	[Job Specific]
Granger Superintendent:	[Job Specific Cell Number]
Granger Safety Manager:	[Job Specific Cell Number]
Granger Project Engineer:	[Job Specific Cell Number]
Granger Project Manager:	[Job Specific Cell Number]
Granger Corporate Safety Director:	Brian Goodman: 248-830-8699

Site Address:

[Job Specific Site Address]

Procedure

In the event of a jobsite emergency, the following plan will be enacted:

Emergency Alert Communication

For all emergencies, Granger Construction Company shall immediately call Owner DPS at 911 or local authorities and follow all directions provided by the dispatcher. If a subcontractor is the first person to witness an emergency situation, they should contact Owner DPS and as soon as possible (concurrently if multiple people witness an event) the Granger Safety Manager should be contacted. The Granger Safety Manager will contact the Owner Project Manager and, if necessary, Owner OSEH and the Granger Corporate Safety Director immediately upon learning of the issue.

Meet Emergency Responders

If emergency responders are dispatched they should be directed to the project gate. The Granger Safety Manager or his designated representative will be stationed at the gate to direct the responders to the appropriate area.

Evacuation of the Building

In an event requiring evacuation, all workers should safely set down all tools and materials, shut off any equipment and evacuate the building using the posted routes. All personnel shall muster in the designated area. Trade contractor supervisors are responsible for getting a count of their workers and notifying the Granger Safety Manager either all-clear or a report of anyone missing. Granger will relay that information to emergency responders. No one will be allowed to return to the building until an “all-clear” signal is given by the Granger Safety Manager to each supervisor.

Building Shelter

In an event requiring shelter in the building, the Granger Safety Manager will contact all supervisors and remind them of the building shelter areas at project specific site. Trade contractor supervisors are responsible for getting a count of their workers and notifying the Granger Safety Manager either all-clear or a report of

anyone missing. Granger will relay that information to emergency responders. No one will be allowed to exit the shelter areas until an "all-clear" signal is given by the Granger Safety Manager to each supervisor.

Investigation and Documentation

The Granger Safety Manager will collect data and interview the necessary parties, and then fill out the Granger Accident Analysis Report and Incident Form and send a copy to the Granger Corporate Safety Director and Owner Project Manager/OSEH.

Specific Emergencies

Refer to Purchasing Management Procedure (PU005PR).

Proceed only if Granger has a signed contract from the Owner.

Project Site Accidents and Injuries

Follow the above communication guidelines, noting that a construction accident has occurred. Once medical attention has been provided, the Granger Safety Manager will investigate and document the incident.

Smoke and Fire Conditions

All site personnel are trained at the jobsite safety orientation to follow the above building evacuation plans and heed any building alarms/announcements. If a worker is the first to notice smoke or fire, they will pull the nearest fire alarm, evacuate the building, and then follow the above emergency alert communication. All personnel shall follow the above building evacuation plan. An incident report will be turned into the Granger Corporate Safety Director and Owner Project Manager/OSEH within 24 hours.

Spills and Releases of Chemicals or Other Hazardous Materials

Workers shall follow the Pollution Incident Prevention Plan required of all stored chemicals on site. This plan will include safe clean-up procedures as well as contact information for Granger, Owner and the MDEQ, if necessary. All efforts should be made to contain the spill using the on-site spill kit and protect stormwater inlets if it can be done in a safe manner. An incident report will be turned into the Granger Corporate Safety Director and Owner Project Manager/OSEH within 24 hours.

Structural or Equipment Failure or Collapse

Workers should immediately sound the alarm and evacuate the building following the above procedure. Once in a safe location, workers should follow the above emergency alert communication. All foremen will be immediately notified by Granger to evacuate their entire crew from the building, including routes that may no longer be safe. The Owner Project Manager will also be notified immediately to begin evacuation of Owner personnel from the building in the appropriate manner. Foremen and workers will follow the above evacuation procedures. An incident report will be turned into the Granger Corporate Safety Director and Owner Project Manager/OSEH within 24 hours.

Security Threats, Including Public Demonstrations, Bomb Threats or the Discovery of Suspicious Materials

All workers will follow building alarms or announcements regarding evacuation or sheltering. If a worker discovers a suspicious material or device, they will follow the above emergency alert communication. Evacuation will follow the above procedures. Sheltering will follow the above procedure unless the 911 operator directs otherwise. An incident report will be turned into the Granger Corporate Safety Director and Owner Project Manager/OSEH within 24 hours.

Severe Weather Conditions, Including High Winds

In the event of high winds, all lifts will be suspended. Foremen should verify that outdoor stored materials are properly tied-down or stored to avoid wind-blown debris. In the event of a tornado watch, all supervisors will be notified by the Granger Safety Manager to let all workers know of the watch and remind them of the safe

shelter areas on site. In the event of a tornado warning, all site personnel will follow the above building shelter procedure. An incident report will be turned into the Granger Corporate Safety Director and Owner Project Manager/OSEH within 24 hours.

Crisis Management

In case of a Severe Accident or Crisis…

1. Stay calm, highest level of authority at site takes charge. Follow Emergency Action Plan.
2. If injury occurs, seek medical treatment immediately. If emergency situation, call 911. Project Leadership must accompany injured individual to medical facility.
3. Think about accident investigation protocol. Secure the accident site and any equipment involved. Get witness name(s), phone number(s) and contact information.
4. Contact the Safety Director/Crisis Team Members.
5. Notify Company Leadership (CEO, COO, CFO/Risk Manager, or President). They will manager Owner contact and any outside public questions.
6. Have Senior Site Management notify immediate family of whereabouts and condition of the injured party. In the case of a fatality, have the Company President contact the family member.
7. Site Superintendent and Safety Director document the event in writing and photos or videos. Interview/take statements from witnesses as soon as possible. Err on the side of too much information and documentation.
8. CFO/Risk Manager contacts Insurance Agent by phone.
9. Be thoughtful and plan your post-accident communication with the Owner, onsite personnel and the entire project team.
10. Contact Granger's Safety Administrator or Safety Director for notifications to MIOSHA.

SUBJECT	NUMBER	PAGE
Notice to Contractors and Visitors	SF062FR	1 of 1
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	1	12/1/17

REGARDING REQUIRED CERTIFICATES OF INSURANCE, ACCIDENT PREVENTION PROGRAMS AND COMMUNICATION OF HAZARDS AND CORRDINATION OF OPERATIONS

All Employers on our job sites must have copies of Certificates of Insurance for Workers Compensation and Liability coverage on file with us before commencing work, and must maintain effective coverage throughout contract period. MIOSHA/OSHA standards also require construction contractors to have a written and implemented Accident Prevention (Safety and Health) Program.

We require that contractors' programs and operations:

1. Comply with all applicable federal, state and local regulations, including MIOSHA standards
2. Be adequate for the operations and hazards involved
3. Be comparable to or compatible with our programs

All Contractors are individually and exclusively responsible for complying with all laws and regulations and for preventing accidents and hazard exposures to their own employees and others who may be affected by their operations. This includes prevention of hazardous conditions and removing them immediately if they arise. All Employers must provide and share specific information to us and others on site, must obtain related information from us and others on site and must use it to coordinate operations safely. This information includes:

1. Personal protective equipment required
2. Chemicals and other hazardous materials, their hazards, SDS and their location, labels and identification methods and means, protective measures and emergency procedures
3. Lock-out, tag-out requirements and proicedures and all related or affected operations
4. Confined space operations
5. Any other serious hazards and safety procedures involved with your operations or ours, or with our combined operations.

WARNING TO ALL PERSONS ENTERING ON OUR PREMISES OR AREAS OF OUR OPERATION:

There are various hazards to which you may be exposed on our premises and areas of our operations. These may include hazards from:

1. Physical contact with moving or powered equipment and machinery, and flying or falling objects
2. Exposure to corrosive, toxic, flammable or reactive chemicals used in cleaning, painting, welding and other processes.
3. Injurious noise levels from equipment, machinery and processes
4. Hazards of fire, burn, radiation, explosion and electrocution associated with welding, other hot work and electricity, and
5. Hazards in confined spaces or elevated surfaces.

These hazards may cause serious injury to the eyes, face, hands, head, a person's whole body or any part. Illnesses can also be caused, which could damage a person's hearing, lungs, liver, kidneys, nervous system or other target organs, tissues or systems.

NOTICE: All persons entering on our premises are required to:

1. Wear hard hats and safety glasses before entering and at all times while on premises
2. Immediately see our Safety Director or his designated safety coordinator for further instructions before entering into any work or hazardous areas
3. Fully disclose any hazards your activities may create and d8iscuss the best means to coordinate your activities and our activities to maintain safety and health
4. Act safely, using all appropriate safety means and methods, and
5. Never endanger other persons or property.

Thank you for your cooperation.

SUBJECT	NUMBER	PAGE
OSHA / MIOSHA Inspection	SF065FR	1 of 2
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	1	12/5/12

GRANGER
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OSHA / MIOSHA Inspection

OSHA / MIOSHA may inspect your jobsite without notice or reason. Although a contractor may refuse inspection without a search warrant, this is not advisable. **Granger jobs should be safe and ready for inspection at ALL times.** We also need to be pro-active in resolving any issues that may arise from an inspection.

If a OSHA / MIOSHA inspector arrives at the jobsite, he or she should ask to have an “opening conference”. If they do not request this, we need to ask to have an “opening conference” before walking the site. The opening conference gives us opportunity to assemble all the foremen on site and let them know what the inspection will cover BEFORE the inspection takes place. Each subcontractor is given the opportunity to join the inspection or not. A Granger superintendent or foreman should always be present during inspection, whether we are managing the project or just a subcontractor. Granger Corporate Safety Director should be notified (whenever possible) before an inspection takes place.

During the inspection, if a violation is found, **take a picture of the violation**. Remember that all inspectors are not perfect and may issue a citation that is not legitimate. Sometimes “reasoning” with the inspector and explaining what precautions have been taken (and we will continue to take) may eliminate any question or concern. Citations are usually not given for every “issue” the inspector may have. A Carpenter or Laborer should be readily available to correct any minor issues.

If another contractor creates a hazard and nothing is done about it…ALL contractors working near the hazard are responsible. ALL contractors may receive a citation for the violation whether or not they had any part in creating it. If you notice an unsafe act or hazard please FIX IT or report it to your foreman or superintendent immediately. Remember… We are all responsible.

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OSHA / MIOSHA Inspection

Sign in Date _____

Print Name	Signature	Employee Number
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		

SUBJECT	NUMBER	PAGE
Safety Violation Warning	SF075FR	1 of 1
	VERSION	DATE REVISED
	4	12/19/17

Safety Violation Warning

Division/Company Name: _____ Date: _____

Employee Name: _____

Position/Title: _____ Issued By: _____

_____ Absenteeism
_____ Smoking in prohibited areas
_____ Tardiness
_____ Insubordination
_____ Abuse to equipment, material
_____ Leaving work area without permission
_____ Violation of safety rules
_____ Poor work due to neglect
_____ Violation of company rules policies
_____ Alcohol or drugs on premises

_____ Stealing
_____ Fighting or Horseplay
_____ Falsifying information to the company
_____ Stopping work without permission
_____ Reckless driving on premises
_____ Discrimination
_____ General inability to meet work goals
_____ Sexual Harassment
_____ Abusive Language
_____ Other: (Specify) _____

☐ Verbal Warning ☐ Written Warning ☐ Suspension ☐ Dismissal

Supervisor's Statement: _____

_____

_____

Employee's Statement: _____

_____

_____

The purpose of this warning notice is to bring to your attention and give you an opportunity to correct the issues above. If these discrepancies continue it may result in your dismissal.

Employee's signature does not indicate agreement with the above statement, but does indicate that these issues were discussed with the employee.

Length of suspension period (if any): _____ (*Typically (3) three days)*

_____ _____
Employee Signature Supervisor Signature

_____ _____
Date Date

GRANGER
ADVANCE THE ART OF BUILDING

SUBJECT	NUMBER	PAGE
Accident Investigation Report	SF085FR	1 of 1
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	2	5/20/15

Accident Investigation Report

EMPLOYEE INJURED OR ILL

NAME _____ D.O.B. ___/___/_____ S.S. # XXX/XX/____ SPOUSE _____

ADDRESS (Street, City, State, Zip) _____ PHONE (___) ___-_____ D.O.H. _____

EMPLOYER NAME _____ TRADE _____ DATE & TIME _____

PROJECT _____ SUPERVISOR _____ EMPLOYEE SIGNATURE _____

INJURY OR ILLNESS

RESULT: Injury or Illness _____

Amputation ____ Fracture ____ Cut ____ Bruise ____ Sprain/Strain ____ Burn ____ Sliver ____ Frostbite ____ Heat/Cold Stress ____ Contortion ____

Irritation ____ Skin ____ Dust ____ Toxin ____ Phys Agent/Radiation ____ CTD ____ Other ____

Body Part/Organ Affected: _____

Head ____ Eyes ____ Ears ____ Face ____ Neck ____ Shoulder ____ Chest ____ Back ____ Side ____ Abdomen ____ Hip ____ Groin ____ Upper Arm ____ Elbow ____

Forearm ____ Wrist ____ Hand ____ Fingers ____ Thigh ____ Knee ____ Shin/ Calf ____ Ankle ____ Foot ____ Toes ____ Organs ____ Other _____

Severity: Report Only ____ First Aid ____ Medical ____ Restricted/Transferred ____ Off Work ____ Death ____ Illness? Y or N ____ Lost Consciousness? Y or N ____

Days (Excluding day of accident): Off Work _____ Restricted/Transferred _____ Total days _____ Dates _____

Health Provider (Name & Address): Physician _____ Hospital _____

ACCIDENT OR EXPOSURE

HOW DID ACCIDENT OCCUR: _____

ACCIDENT: EVENT Causing Problem _____

TYPE: Struck Against ____ Struck By ____ Fall, Elevated ____ Fall, Same Level ____ Slip/Trip ____ Caught in/Under/Between ____ Vehicle ____ Overexert ____

Oxygen Lack ____ Contacted-Electricity ____ Heat ____ Cold ____ Noise ____ Radiation ____ Animal/Insect/ Plant ____ Physical Agent ____ Chemical ____

PLACE of Occurrence (Address if possible, or References identifying location): _____

ON or OFF Employer Premises? _____ Date & Time of Occurrence _____ Date & Time Reported _____

SOURCE: Type of Work or Activity when Injured _____

FACTORS: People, Materials, Machines involved incl. Tools, Chemicals _____

AGENCY: Problematic Object & Specific Part or Substance _____

CAUSE & CORRECTIVE ACTIONS

HAZARD CONDITION of Agency: _____

WORK PRACTICE ACT & Safe Procedure Violated: _____

Improprieties - PPE ____ Lockout ____ Crane ____ Vehicular ____ Tool Use ____ Label Directions ____ Operating Procedures ____ Shop Rule ____ Instruction ____

Unauthorized Operation ____ Unsafe Speed ____ Unsafe Position ____ Other _____

PERSONAL FACTOR: _____

Improprieties – Hair ____ Clothes ____ Hearing ____ Sight ____ Limitation ____ Disregard ____ Distracted ____ Nervous ____ Unaware ____ Impaired ____ Other ____

SUPERVISION FACTOR: _____

Improprieties – Instruction ____ Training ____ Enforcement ____ Procedures ____ Tools/Materials ____ Coordination ____ Rushing ____ Other _____

EQUIPMENT/ENVIRONMENT FACTOR: _____

Defective/Inadequate-Guard ____ Safety Control ____ Equipment ____ Tools ____ Inadequate – Light ____ Ventilation ____ Design/Space ____ Other ____

OTHER FACTORS: _____

Upset Conditions (Fire etc.) ____ Actions of Fellow Employee ____ Actions of 3rd Party ____ Other _____

CORRECTIVE ACTIONS: _____

REPORT SUBMITTED BY		REPORT ACCEPTED & CORRECTIONS AUTHORIZED BY		FOLLOW-UP COMPLETED BY	
DATES	/ /	DATES	/ /	DATES	/ /

SUBJECT	NUMBER	PAGE
Witness Report	SF087FR	1 of 1
	VERSION	DATE REVISED
	1	6/21/18

WITNESS REPORT

Witness/Employee Information

Witness Name	Date of Incident [Date]
Witness Phone #	Time of Incident
Witness Address	Project
Name of Injured	Type of Incident

Description of Accident/Incident

Acknowledgement

By signing this form, you confirm that the information provided above is accurate to the best of your knowledge and you understand that you may be asked to provide additional information at a later date.

Witness Signature *Date*

(Attach additional pages if necessary)

SUBJECT	NUMBER	PAGE
Pre-Dig Worksheet	SF100FR	1 of 1
	VERSION	DATE REVISED
	1	7/17/18

Pre-Dig Worksheet
(Must be completed prior to any excavation)

Company Name: _____

Project Name: _____ Date: _____

Competent Person: _____ MISS DIG #: _____

Location of Excavation: _____

Type of Work: Excavation/Trench ☐ Caisson ☐ Pile/Sheet Driving ☐ Other: _____

Underground Obstruction Determination

Item	Yes	No	N/A
Contacted MISS DIG and/or utility locating subcontractor to identify UG existing utilities?			
Competent person has identified the proposed excavation area with crew?			
Reviewed the Owner's UG utility as-built drawings and identified any obstructions?			
Have identified UG utility locations been compared against proposed work locations?			
Can the existing UG utilities be shut down during our excavation operations? If YES, have you notified the Owner to perform shut down and or lock out/tag out of services?			
Does any of the existing UG utilities impact our work operations? If YES, the identified Underground Obstructions Section shall be completed.			

The following underground utilities (check all that apply) have been identified as obstructions and may impact excavation operations (A drawing or sketch shall be created identifying each obstruction location):

Location of Underground Obstructions: _____

Electrical ☐ Water ☐ Sanitary ☐ Storm ☐ Gas ☐ Fiber/Phone ☐

Other: _____

Item	Yes	No
Have all the existing UG obstructions been staked and communicated with crew?		
Only soft digging methods shall be performed within the Caution zone of identified obstruction.		
Where overhead utilities exist, a designated spotter will be assigned.		
Has the crew reviewed the approved Pre-Task Plan?		

Excavation Details

Item	Yes	No
Have all the existing UG obstructions been staked and communicated with crew?		
Only soft digging methods shall be performed within the Caution zone of identified obstruction.		
Where overhead utilities exist, a designated spotter will be assigned.		
Has the crew reviewed the approved Pre-Task Plan?		

Foreman/Competent Person: _____ Date: _____

Crew Initials: _____ Date: _____

General Superintendent: _____ Date: _____

SUBJECT	NUMBER	PAGE
Confined Space Entry Permit	SF105FR	1 of 13
	VERSION	DATE REVISED
	2	7/1/18

Confined Space Entry Permit
Granger Construction Company

General Information

Identity (e.g., location) of the space:

Purpose of entry:

Duration of entry:

Identify the physical hazards in the space:

Describe the methods for isolating or controlling the physical hazards, or used to protect authorized entrants:

Identify the atmospheric hazards in the space (e.g., oxygen deficiency, flammable/explosive gases/vapors, others (including toxic particulates, gases and vapors)):

Describe the methods for isolating or controlling the atmospheric hazards, or used to protect authorized entrants:

Describe the determination made to show that if the ventilation system stops working, atmospheric hazards will remain at safe levels long enough for entrants to recognize the problem and safely exit the space:

Planned Conditions:

Safe conditions and/or monitoring determined for physical hazards:

Safe levels of atmospheric hazards:

Hazard	**Minimum limit**	**Maximum Limit**
Oxygen		
Flammable gas/vapors (specify):		

Others (specify):

Atmospheric-testing/-monitoring results: (see attachment):

Personnel:

Current Entry Supervisor:

Name:	Signature/initial:
Name:	Signature/initial:
Name:	Signature/initial:
Name:	Signature/initial:
Name:	Signature/initial:

Current Attendants:

Name:	Name:
Name:	Name:
Name:	Name:
Name:	Name:
Name:	Name:

Authorized entrants:

Identity of the rescue service: (Check one)

_____ Non-entry rescue. Identity of the non-entry rescue service: the attendant

_____ Entry rescue. Identity of the entry rescue service:

Identity of the emergency service:

Name and signature/initials of the entry supervisor who first verified this entry permit and authorized initial entry into this PRCS:

Equipment:

Methods of communication between attendants and authorized entrants:

Equipment Needed:

Other Information:

Information not documented elsewhere on this permit (see § 1926.1206(o):

Additional Information:

Entry Permit Cancellation:

Reason for cancellation:

Name and signature/initials of the individual who cancelled the entry permit:

Name:

Signature/initials:

Date and time this entry permit was cancelled:

Permit-Required Confined Space Compliance Checklist

Establishment Name:					Comments/Person Responsible:		
		Y	N	NA			
	1910.146 (c) General Requirements						
1	Employer evaluated the workplace to identify and categorize any confined spaces. [(c)(1)]						
2	Permit spaces exist and employer informed employees of their existence by posting or other effective means. [(c)(2)]						
3	Permit spaces exist, employees will not enter and employer took measures to prevent entry. [(c)(3)]						
4	Permit spaces exist, employees will enter permit spaces and employer developed and implemented a written program. [(c)(4)]						
5	Employer met the requirements of paragraph (c)(5) and implemented alternate entry procedures. [(c)(5)]						
6	Employer appropriately reclassified a permit space to a non-permit confined space. [(c)(7)]						
7	Multiple employers worked near or performed entries into permit spaces and host employer notified the contractor(s) of the existence of the: permit spaces; hazards of entry; permit requirements of any entry; and precautions, procedures and coordination required for safe work in and around permit spaces. [(c)(8)]						
8	Contract employers had a permit entry program and coordinated and communicated with the host employer and other exposed employers regarding hazards, precautions and procedures used before, during and after entry. [(c)(9)]						

	1910.146 (d) Permit-required confined space program. Permit spaces exist, employees will enter permit spaces and employer developed a program that:				
1	Implemented measures to prevent unauthorized entry. [(d)(1)]				
2	Identified and evaluated the hazards of permit spaces. [(d)(2)]				
3	Implemented the means, procedures and practices necessary for safe permit space entry operations. [(d)(3)]				
4	Provided equipment at no cost to employees, maintained equipment properly and ensured that employees used that equipment properly. [(d)(4)]				
5	Evaluated permit space conditions when entry operations are conducted. [(d)(5)]				
6	Provided attendant outside the permit space for the duration of entry operations. [(d)(6)]				
7	Included the means and procedures to enable the attendant to respond to an emergency if multiple spaces are monitored. [(d)(7)]				
8	Designated the persons who are to have active roles in entry operations and the duties of each such employee. [(d)(8)]				
9	Implemented procedures for summoning rescue and emergency services, for providing necessary emergency services and for preventing unauthorized personnel from attempting a rescue. [(d)(9)]				
10	Implemented a system of preparation, issuance, use and cancellation of entry permits. [(d)(10)]				
11	Review entry permits and operations (retaining all permits for 1 year) and revise program to correct deficiencies. [(d)(13-14)]				

	1910.146 (e) Permit system. Permit spaces exist, employees will enter permit spaces and employer:				
1	Documented (by permit) the completion of measures to ensure compliance with (d)(3) and have the entry supervisor sign the permit. [(e)(1)&(2)]				
2	Made the completed permit available at the time of entry to all authorized entrants or their authorized representatives. [(e)(3)]				
3	Retained each canceled entry permit for at least 1 year to facilitate the review of the permit-required confined space program. [(e)(6)]				
	1910.146 (f) Entry Permit. Employer met requirements for the entry permit and entry conditions.				
	1910.146 (g) Training. Permit spaces exist, employees will enter permit spaces and employer. Provided and certified training necessary for the safe performance of duties assigned. [(g)(1)]				
	1910.146 (h), (i), (j) - Duties. Employer identified individuals as authorized entrants, attendants and entry supervisors and ensured their understanding of the knowledge, skills and duties ascribed to each classification. [(h), (i), (j)]				
	1910.146 (k) Rescue and emergency services.				
1	Employer provided rescue services either in-house or by arrangement with an off-site rescue service. [(k)(1)]				
2	Employer used retrieval system to facilitate non-entry rescue. A mechanical device was available to retrieve personnel from within vertical permit spaces deeper than 5 feet. [(k)(3)]				
	1910.146 (l) Employee participation. Employer consulted with affected employees and authorized representatives as required.				

Non-Permit Required Confined Space Entry Sheet

INSTRUCTIONS

1) Complete permit before entry begins;
2) Post permit at entrance of confined space until work in the space is complete; 3) Send completed permit to safety coordinator for review within 24 hours of completion of the confined space work.

GENERAL

Jobsite:

Permit Begins: Date: Time: AM/PM

Permit Expires: Date: Time: AM/PM

Location and Description of Confined Space:

Purpose of Entry:

NAMES OF AUTHORIZED INDIVIDUALS (PLEASE PRINT)

Authorized Entry Supervisor: Will He / She Supervise Entry: Yes No

Authorized Attendants	Authorized Entrants
1)	1)
2)	2)
3)	3)
4)	4)
5)	5)

METHOD OF COMMUNICATION

Describe:

ACCEPTABLE ENTRY CONDITIONS

Oxygen: 19.5 – 23.5% Flammable/Combustibles: Under 10% LEL Other:

Hydrogen Sulfide: Under 10 PPM Carbon Monoxide: Under 35 PPM Other:

TESTING AND MONITORING CHECKLIST

Make, Model & Serial Number of Equipment:

Date Equipment Calibrated: Periodic Testing: Continuous Monitoring:

	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6	Test 7	Test 8	Test 9
Date:									
Time:	am/pm	am/pm	am/pm	am/pm	am/pm	am/pm	am/pm	am/pm	am/pm
Oxygen:	%	%	%	%	%	%	%	%	%
LEL:	%	%	%	%	%	%	%	%	%
CO:	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
Hydrogen:	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM
Toxics:									
Tested By:									

SIGNATURE OF ATTENDANTS AND ENTRANTS

The confined space job and its safety aspects have been explained to us, and we have read and understand the above permit. We consider it safe to proceed with the confined space entry work. (Please sign and date below)

Attendants		Entrants	
1)	Date:	1)	Date:
2)	Date:	2)	Date:
3)	Date:	3)	Date:
4)	Date:	4)	Date:
5)	Date:	5)	Date:

SIGNATURE OF ENTRY SUPERVISOR

Signature: Date: Time: AM/PM

CANCELLATION

Date Cancelled: Time Cancelled: AM/PM Cancelled By:

Reason permit was cancelled:

EVALUATION

Signature: Date: Time: AM/PM

Rescue Plan Checklist

What do you do if someone falls and becomes suspended toward the top of the tower? Would you know how to get that person down? A rescue plan helps everyone understand what to do before a fall.

Following are some important components of a rescue plan:

- ☐ Gain an understanding of the physical environment you will be working in.
- ☐ Determine the proximity of a professional rescue team.
- ☐ Determine if 911works from the area where you would be calling.
- ☐ Determine approximate response time for 911 responders.
- ☐ Understand the type of rescue that may be necessary (lowering a victim from a ladder, platform or man basket).
- ☐ Determine who is trained to do the rescue.
- ☐ Decide if the rescuers will be on-site or stand-by. If stand-by, determine the response time.
- ☐ Perform a job safety analysis of the rescue.
    - Is the victim clear of obstructions when s/he is lowered?
    - Does the lifeline deploy correctly?
    - Is the lifeline long enough?
    - Can you see the victim throughout the entire rescue operation?

In addition to having a plan, it is also important to have rescue equipment and supplies on site and ready to be used.

- ☐ Rescue devices that can raise or lower a victim, such as a controlled rate descent device.
- ☐ Ropes and lifelines rated for rescue and evacuation.
- ☐ Rolling edge protectors or Velcro edge protectors to protect the rope from sharp edges and abrasion.
- ☐ Designated anchor points for rescue equipment (rated at least 3100 pounds).
- ☐ Anchor straps and carabiners for making an anchor point when one is not available or convenient.
- ☐ First aid kit and defibrillator.

PERMIT REQUIRED

CONFINED SPACE

SPECIAL PRECAUTIONS REQUIRED!
SEE AUTHORIZED PERSONNEL
BEFORE ENTRY.

The following is a list and location of Permit Required Confined Spaces found in the establishment. Note! Consult written program for list of Permit Required Confined Spaces if too numerous to identify here.

Type of Permit Required Confined Space	Location	Type of Entry (Select code(s) letter from list below)

Type of Entry Procedure

A. Full Permit Entry Procedure
B. Alternate Entry Procedure
C. Non-Permit or Reclassified as Non-Permit Prior to Entry
D. Entry Procedures Based on Rules other than 1910.146, Permit Required Confined Space Entry Standard

NOTE: This poster may be used as one of the means to inform employees of the existence and location of Permit-Required Confined Space as required by Rule 1910.146 (c)(2) of MIOSHA Standards.

CONFINED SPACE

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SUBJECT	NUMBER	PAGE
CONFINED SPACE ENTRY PERMIT LOG	SF110FR	1 of 1
	VERSION	**DATE REVISED**
	2	2/7/2012

THIS FORM SHOULD HAVE THE ACEPTABLE LIMITS ALLOWED LISTED;
IT SHOULD ALSO HAVE A SPOT FOR THE PERSONS NAME FILLING OUT THE FORM.

DATE: _____

COMPANY: _____

DATE	COMPANY	OXYGEN	PERMIT NO.	LEL	LOCATION	COMMENTS	INITIALS

Name of Person Completing Form: _____ **Signature:** _____

SUBJECT	NUMBER	PAGE
Energized Electrical Work Permit / Job Safety Plan	SF112FR	1 of 1
	VERSION	DATE REVISED
	1	7/16/18

TO BE COMPLETED BY ELECTRICALLY QUALIFIED PERSON:

Project/Facility Service Request Number:

1. Description of job:

2. Description of each individual task to be performed:

3. Identification of the electrical hazards associated with individual tasks:

4. Results of the shock risk assessment:
   - Electrical system nominal voltage: _____
   - Limited approach boundary distance: _____ ft. ____ in.
   - Restricted approach boundary distance: _____ ft. ____ in.
   - Appropriate shock and other personal protective equipment required for the work to be performed:
     _____
     _____
     _____
     _____

5. Results of the arc flash risk assessment:
   - Available incident energy level _____ cal/cm²
     or arc flash PPE category _____
   - Arc flash boundary ____ ft. _____ in.
   - Appropriate arc flash and other personal protective equipment required for the work to be performed:
     _____
     _____
     _____
     _____
     _____
     _____

6. Specific safe work procedure that may involve with individual task:

7. Special precautions that may be necessary:

8. Necessary energy source controls:

9. Pre-Job Safety Briefing:

I acknowledge that a pre-job briefing has been performed and that I understand this electrical job safety plan and will comply with all safety requirements.

Electrically Qualified Person:	Name:	Signature:	Date:
Additional Workers:	Name:	Signature:	Date:
	Name:	Signature:	Date:

NOTE: If scope of plan changes, so much the Electrical Work Permit/Job Safety Plan.

SUBJECT	NUMBER	PAGE
Safety Near-Miss or Hazard Report	SF120FR	1 of 1
	VERSION	**DATE REVISED**
	2	4/1/15

Near-Miss or Hazard Report

Purpose: *To communicate an existing or potential problem so it can be corrected or neutralized before an accident occurs.*

1. COMPANY INVOLVED IN HAZARD: _____ **TODAY'S DATE:** _____

2. NAME(S) OF INDIVIDUALS INVOLVED: _____ _____

_____ _____

3. PROJECT NAME: _____ _____

4. CLASSIFICATION:

- ☐ NEAR MISS INCIDENT
- ☐ SAFETY-HEALTH COMPLAINT
- ☐ OTHER: _____
- ☐ HAZARD CONDITION (substandard)
- ☐ WORK ACT/PROCEDURE VIOLATION (substandard)
- ☐ OPERATIONAL OR MANAGEMENT ERROR

5. LOCATION OF HAZARD: _____ **DATE:** **TIME:** A.M. P.M.

6. THOROUGHLY DESCRIBE THE NEAR-MISS OR HAZARD AND CAUSE:

7. YOUR RECOMMENDED CORRECTIVE ACTION:

MANAGEMENT INVESTIGATION AND CORRECTIVE ACTION:
(To be completed by responsible staff or supervisor as directed)

8. ☐ **CONCUR WITH FINDINGS AND RECOMMENDATIONS ABOVE.**

☐ **DO NOT CONCUR. USE REVERSE SIDE.**
(Describe your findings and recommend corrective actions. Attach diagrams, sketches, photos, statements, etc.)

9. CORRECTIVE ACTION TAKEN: *USE REVERSE SIDE IF NECESSARY.*

10. PERSON COMPLETING THIS REPORT:

NAME: _____ (Printed)
SIGNATURE: _____
DATE: _____
COMPANY: _____

11. GRANGER SITE SUPERVISOR:

NAME: _____ (Printed)
SIGNATURE: _____
DATE: _____
COMPANY: Granger Construction

12. DISTRIBUTION: *(Include names)*

- ☐ OWNER: _____
- ☐ GRANGER SR PM: _____
- ☐ GRANGER SAFETY DIR: _____
- ☐ SUBCONTRACTOR PM: _____
- ☐ OTHER: _____

THANK YOU FOR THIS SAFETY REPORT!

SUBJECT	NUMBER	PAGE
Federal Poster	SF165FR	1 of 1
	VERSION	DATE REVISED
		01/2013

SUBJECT	NUMBER	PAGE
Safety Training Roster and Sign-In Sheet	SF175FR	1 of 1
	VERSION	**DATE REVISED**
	3	4/24/18

Course Title: _____

Date: _____

Time: _____

Total Duration (Hrs.): _____

Instructor: _____

Name (Printed)	Signature

SUBJECT	NUMBER	PAGE
Site Safety Orientation Training Roster	SF176FR	1 of 1
	VERSION	DATE REVISED
	1	4/24/18

Construction Identification Credential Request & Safety Orientation Acknowledgment

Project: _____

Name: _____
Last First M.I.

Driver License Number: _____ **Expiration Date:** _____

Phone Number: _____

Construction Company Name: _____

Safety Certification and Drug Screen
attach current MUST certificate and copy of all certification cards

Drug Screen: **Date** **Shall Be Current Within the Past 30 Days**

Safety Mods Completed (18 or OSHA 10 required) _____

OSHA 30 Hour Completion Date: _____

Other Certifications: _____

Safety Orientation

Conducted By: _____

I attended the site safety orientation conducted by Granger at the above-referenced project; I understand all information and will comply with all safety requirements.

_____ _____
Signature **Date**

(Certificate(s) - Photocopies attached)

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SUBJECT	NUMBER	PAGE
RESPIRATORY HAZARDS & EQUIPMENT ACKNOWLEDGEMENT	**SF177FR**	**1 OF 1**
	VERSION	DATE REVISED
	1	**2/13/2014**

Respiratory Hazards & Equipment Acknowledgement

Project _____

Respiratory hazards have been identified and evaluated and the following respirators have been selected as appropriate and issued as adequate Personal Protective Equipment (PPE).

The Atmosphere Supplying Respirator (ASR) issued is: In separate training. Where significant isocyanates, or other contaminants are present or during processes like sand blasting or if contaminant concentrations exceed 50 times the PEL an appropriate tight fitting Atmosphere Supplying Respirator (SAR or SCBA) shall be used. In IDLH atmospheres a specific appropriate SCBA is required.

The Air Purifying Respirator (APR), cartridges, and prefilters issued:

Mask Type/Model			
Cartridge for use against			
Cartridge Type/Model		Qty	
Cartridge for use against			
Cartridge Type/Model		Qty	
Prefilter for use against		Qty	

P100 filters are to be used for toxic metal fumes and particulates including asbestos, lead and silica dusts, mold spores and metal fumes. Contaminant concentrations must not exceed 10 times the PEL for a ½ mask APR or 50 times the PEL for a full face APR. All spraying shall be done in a paint booth using respirators and a ventilation system according to MIOSHA standards and manufacturer's recommendations.

The Fit Testing Procedure is the MIOSHA accepted Qualitative Fit Test (QLFT) Protocol using Irritant Smoke (Stannic Chloride) and HEPA filters (P100) and is only for respirators that must achieve a fit factor ≤ 100 .

I, _____, certify that:

- I have completed and understood the Training,
- I am medically authorized to wear a respirator,
- I have received my respirator and have worn it,
- I have become familiar and comfortable with it, and
- and I have completed the fit testing procedure (if required).

Signed: _____ date _____

I certify that the above employee successfully completed the Training.

Supervisor Signature _____

Printed Name _____ date _____

I certify that the above employee completed the Fit Testing and Passed Failed.

Fit Tester Signature _____

Printed Name _____ date _____

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SUBJECT	NUMBER	PAGE
RESPIRATOR CARE & MAINTENANCE RECORD	**SF178FR**	**1 OF 1**
	VERSION	DATE REVISED
	1	**2/13/2014**

Respirator Care & Maintenance Record

To ensure that respirators retain their original effectiveness, respirators shall be cleaned and maintained, routinely after each use, and normally by their users, or other designated personnel. These persons shall be equipped, instructed, trained and qualified by the company. They shall perform the following procedures and record them and the dates when they are completed:

- INSPECT the facepiece, valves, seats, headbands, yoke, attachments, tube and all components.
- CLEAN, disinfect, rinse & air dry respirators after each use with a suitable cleaner and disinfectant.
- REPAIR or replace respirators, parts and components strictly as specified by the manufacturer.
- STORE respirators and components protected against deformity, sunlight, extreme heat or cold, moisture, chemicals and any other contaminants. Normally seal in labeled plastic bags and place in designated area.

THIS FORM IS FOR RESPIRATOR _____ used by _____

DATE	PROCEDURES	INITIALS

DATE	PROCEDURES	INITIALS

SUBJECT	NUMBER	PAGE
Permit Required Confined Space Entry Program	SF205FR	1 of 2
	VERSION	DATE REVISED
	1	7/16/18

PERMIT REQUIRED CONFINED SPACE ENTRY PROGRAM (PRCSEP)
Initial Survey to Identify and Classify Confined Spaces

Project Name & No.: _____

Survey Date(s): _____

Team Leader: Name: _____ Phone: _____

Secretary: Name: _____ Phone: _____

Team Participants: _____

_____

_____

_____

The Team employed 29 CFR 1910.146 MIOSHA Safety Standard Part 90, Health Rules R 325.63001-49 & MIOSHA On-Site Consultation Abatement Advice OSC 126, Occupational Health Advice OH 870-873, and 944 and the Confined Space Flow Chart as part of the authorized Survey Procedure.

Where applicable the Survey Team has noted the following terms plus other information:

- Type: Pit, Vat, Vault, Tank, Silo, Vessel, Hopper, Bin, or describe
- Hazards: Engulfment, Entrapment, Air (Oxygen Explosion Toxin), Mechanical, Electrical, or describe
- Class of Space: Non-permit (Non), Hazardous Atmosphere Only (Atmos), Permit-Required (Permit)

Manager Receiving and Reviewing Survey:

Name: _____ Date: _____

Project Name & No.: _____

Confined Spaces Identified:

Location	Description/Type	Hazards	Seal/Lock?	Entry(Y/N)	Class

SUBJECT	NUMBER	PAGE
MAN BASKET INSPECTION REPORT	SF225FR	1 of 1
	VERSION	DATE REVISED
	1	4/30/18

MAN BASKET INSPECTION REPORT

Contractor: _____ Project: _____

Basket Capacity: _____ Equipment # _____ Test Date: _____

	CONDITION		
	GOOD	REPAIR	N/A
Basket Overall Appearance			
Paint (Bright, Clean)			
Load Capacity Placard			
Safety Chain			
Lifting Spreader			
Gate Operation			
Load Test (Twice Rated Cap.)			
Floor Free of Debris			
Kick Plate in Place			

Inspected By:

_____
Printed Name

_____
Signature

_____
Date

Repaired By:

_____
Printed Name

_____
Signature

_____
Date

Tested By:

_____
Printed Name

_____
Signature

_____
Date

SUBJECT	NUMBER	PAGE
Property Damage Report	SF255FR	1 of 2
	VERSION	DATE REVISED
	1	9/26/11

Project Name: _____

Project No.: _____ Date: _____

Accident Occurred on Date:		Time:		A.M. P.M.
Location of Accident:				
Name of Company:				
Witness Name:			**S.S. No.:**	
Witness Name:			**S.S. No.:**	

Equipment:			
Type:		**Size:**	
Mfg.:			

PLEASE ATTACH A COPY OF PROJECT DIRECTORY

How did Accident Occur?

Description of Damage:

Recommendations for Repairs and Prevention of Similar Occurrences:

Action Taken:

Estimate of Cost:

Signed By:		**Title:**		**Date:**	
Checked By:		**Title:**		**Date:**	

SUBJECT	NUMBER	PAGE
Daily Heavy Equipment Checklist	SF260FR	1 of 1
	VERSION	**DATE REVISED**
	2	2/8/12

Crawler Equipment, Telescoping Forklift, Backhoe and Loader Daily Checklist

(1 Week Log)

Use different form for cranes

Company Name: _____ Project Name: _____

Name: _____ Signature: _____

Manufacturer: _____ Model #: _____

Please mark each box: Yes No N/A

Has the contractor completed a JSA?
Is the operator certified?
Are lights available for night operations?
Is the unit shut down before refueling?
Warning stickers legible and complete?
Are all moving parts guarded?
Are the windows safety glass?

Check the condition of the following:

	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
Seat Belts							
Ropes and Windows							
Gauges							
Horn							
Controls							
Track/ Rollers/ Chain or Tires							
Fire Extinguisher							
Reverse Alarm							
Forks/ Mast/ Bucket							

Initial each day

	FULL	ADDED	# Quarts
Engine Oil			
Hydraulic Fluid			
Transmission Oil			
Coolant			
Windshield Wipers			

Other deficiencies noted:

SUBJECT	NUMBER	PAGE
Crane Initial Load Test Checklist	SF264FR	1 of 1
	VERSION	DATE REVISED
	3	4/30/18

Crane Initial Load Test Checklist

Date: _____

Contractor: _____ Project: _____

Operator: _____ Certified in: _____

Test Supervisor: _____ Signature: _____

Manufacturer: _____

Model #: _____ Serial #: _____

Boom Length (no jib): _____ (with jib): _____

Mfr's Rated Capacity: _____ Outriggers (with / without): _____

Test Load
(Min 20% higher than maximum intended load)
Swing load minimum 90 degrees for each test

Anticipated Highest Capacity _____ tons at _____ ft. radius

Position #	Radius	Load weight	Passed	Failed

Conditions of Following

	Ok	No	N/A		Ok	No	N/A
Operator's Manual				Travel Controls, Clutch, Brakes			
Load Chart				Master Clutch			
No Broken Windows				Hoist Lines – Main, Aux & Boom			
All Windows with Safety Glass				Drums			
Fire Extinguisher				Rope Anchorage on Drums			
Interior Clean (with no debris)				Swing Area Guarded			
Hearing Protection Available				Track Condition			
Operable Warning Devices				Crawler Chain, Sprockets, Rollers			
Operable Anti Two Block				All Rotating Machinery Guarding			
Operable Boom Hoist Kick out				Hook Rollers, Swing Circle, Roller Path			
Operable Bulkhead Lifting Device				Gantry			
Operable Boom Angle Indicator				Bridle			
Operable Drum Rotation Sensor				Mast Jib and Live Mast			
Engine Throttle and Controls				Boom / Jib Pendants, Pins and Sockets			
Swing Controls, Clutches, Brakes				Boom / Jib Chords, Lacings, Welds, Pins			
Swing Lock				Boom Wear Pads and Backstraps			
Boom Hoist Controls, Clutch, Brakes				Boom Stops			
Boom Hoist Ratchet and Pawl							
Main Drum Controls, Clutch, Brakes							
Aux Drum Controls, Clutch, Brakes				Meter Reading _____ hrs.			

Comments:

GRANGER
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SUBJECT	NUMBER	PAGE
Crane Daily Checklist (1 Month Log)	SF266FR	1 of 1
	VERSION	DATE REVISED
	2	3/18/16

Crane Daily Inspection Log
(1 Month Log)

Jobsite Location _____ **Month** _____

Capacity _____ **Serial No.** _____

DAY OF THE WEEK	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
INSPECTION ITEM																															
Tires																															
Steering & Linkage																															
Parking Brake																															
Lights																															
Hydraulic System																															
Controls & Levers																															
Load Chart																															
Boom Angle Indicator																															
Boom & Hoist Cables																															
Horn																															
Fire Extinguisher																															
Battery																															
Back-Up Alarm																															
Engine Oil & Coolant																															
TEST OPERATIONS																															
All Controls																															
Boom & Ext.																															
Brakes																															
Steering																															
Safety Devices																															
Load Line & Hook																															
Operator's Initials																															

This is to verify that I have inspected this crane to the best of my ability, and I find it to be in good condition, except as noted below.
If at any time this equipment is found to be unsafe to operate, tag it and take the keys to your Foreman.

Operator's Name: _____ **Date:** _____

Comments:

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Crane – Job Safety Analysis Form

Task Description: _____ Job/Work Order No.: _____

_____ Date: _____

Personal Protective Equipment

- ☐ Fall Protection-Roof/Hole Guardrails – PFAS (Harness)
- ☐ Traffic Vest
- ☐ Traffic Paddle/Sign
- ☐ Hard Hat
- ☐ Safety Glasses
- ☐ Gloves
- ☐ Protective Footwear
- ☐ Other:

Ground/Environmental - Hazards

- ☐ Utilities Identified
- ☐ Wind
- ☐ Electrical Wires – Overhead
- ☐ 1-800-Miss-Dig
- ☐ Tunnels – Structural review
- ☐ Rain – lightening – ground
- ☐ Earth Retention System (review)
- ☐ Restricted Access/Egress
- ☐ Impact – Other buildings
- ☐ Restricted Lighting
- ☐ Winter ground movement
- ☐ Other:

Other Hazards

- ☐ Trenches nearby
- ☐ Fall Potential
- ☐ Soft Ground
- ☐ Type of Out Rigger Pads
- ☐ Pinch Points
- ☐ Slip/Trip Potential

Crane

- ☐ Lift Plan (evaluation below 75%)
- ☐ Annual Certification
- ☐ NCCO – (Certified Crane Operator)

Unit-Specific Training

- ☐ Known Potential Hazards Related to Job Task

Traffic Control

- ☐ AEC Traffic Coordination Meeting

Vehicles

- ☐ Road Closure – Permit from City
- ☐ Barricades/detour signage
- ☐ Person assigned to Direct Traffic
- ☐ Flag Person w/Vest & Flag

Pedestrian Traffic

- ☐ Barricade/detour signage – Tape
- ☐ City Sidewalk Closure Permit
- ☐ Spotters

Staging Area

- ☐ Trucks/Material
- ☐ Contact Parking for lot closures

Rigging Plan

- ☐ Designated Qualified Rigger
- ☐ Communication Plan
- ☐ Designated Certified Signal Person
- ☐ Inspection of Rigging
- ☐ Gear w/known load limits
- ☐ Weight of the load
- ☐ Load's center of gravity
- ☐ Sling angles determined
- ☐ Side loading issues
- ☐ Padded slings
- ☐ Working load limits acquired
- ☐ Hitch load appropriate
- ☐ Tag lines required
- ☐ Level load
- ☐ Any special requirements

Other Items

- ☐ Contact
- ☐ Pre-Lift Meeting
- ☐ Manufacturer's Requirements

Building Occupants

☐ **Occupied** ☐ **Evacuated**

- ☐ Weekend or Off Hours Lift – No One in the Building
- ☐ Restrict travel within Building (no one under loads) Post guards - signs
- ☐ If Occupied – Structural review for dropped load
- ☐ Other – Notify Management for Procedures and Review

☐ Employee Involvement ☐ Given at Task Location

Task Specific Requirements:

Names of Personnel **Contacts**

NCCO:
Qualified Rigger:
Certified Signal Person:

ATTENTION: Verify that all workers understand their duties and job requirements

Crane – Job Safety Analysis Form

LIFT EVALUATION FORM

1. Activity:

Location of Lift: **Date:**

2. Description of Load: **Load Weight:**

Block Weight:

Spreader Weight:

Rigging Weight:

Jib Weight:

Jib Ball Weight:

Hoist Line Weight:

Total Load:

3. Crane Manufacturer:

Model Number: **Serial Number:**

Maximum Load Radius: **On Outriggers:**

Corresponding Boom Angle: **On Tires:**

Corresponding Boom Length: **On Crawler-Extended Retracted:**

Lift will be: ☐ On Boom ☐ On Jib ☐ Over Side ☐ Over End

Rated Capacity:

Capacity Margin = (Total Load / Rated Capacity) x 100 =

4. Are there Underground Hazards? ☐ Yes ☐ No

Soil Conditions:

Will Blocking or Crane Mat be used? ☐ Yes ☐ No

Are there Fire or Explosive Hazards within Reach? ☐ Yes ☐ No

Are there Electrical Hazards within Reach? ☐ Yes ☐ No

Has Permit been Obtained? ☐ Yes ☐ No

Prepared by: **Date:**

Crane – Job Safety Analysis Form (SAMPLE ONLY)

Job Safety Analysis (JSA) is an important accident prevention tool that works by finding hazards and eliminating or minimizing them before the job is performed and before they have a chance to become accidents. Use your JSA for job clarification and hazard awareness.

Sequence of Basic Job Steps	Potential Hazard	Recommended Action or Procedure
Access from truck Rig equipment for lift	1. Falls from truck 2. Struck by object 3. Pinch Points	1. The riggers will access the truck bed by using a portable ladder or fixed ladder. No jumping. 2. All rigging will be inspected prior to use. The unit will be picked according to manufacturer's recommendations. 3. Proper radio communication and rigging signals will be used. Pre-meeting with all parties will establish good communication and plan. 4. All employees will be clear of pinch point during initial lift-off of truck. Rigging will be inspected again to ensure load is level and secure. 5. Load will be lifted by tower crane.
Employees will access the roof and prepare for lift. Place unit through hatch	1. Fall hazards at hatch opening, or edge of roof. 2. Threat of material dropping onto roof. 3. Swinging load over crew and other personnel	1. Employees will be protected from a fall by using fall arresting equipment. Employees will wear full body harness and retractable lifeline within 15 feet of hatch. 2. The unit will be picked according to manufacturer's recommendations. The weight of the unit and rigging will be approximately half of the overall capacity. 3. Good communication will be maintained with operator and crew by using two-way radios.

Crane – Job Safety Analysis Form (SAMPLE ONLY)

(continued)

		4. The personnel in the building will be moved as necessary. 5. The crew will not work under suspended load. Tag lines will be used to position load.
The unit will be set on dollies and wheeled in place.	1. Pinch points 2. Load shifting – moving	1. Employees will have to use caution regarding putting hands, fingers, etc. in pinch points. 2. Employees will access rigging by using a stepladder. The ladder will be inspected and used according to regulations and safety work practices.

Supervisor / Designee Signature: _____

Crane – Job Safety Analysis Form

I acknowledge receiving these instructions, understand the instructions, and will fully comply with the assigned job task.

Signature	Badge #	Signature	Badge #

SUBJECT	NUMBER	PAGE
Aerial Work Platform Daily Inspection	SF270FR	1 of 1
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Aerial Work Platform

Daily Checklist

Week Ending: _____

Company Name: _____ Project Name: _____
Name: _____ Signature: _____
Manufacturer: _____ Model #: _____

Please mark each box: Yes No N/A

	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
Electrical System							
Fuel System (no leaks)							
Safety Stickers/ Warnings							
Operator's Manual							
Fire Extinguisher							
Housekeeping (basket clear of debris)							
Battery							
Chassis							
Outriggers/ Stabilizers							
Extendable Axles							
Tires and Wheels							
Cables and Wiring Harness							
Boom							
Scissor Assembly							
Movement Alarm(s)							
Capacity Indicator							
Platform Ft or Hand/ Dead Man Switch							
Interlocks							
Out-of-Level Warning							
Fall Protection Anchorage							
Platform Structure							
Guardrail System							
Gate and Locking Device							
Platform Extention							
Hoist Rope							
Personal Fall Protection							
CHECK BOTH SETS OF CONTROLS BELOW							
Travel							
Steering							
Outriggers/ Stabilizers							
Boom Up/ Down							
Boom In/ Out							
Hoist Up/ Down							
Swing							
Platform Leveler							
Emergency Controls							

	FULL	ADDED	#QUARTS
Engine Oil			
Hydraulic Fluid			
Coolant			

Comments:

SUBJECT	NUMBER	PAGE
Suspended Scaffold (Swing Stage) Initial Test Checklist	SF274FR	1 of 1
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Swing Stage Initial Test

Date _____

Contractor _____ Project _____

Operator(s) _____ Certified In _____

Test Supervisor _____ Signature _____

Manufacturer _____

Model# _____ Serial# _____

Platform Length _____ Mfr's Rated Capacity _____ Size of Wire Rope _____

Outrigger Beams must be min 15' long, project no more than 6'6" beyond bearing point, and spaced no more than 7 feet on center.

If the rating of the platform is 500 lbs then no more than 2 persons Permitted to work at one time.

If the rating of the platform is 750 lbs then no more than 3 persons permitted to work at one time.

Test Load

(Test at 1' above the lowest elevation at twice the maximum intended load)

Anticipated Highest Capacity _____ lbs.

Load weight	Passed	Failed

Conditions of Following

	Ok	No	N/A	Comments
JHA Completed & Reviewed				
Annual Inspection				
Operators Manual				
Load Capacity Plate				
All Safety Stickers legible				
Railings with End Rail				
Wire Ropes				
Lifeline and Anchorage				
Interior Clean (with no debris)				
All Moving Parts				
All Persons Trained				
All Safety Factors Met (Wire Ropes & Other Parts)				
Initiating Device Operation for Secondary Brakes				
Wire Rope Extend Beyond the Lowest Point in the Platform is able to reach				❖ If Not, Provisions must be made to stop travel.