Design/Build | Construction Management | General Contracting

DeMaria Health & Safety Manual





This manual is created with the intention of providing guidelines for field reference and to aide in Accident/ Incident Prevention. This is accomplished by maintaining an aggressive approach to pre- planning activities to discover otherwise unforeseen hazards. This manual is not intended to reference all OSHA or MIOSHA standards that may apply to your work, but to give a general overview of information that will assist projects in concluding injury free. If at anytime there is a need for clarification regarding any of the policies and procedures contained in this manual, or you encounter circumstances that this manual does not address, contact the DeMaria Safety Director for assistance

SAFETY & HEALTH POLICY

SAFETY BEFORE PRODUCTION

Safety will not be sacrificed for production. It is DeMaria policy to provide and maintain a safe and healthy work environment at all times. The goal of DeMaria management is to prevent occupational accidents, injuries, illnesses or unnecessary environmental damage. These objectives will be achieved through management leadership by placing accident prevention and the protection of the health and safety of every employee above any other consideration of job operations or administration. The ultimate goal of DeMaria at every level of our company is to ensure at all times, throughout every phase of job operations, the safety and health of our own employees, the Owners'/Clients' employees, the general public and the employees of every subcontractor. Their safety must be considered first when planning any construction activity to ensure everyone leaves the jobsite unharmed at the end of the day.

DeMaria believes that pre-planning and coordination are key to employee and project safety. The planning process does not stop at the pre-planning stage, but is a continuous process of assessment and evaluation. Where there are significant hazards we will take all practicable steps to: **E**liminate the hazard, **I**solate the hazard, OR **M**inimize the hazard. Every procedure must be a safe procedure. Shortcuts in safe procedures will not be tolerated.

We Believe All Accidents Are Preventable:

- ✓ **Do it safely or not at all.**
- ✓ **There is always time to do it right.**
- ✓ **When in doubt, find out.**

If a worker observes any unprotected job, which may pose a potential threat to their health or safety, he or she must inform management and management must take adequate precautions. To this end, we have formulated this written policy to govern the operations of DeMaria. It is a condition of employment with DeMaria that all employees and contractors working on a DeMaria project adhere to the requirements of this policy, as well as the safety rules, instructions, and procedures issued in conjunction with it.

All subcontractors and visitors to any DeMaria operation including, but not limited to suppliers, owner representatives, business agents , architects or engineers, regulatory authorities and insurance company representative shall be required to follow all safety rules and regulations in effect during their time on the project. The Director of Safety, Project Manager, Project Superintendents, and foremen have the full support of the DeMaria executive management team in enforcing the provisions of this policy as it relates to responsibilities assigned to them. Working safely may get old, but so do those who practice it.

IF A JOB CAN'T BE DONE SAFELY IT WILL NOT BE DONE.

SAFETY ROLES & RESPONSIBILITIES

The DeMaria safety and accident prevention program is established to comply with OSHA/MIOSHA Safety and Health regulations for construction, DeMaria safety standards, and safety and health policies required by the client. By defining responsibilities, we are able to monitor the effectiveness of individuals and establish accountability on a project to project basis. However, we cannot successfully protect our employees or satisfy the expectations of the client in regard to safety and health unless we have the full commitment of ALL our employees and subcontractors. The Safety Director, cannot and must not be expected to "do safety" or "police" a project. The Safety Director is there to support and monitor the effectiveness of the program as well as offer technical support. The Safety Director can be a helpful resource for controlling the safety program through evaluation and prescribed corrective actions, but we must realize that implementation of the program must take place concurrently at every level of the organization in order to be the most effective.

The safety responsibilities listed below for each position is not only expected, but is required, for employment at DeMaria and any subcontractors hired by the DeMaria in the course of this project:

PROJECT MANAGEMENT SAFETY RESPONSIBILITIES

- Monitor Project Superintendent and subcontractors follow safety rules including site specific plans.
- Monitors and enforces proper procedures on safety enforcement with subcontractors / DeMaria personnel.
- Follows up on safety hazards reported from the Project Superintendent/subcontractors.
- Reinforce safety issues with Project Superintendents
- Identifies and corrects hazards that are identified when walking the site.
- Monitor proper paperwork submission by superintendent, i.e. jobsite safety audit, toolbox talks, jobsite hazard form, etc.
- Monitor and enforce rules and programs designed to promote safety and make known to all employees rules and programs
- Investigate and follow up with owner on accidents/near miss/incidents.
- Assist in enforcing accountability with superintendents and field tradesmen.
- Ensure that superintendents meet all contractually mandated safety programs for each specific project.

MONITORING OF SUBCONTRACTORS

Monitoring the safety performance of subcontractors is one of the most important duties of a project manager. This means assuring that the subcontractor is in compliance with all safety standards and is *following* the safety plan their company submitted. This may require an inspection of their operations on a regular basis. Areas that should be monitored include:

- Reviewing new employee orientations to verify that they are adequate and are being conducted for everyone hired;
- Monitoring supervisors' enforcement of safety policies. Requiring documentation which shows that disciplinary action for non-compliance with safety rules is being taken, such as filed notes regarding warnings or suspension
- Monitoring the use of personal protective equipment, to make sure the equipment being used provides adequate protection and that workers are trained to use it properly;
- Reviewing daily huddle reports to determine if signed and completed. This can be accomplished by having subcontractors provide you with a copy of their reports;
- Reviewing the thoroughness of accident reports. The "root cause" on the incident should have been determined and steps taken to prevent reoccurrence of a similar incident

PROJECT SUPERINTENDENT SAFETY RESPONSIBILITIES

It is the superintendent's responsibility to identify potential hazards, identify methods to control or eliminate the hazards, ensure employees are engaged in safe and healthful work practices, and ensure employees receive safety and health training to do their work. To accomplish this obligation, superintendents will:

- Monitor the project's safety status and employee morale by personally conducting a daily safety inspection of the job site(s) and initiating necessary corrective action. Follow up and respond to tradesman/subcontractors reporting safety hazards
- Ensure that the subcontractor has provided a Subcontractor Safety Plan and to determine who the subcontractor's competent person(s) will be and a competent person acknowledgment form(s) completed
- Conduct accident investigations, analyze the causes, and formulate recommendations for corrective and preventive action.
- Review, complete and submit the proper paperwork i.e., jobsite safety audit, toolbox talks, hazard analysis and daily job huddles etc. complete accident reports and timely documentation
- Whenever major activities such as those that require a permit and hazard analysis (HA). It is the Superintendent's responsibility to notify the Safety Director in advance to review all documents.
- Maintain and update any material safety data sheets (MSDSs).
- Notify Safety Director of safety violations. Secure prompt medical attention for any injured employees
- Ensure that each job site has the necessary safety equipment and materials, personal protective equipment, first aid supplies, and emergency telephone numbers posted.
- Monitor all subcontractors to ensure compliance with the safety performance requirements of the project, and notify them of any infractions.
- Prepare and distribute job-safety bulletins and subject material for toolbox safety meetings, and review and audit the meetings to ensure effectiveness.
- Conduct project safety orientation training sessions for DeMaria employees, new subcontractor employees, clients ect.
- Enforce the disciplinary actions necessary to ensure a well-functioning safety program.
- Attempt to ensure safe performances by others present on the site, including subcontractors, owner and architect/engineer representatives.

MONITORING OF SUBCONTRACTORS

Monitoring the safety performance of subcontractors is one of the most important duties of a superintendent. This means assuring that the subcontractor is in compliance with all safety standards established by DeMaria and is *following* the safety plan their company submitted. This may require an inspection of their operations on a daily basis. Areas that should be monitored include:

- Reviewing new employee orientations to verify that they are adequate/ are being conducted for everyone
- Monitoring supervisors' enforcement of safety policies. Requiring documentation which shows that disciplinary action for non-compliance with safety rules is being taken, such as filed notes regarding warnings or suspension
- Monitoring the use of personal protective equipment, to make sure the equipment being used provides adequate protection and that workers are trained to use it properly;
- Reviewing daily huddle reports to determine if signed and completed. This can be accomplished by having subcontractors provide you with a copy of their reports;
- Reviewing the thoroughness of accident reports. The "root cause" on the incident should have been determined and steps taken to prevent reoccurrence of a similar incident

ALL EMPLOYEES SAFETY RESPONSIBILITIES

As an employee, you have a moral responsibility to yourself, your family, and your fellow workers to see that the operations within your care, custody, and control are carried out and left in a safe manner. Each employee is expected, as a condition of employment, to work in a manner that will not inflict self-injury or cause injury to fellow workers. Each employee will:

1) Whenever you are involved in an accident that results in personal injury or property damage, no matter how slight, the accident must be reported to your supervisor or other management personnel prior immediately. Get first aid promptly.

2. Report any condition or practice you think might cause injury and/or damage to equipment immediately to your supervisor.

3. Do not operate any equipment, which, in your opinion, is not in a safe condition. Report immediately the condition that you believe is unsafe to your foreman.

4. All prescribed safety equipment and personal protective equipment must be used when required and must be maintained in good working condition. It is your personal responsibility to use such equipment. The use of required personal protective equipment is a non-negotiable item.

5. Obey all safety rules, government regulations, signs, markings, and instructions. Be particularly familiar with the rules and regulations that apply directly to you in the area in which you work. If you don't know, ask your foreman.

6. When lifting, use the approved lifting technique, i.e. bend your knees, grasp load firmly, keep load close to you, and then raise the load keeping your back as straight as possible. Always get help with heavy or awkward loads.

7. Do not engage in horseplay; avoid distracting others; be courteous to fellow workers & public.

8. Always use the right tools and equipment for the job. Use them safely and only when authorized. If you are not familiar with the safe way to use a particular tool or piece of equipment, ask your supervisor. When using your own tools on the job site, make sure all guards, ground pins, etc., are in place.

9. Good housekeeping must always be practiced. Return all tools, equipment, materials, etc., to their proper places when you are finished with them. Keep floors clean and passageways clear. Poor housekeeping wastes time, energy, and material, and often results in injury.

10. The use of drugs and/or intoxicating beverages on the jobsite is forbidden. Being under the influence of alcohol or drugs when on the jobsite is inexcusable. Immediate discharge for being under the influence and/or using drugs or alcohol may be instituted.

11. Additional appropriate disciplinary action up to termination will be taken for the following offenses:

a. Fighting - no matter what the cause.
b. Insubordinate conduct or refusal to follow directions.
c. False statement, such as injury claims.
d. Other inappropriate behavior including, but not limited to, failure to obey safety rules.

12. Loose clothing and jewelry cannot be worn when operating machinery and equipment.

13. Proper work shoes shall be worn at all jobsites. Open toed shoes and sneakers will not be permitted to be worn at any jobsite. If you are observed wearing open toed shoes or sneakers, you will not be permitted to work until you return with proper footwear.

14. Do not handle chemicals unless you have been trained in the safe handling procedure.

15. Hardhats and eye protection shall be worn at all times.

16. Read, understand and follow the guidelines set forth in the material safety data sheets (MSDS) pertaining to your work.

17. Compliance with safety and health rules and regulations is a condition of employment

18. Know what emergency telephone number to call in case of fire or injury;

SAFETY DIRECTOR SAFETY RESPONSIBILITIES

- Monitor supervisory management and employee activity to ensure that the corporate programs are carried out in a timely manner.
- Coordinate safety information between projects to assure that all projects will benefit from each other's efforts.
- Coordinate all safety activities including jobsite inspections, and distribution of safety materials. Perform jobsite inspections periodically and follow up corrective actions.
- Maintain all accident records and complete all required OSHA forms.
- Analyze accident records and show trends.
- Promote safety education at all levels.
- Periodically review safety rules and standards with employees to confirm that the company is meeting its goals and objectives.
- Review with supervisors how to handle emergency procedures at each jobsite location.
- Confirm that all required signs are posted, and bulletin boards are maintained in clear and legible condition.
- Confirm employer is enforcing compliance with all applicable federal, state, and local regulations.

SUBCONTRACTOR SAFETY RESPONSIBILITY

In addition to compliance with all applicable local, state, and federal rules and regulations, the subcontractors will be required to comply with safety requirements contained in this manual. DeMaria expects subcontractors to have established their own safety and health programs. Each subcontractor is responsible for the safety of his or her employees on each DeMaria project.

1) All Subcontractors shall, prior to their start of work, submit the names of their authorized, competent person(s) to DeMaria. Subcontractor must complete the **Competent Person Acknowledgement Form**, and submit this form to the DeMaria Superintendent for the project files prior to working on site. Re-submission of the Competent Person Identification Form is required any time the Competent Person or alternate changes.
2) **Hazard Analysis (HA)** must be completed and approved by DeMaria and reviewed with his/her personnel on possible safety hazards, work activities, etc., prior to work beginning

Hazard Analysis (HA) &/or Permits/ Plans are required for certain high risk work activities and must be requested with as much lead time as possible to allow for DeMaria approvals & coordination of the various groups involved in the process. At a minimum, DeMaria requests the following advance notice for these HA, permits/plans
Demolition- 1 week
Hot work- 3- days
Excavation and trenching- 3 days
Lockout/Tagout and high voltage electrical work- 3 days
Confined space entry- 3 days
Roof access Plan- 3 days
Hazardous material work – 3 days
Cranes Lift Plan- 1 week

3) **Site Procedures and Permits**
DeMaria projects have specific site procedures and permit requirements, with which contractors must fully comply

4) Issue a "Stop Work" order for those events, which pose an imminent danger to personnel, environment, or equipment. Must be reported to DeMaria Project Superintendent.
5) **" Daily Huddle"'** safety meeting with your crew must be held every morning before the start of work and signed by all workers involved in that day's activities and submitted to DeMaria superintendent daily.
6) **"Tool Box"** safety meetings shall be held on a weekly basis. These meetings shall be confirmed by sign in sheets and submitted with that day's daily report
7) All subcontractor will be held accountable for the immediate correction of hazards and unsafe acts and compliance with DeMaria Safety Manual, their Company Safety Manual, the project documents, OSHA/MIOSHA Standards and all other federal, state and local codes, laws and regulations
8) Ensure that his/her foreman and personnel understand all necessary precautions to be taken and ensures that these precautions are carried out.
9) Makes regular inspections of hand tools and equipment used in all phases of work
10) Immediately corrects any safety deficiencies when identified and/or notified.
11) Immediately inform the site superintendent of any and all unsafe conditions or activities.
12) Notify the site superintendent immediately in the event of an MIOSHA/OSHA inspection
13) Supply the Company with a copy of the subcontractor's company safety program and material safety data sheets (MSDSs) for materials used on Company projects. They must keep a copy in their gang-box for their employees to review
14) Report immediately all accidents, injuries, and fatalities that have occurred on the job site to the site superintendent.
15) All records subject to inspections by DeMaria
16) Supply the proper personal protective equipment and safety equipment to his or her employees and ensure their use.
17) Have adequately trained their field employees on proper safety practice

JOBSITE START-UP

Security of people, office and property on all DeMaria projects and offices must be considered and planned for prior to the start of construction. Prevention from harm, loss of equipment, supplies, or in-place construction through theft or vandalism is vital to the success of the project. It is the goal of DeMaria to provide the safest jobsite possible for our employees, subcontractors, and the general public. Due to the close proximity of most jobsites to occupied areas and planned changes in the means of egress of occupants, special precautions must be taken to ensure the safety of everyone in the area. Good communication is a necessary element of maintaining a safe construction site. **Any employee or subcontractor that suspects dishonest, unsafe or fraudulent activities or irregularities on the jobsite can call the DeMaria Fraud Hotline at 1-248- 596-2290 and leave an anonymous message. That will be investigated by DeMaria management**.

PROJECT SUPERINTENDENT JOBSITE START-UP SAFETY CHECKLIST

The following checklist is intended for use by the Project Superintendent as an aid in assuring that all key safety issues and elements of safety planning are considered relative to the start of a specific project. If an item is not applicable, please note it as such. If there are additional items or revisions to the checklist that should be considered, please provide completed form to the Safety Director

ITEM	Y/N	ITEM	Y/N
PPE (hard hats, safety glasses, gloves, hearing protection, harness/lanyard, etc.)		Hot Work Permits	
M.U.S.T. report cards (current with owner req.)		Excavation Permits	
MSDS – www.msdsonline.com ; MSDS Station Established & Available (subs to provide their own copies to project superintendent		Demolition Permits	
Federal/State Posters displayed in prominent location		Lockout/ Tagout Permits	
Emergency Phone Numbers & Closest Concentra/ Medical Facility Posted		Confines Space Permits	
Emergency Evacuation Plan Developed by DeMaria Superintendent & Posted		Crane Lift Permits	
OSHA 300 Log Posted Feb. 1 – Apr. 30		Roof Access Permits	
Corporate Safety Manual On-Site		Fall Protection Plans	
Copies of all Subcontractor Safety Manuals		Accident Investigation Forms (Supervisor, Employee & Witness)	
First Aid Kit Mounted/Stocked		Hazard Analysis Forms (HA)	
HazMat Surveys on File (Lead, Asbestos, ext)		Construction Safety Signs	
Jobsite Safety Audit Forms		Copies of Daily Huddles	
Competent Person Acknowledgement Forms		Safety Violation Forms	
List of Certified First Aid/ CPR Responders		Site Specific Safety Plan	
Safety Binders for DeMaria & Subcontractors		Posting DeMaria Fraud Hotline Number	
Hard Hat Safety Orientation & Stickers			
Fire Extinguishers			
Copies of Toolbox Talks			

JOB SITE OFFICE/TRAILER COMPLEX

Office trailers or mobile offices, provide a space for construction job supervision to review building plans, have lunch, read blueprints and furnish meeting areas for builders, owners and contractors. Trailer(s) should be well maintained and of sufficient size to accommodate the needs of the Owner, Architect and construction personnel office activities, and to accommodate project meetings. Security of people, office and property on all DeMaria projects and offices must be considered and planned for prior to the start of construction. Prevention from harm, loss of equipment, supplies, or in-place construction through theft or vandalism is vital to the success of the project.

Exterior of Company Trailer

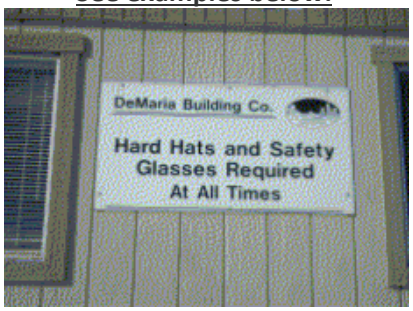
All areas around site trailer shall be treated and maintained in such manner as to represent in a positive manner. The trailer and surrounding area shall be maintained in a clean and orderly condition. Material and construction residue and debris shall not be permitted to accumulate. Grass and weeds shall be maintained at a height not exceeding six (6) inches. Access ways shall be kept free of ice, snow, grease, mud, debris or any other material or equipment which could obstruct passage, cause a tripping hazard, or render them unsafe in any other way. No cracked or broken windows Proper stair access to trailer(s) shall be maintained and must comply with OSHA/MIOSHA regulations. Secure the entrances to the worksite every evening. Keep the worksite well-lit. Secure all fences together. Use locks that are unable to be cut off. Secure all keys to equipment in a locked box. Trash containers shall be limited and emptied regularly. State law in Michigan prohibits smoking inside trailers. Smoking shall be limited to designated exterior smoking locations. TRAILERS MUST BE ANCHORED.

See examples below.



When possible, all job sites should have a DeMaria sign and tag line banner located in a highly visible location. DeMaria's Project Manager will approve project sign location and installations at the Project Pre-Start Meeting. Contact information (This can be a business card clear taped to the outside of one of the doors). The installation of the sign and tag line banner will be the responsibility of the Yard Superintendent.

See examples below.



Interior of Company Trailer

The Project Superintendent is responsible for the cleanliness of the project trailer. The job site trailer must be cleaned daily. Trailer(s) should be neatly organized and of sufficient size to accommodate the needs of the Owner, Architect and construction personnel office activities, and to accommodate project meetings. The door on the trailer should be durable and locked at all times. Computers and fax machines should be locked securely every evening before leaving the site. State law in Michigan prohibits smoking inside trailers. Smoking shall be limited to designated exterior smoking location

Conference room: Required postings (Posted) (Michigan requirement see Safety Director), Project Schedule large view (up dated), Effective Meeting Min. (posted), Calendar, One or more white marker boards & dry markers Tables and Chairs (For Meetings), Fire Extinguisher, Logistic Plan / Sequence Plan, Mail Box for Sub-contractors Emergency numbers, Hospital location (posted) (See Safety Director, Self contained toilet (optional)

See examples below

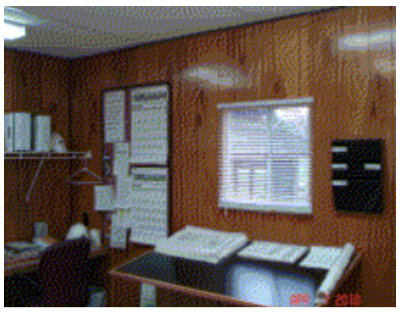




Superintendent Office: Desk and Chair's, Drawing table or table (to view drawings), Drawing Rack (to hang drawings and keep them up-dated), Small white board (optional good for goals and reminders)
File cabinets for job files, Book shelf (for DeMaria binders, specifications, safety manual MSDS etc., Calendar Schedule, Logistic & Sequence Plan, Mail Box for PM, and DeMaria).

See examples below





Equipment: Computer (locked at all times), Printer (locked at all times), Phones, Fax Machine , Copier, Cabinet to store office materials, Water cooler, Coffee maker / small refrigerator (optional), Broom / mop / vacuum & trash containers and cleaning supplies.

Subcontractor Site Trailer

All trailers must display signs or labels clearly showing the contractor's name. Each Subcontractor will be expected to clean up their office , work and storage areas and make arrangements for removal and disposal of all cartons, crates and boxes at the end of each day.

Contractors are responsible for keeping the area immediately around their trailer(s) clean and orderly. Trailers shall be maintained.

- No flat tires, broken windows, etc. TRAILERS MUST BE ANCHORED
- Proper stair access to trailer(s) shall be maintained and must comply with OSHA/MIOSHA regulations.
- Trash containers shall be limited and emptied regularly .
- State law in Michigan prohibits smoking inside trailers. Smoking shall be limited to designated exterior smoking location

See Examples Below

JOB SITE SAFETY BOARD

Job Safety Board

The DeMaria Project Superintendent shall post and maintain a Job Safety Board at the Project Site in a conspicuous location that is accessible to the Subcontractors/Trade Contractors, Workers and other personnel arriving at or entering the Project Site. At a minimum, the Board shall provide the following information and items:

Basic Project Information, State & Federal Poster, DeMaria Project Team names and contact numbers & Subcontractors/Trade Contractors, Emergency procedures and contact numbers, Location where Project-Specific Plan can be found, Location of Project-related Material Safety Data Sheets, Shutdown notices and posting of other activities requiring coordination, Notices for upcoming job and safety meetings, Location of accident report forms Hot Work permits, Location of first aid station

Purpose:

To increase employee's safety awareness and convey the company's safety message. If a proper place can be found for a bulletin board, this is a good tool. These are the primary method of relaying safety information to all employees. They are in place for the education and information of all personnel on site and if used correctly should result in improved safety awareness. All employees have a responsibility to read all safety messages, take notice of all safety posters, always obey all safety signs and not become complacent or take short cuts with safe work practices.

Michigan (MI) State Posting Requirements:

- MIOSHA - Health and Safety Protection
- Wage Deviation
- Wage and Hour Division General Rule
- Michigan Minimum Wage
- Discrimination Notice
- Unemployment Insurance
- Youth Employment
- Whistleblowers' Protection Act
- Right-to-Know/MSDS
- Public Act 154, of 1964, Michigan Minimum Wage Law

Federal Posting Requirements:

- Equal Employment Opportunity is the Law - Includes NEW GINA in effect November 21, 2009
- Federal Minimum Wage 2009
- USERRA - Uniformed Services Employment and Reemployment Rights Act
- OSHA - Job Safety & Health Protection
- Employee Polygraph Protection Act
- Family and Medical Leave Act
- IRS Withholding Notice - Rev. 08/2009
- Anti-Discrimination Notice - Rev. 08/2009
- Payday Notice

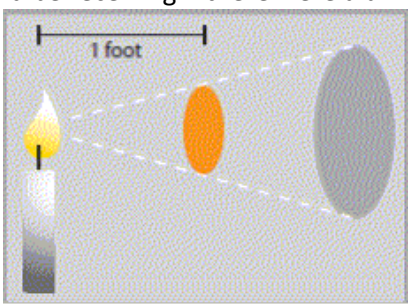
ILLUMINATION

- A minimum illumination intensity of 10 foot-candles shall be provided on a jobsite where construction work is being performed. Construction areas, ramps, runways, corridors, offices, shops, and storage areas must be lighted to not less than the minimum illumination intensities while any work is in progress

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

"Foot-candle"

Means a unit of illumination produced on a surface, all points of which are one foot from a uniform point of one candle. The unit is defined as the amount of illumination the inside surface of a 1-foot radius sphere would be receiving if there were a uniform point source of one candela in the exact center of the sphere.



Alternatively, it can be defined as the luminance on a 1-square foot surface of which there is a uniformly distributed flux of one lumen. This can be thought of as the amount of light that actually falls on a given surface. The foot-candle is equal to one lumen per square foot

Minimum Illumination Intensities in Foot-candles

5 Foot-candles	shall be provided to areas on a jobsite where work is not being immediately performed but where workers may pass through
10 Foot-candles	shall be provided on a jobsite where construction work is being performed.
50 Foot-candles	Shall be provided to First-aid stations, infirmaries, and offices

TOILET FACILITIES.

Toilets at construction sites 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.

To assure sanitation, a toilet shall be serviced and maintained on a regular basis. A toilet shall be supplied with toilet paper. This rule for sanitation facilities shall not apply to a mobile crew that has transportation readily available to nearby toilet facilities

RECORDKEEPING

SUPERINTENDENT RECORDKEEPING REQUIREMENTS

The project superintendent will maintain the following documents at the jobsite and have them available for review.

- Completed Hazard Analysis for DeMaria and Subcontractors
- Completed Daily Huddles
- Project Weekly Safety Inspection Checklists
- Competent Person Acknowledgment forms for all Subcontractor
- All DeMaria Required Permits (Excavation, Fall, Hot Work, Electrical, Crane, Confined Space, LOTO, ect)
- Accident/Incident Investigation Reports - Immediately forward completed reports to Project Manager and Corporate Safety Director
- New Employee Project Orientation Outline and Sign-offs & hard hat stickers
- Weekly Subcontractor Tool Box Safety Meeting Reports
- Safety Violations
- Subcontractor 72 hour Notices
- Material Safety Data Sheet files
- Miss Dig Reports
- Soil or air sampling reports,
- Hazardous waste chains of custody,
- Subcontractor training or qualification certifications (where applicable

It is the responsibility of the Safety Director to track and record all work related recordable injuries on the OSHA 300 form. This form will be maintained in the Safety Director's office. Copies will be made available upon request.

The annual summary must be:

- Posted by February 1 and remain posted until April 30th
- Posted in areas where other notices are normally placed
- Certified (signed) by a company executive, stating that the information is correct and complete to the best of the employer's ability and
- Retained for five years following the calendar year to which they relate

If no cases are recorded during a reporting period, a summary must still be posted. Zeros should be entered into all spaces provided on form 300A.

JOBSITE SAFETY

JOB SITE SAFETY ORITENTATION

All employees and subcontractor workers must complete the Job Site Safety Orientation, prior to beginning work at any DeMaria project site. As an employee or worker on this project, you have a moral responsibility to yourself, your family, your fellow workers, and to the other persons on this project to see that the operations within your care, custody, and control are carried out and left in a safe manner

Employees/Workers must go through the orientation at each individual project site.

- At the completion of the safety orientation, each employee must sign the orientation page, which states that they agree to comply with all policies and procedures of the project.
- Hard hat stickers will be issued to contractors after they have attended the DeMaria safety orientation**.**
- Each sticker indicates the site for which it is valid. Contractors must have a valid, site-specific safety sticker in their possession when on a work site**.** The sticker must be readily visible.
- The superintendent will then note which hard hat sticker number that employee has and then sign that same form. The superintendent will file each employee's orientation form in their jobsite safety book.
- The hard hat sticker log is a good tool to use for quick reference of employees.
- Under Federal and State safety requirements, employers must certify that all operators of equipment such as forklifts, cranes, aerial lifts, powder actuated tools, etc., have been trained and/or certified on the proper operation of the equipment. Copies of this training and certification must be maintained on the project by the sub-contractor and forwarded to DeMaria upon request.
- All employees are required to participate in daily huddles and weekly safety toolbox talks or equivalent safety meetings. Signed copies of the daily and weekly meeting reports shall be submitted to the DeMaria Project Superintendent.
- Project superintendents are required to be current with First Aid/CPR training to satisfy MIOSHA requirements stating at least one person from each company shall have an individual who is qualified to perform First Aid/CPR if needed.

DEMARIA PROJECT SAFETY ORIENTATION

The Project Superintendent conducts site-specific orientation for all new staff and subcontractor personnel before beginning work. All local, MIOSHA, owner, & DeMaria safety requirements must be followed at all times.

SAFETY BEFORE PRODUCTION!

Project Name/Scope:

Client/Owner:

Project Manager:

Project Superintendent(s):

Safety Director:

Key Safety & Security Rules	**The following are some reasons for which an employee of a contractor may be temporarily or permanently removed from the project: (list not all inclusive)** • Possession or use of alcoholic beverages or regulated drugs not prescribed by a physician • Possession of explosives, firearms, ammunition, and other weapons • Deliberate violation of safety or security rules • Ignoring posted "Danger" and "Caution" signs • Illegal dumping, handling, or disposal of hazardous materials • Destruction or removal, without written permission, of any property belonging to the property owner, employee, or other Contractors or employees • Intimidating, threatening, harassing, impeding or interfering with others • Using emergency exits other than for emergencies • Misuse of fire prevention and protection equipment • Unauthorized removal or destruction of a safety barricade, handrail, guardrail, warning sign, fall protection, or other warning devices intended to protect the public, employees, or property • Violation of any DeMaria safety rule, local, state or Federal ordinance or law
Personal Protective Equipment	• Personal Protective Equipment (PPE) must be worn at all times, as prescribed for each job, such as: hard hats (including welders when using welding hoods) and safety glasses (ANSI Z87.1 approved), 100% of the time within the confines of the construction area, gloves when handling materials, especially materials with sharp edges or hazardous chemicals, face shields with safety glasses during grinding activities, construction footwear, shirts with sleeves (no sleeves shirts or tank tops), long pants (no exceptions), respirators when required, etc. • Properly care for, and be responsible for all of your PPE. If you encounter any problems with your PPE, notify your foreman or the project superintendent immediately.
Electrical	• Do not use power tools and equipment until you have been properly instructed in the safe work methods and become authorized to use them. Make sure all attachments are connected to the power tools. (i.e. 2nd handles for handheld grinders, guards are in place where required) • Use only extension cords of the three-prong type. Use ground fault circuit interrupters (GFCI) at all times (including when using existing building power) and when using tools in wet atmospheres or with any temporary power supply. Check the electrical ground system and cords daily. • All temporary electrical panels must be labeled "hot" with the voltage on the exterior cover. Covers must remain in place and never be left open and unattended

Ladders	• Use the "four and one" rule when using a ladder. One foot base for every four feet in height. • Ladders must be solidly constructed and set on a substantial base. Ladders must be equipped with feet unless ladder is tied, blocked, or otherwise secured. • Always face a ladder when ascending or descending. • Do not use defective ladders that are broken, weak or missing rungs. • Step ladders shall never be used as a straight ladder. • Ladders must extend three feet above landings (excavations, floors, roofs) for use.
Excavation (see excavation safety procedure)	• An excavation permit is required to be filled out by the competent person prior to any excavation greater than 5' in depth. • Prior to digging, investigate for underground utilities or obstructions. • All excavations must have a competent person present at all times. The competent person must inspect the excavation prior to anyone entering the excavation whether it is first thing in the morning, or after any breaks. • All trenches and excavations over 5' deep must be shored or sloped as required by MIOSHA. • All employees working in excavations must stay within the protective system. • Never climb on shoring, trench boxes or sloped walls unless a ramp has been designated as an access/egress point. • Ladders must be provided in excavations greater than 4'. No employee may travel a distance greater than 25' to a ladder. • Excavated or other material shall not be stored nearer than two feet from the edge of the excavation. • Any excavation, which is left unattended will be properly barricaded (no caution tape) to prevent any fall hazards. • Location of underground utilities must be determined prior to digging an excavation. This may be determined by multiple means such as MisDig, hand digging, etc. An excavation permit may be required to be obtained. • Should employees encounter unknown utilities/pipes during excavation, they are required to STOP WORK and notify Project Superintendent to determine the source of the unknown utility/pipe. • If you must work near loaders, excavators, cranes, or any large piece of machinery make sure operators can see you. • All large pieces of equipment must have barricades in place in the pinch point area. • Spotters may have to be in place if the pinch point areas behind the machines cannot be barricaded.
Demolition	• All demolition will follow this rule: GREEN – it goes, RED – it stays, UNMARKED – STOP! • In addition to an ABC fire extinguisher, each contractor is to provide a water fire extinguisher during all phases of demolition, • Know where fire extinguishers are located on the project. • When welding, cutting or torching, make sure to have a fire extinguisher within view. • Gasoline must be stored and transported in authorized containers only. • Engines must be shut off when refueling, adding oil, or lubricating. • Secure compressed gas cylinders to carts when moving cylinders. When storing, cap cylinders in an upright position and separate (oxygen from combustible gases) by 20 feet or a five-foot, noncombustible wall. • No open fires will be permitted. No tar or other melting kettles will be allowed within fifty (50) feet of any building. • Not more than one day's supply of flammable liquids, such as oil, gasoline, solvent or

	roofing material shall be brought into the building at any time. • A cutting/welding Hot Work permit must be obtained by the contractor, from the DeMaria Project Superintendent and must comply with the requirements and precautions contained in such. The permit must be posted where it can be easily viewed. Each permit must be turned into the DeMaria Project Superintendent at the end of the shift to obtain a new permit.
General Safety	• A good job is a clean job, and a clean job is a safe job. So keep your working area free from debris. • Keep your mind on your work at all times. No horseplay on the job. Injury or termination or both can be the result. • Watch where you are walking. Don't run. • Do not distract the attention of fellow workers. Do not engage in any act, which would endanger another employee.
Respirator Use	• Never wear a respirator (nuisance, ½ mask, etc.) without being properly fit tested and trained. If you decide to wear a respirator voluntarily please be sure you understand the following: o Appendix D of the respiratory protection standard MIOSHA part 451: Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by MIOSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard. You should do the following: • Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations. • Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement or certification should appear on the respirator packaging. It will tell you what the respirator is designed for and how much it will protect you. • Do not wear you respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against vapors, or very small solid particles of fumes or smoke. • Keep track of your respirator so that you do not mistakenly use someone else's respirator.
Fall Protection	• Fall protection (harness and lanyard) must be used when exposed to a fall hazard greater than 6 feet. On this project that includes all surfaces (i.e. A-frame ladders, scissor/jlg lifts, scaffolding, etc.) • Aerial lifts (including scissor lifts when the owner requires) must have a manufacturer approved tie-off point which employees must connect to as soon as they step in the machine. All operators of aerial lifts must show proof of certification that they are allowed to work on that lift. • If an employee must exit the platform of the manlift (taking them outside the perimeters of the guardrail) they must use the double-lanyard system for fall

	protection. Two lanyards connected to the harness. One lanyard connected to the manufacturer approved tie-off point. When you need to leave the platform, tie-off with the second lanyard to an approved tie-off point, preferably overhead, and then unhook the first one. • Do not enter a barricaded area.
Lockout/Tagout	• A lockout/tagout station has been provided for this project. If it is necessary to use a lockout/tagout system in a work area, the DeMaria Project Superintendent must be contacted and a lockout/tagout device must be checked out. • Before servicing, repairing or adjusting any powered tool or piece of equipment, disconnect it, lock out the source of power and tag it. • Be sure that all guards are in place. Do not remove, displace, damage or destroy any safety device or safeguard furnished or provided for use on the job, nor interfere with the use there of.
Scaffolding	• Build scaffolds according to manufacturers recommendations and MIOSHA construction safety standard part 12-Scaffolding. • Scaffold planks shall be properly overlapped, cleated or secured to prevent shifting. • Scaffolding requires a competent person. Make sure you know who yours i • Immediately report all injuries, near misses or incidents, whether to yourself or a co-worker, to your foreman. Any on-the-job injury, which requires medical attention, shall be treated immediately. • When using baker or mobile scaffolds employees standing on the platforms must never allow themselves to be propelled/moved or propel/move themselves. All wheels must always remain locked to prevent movement.
Confined Space	• Never enter a manhole, well, shaft, tunnel or other confined space which could possibly have a non-respirable atmosphere because of lack of oxygen, or presence of toxic or flammable gases, or has a possibility of engulfment by solids or liquids. Make certain a qualified person tests the confined space area with an appropriate detector before entry and make sure to wear the necessary safety equipment. Standby attendant may be required to be stationed at the entrance. • Never follow a co-worker into a confined space if they have gone down. Most rescue attempts will result in injury to you.
Crane Use	• During suspect high wind/severe weather conditions, the operator, Foreman and Superintendent will access the weather conditions and decide whether to continue the lift or if alternate safety measures must be in place to safely complete the work. • A Hazard Analysis (HA) must be written by the contractor performing the work prior to the lift. The HA must be reviewed by the DeMaria Project Superintendent and formally discussed the day of the lift with all trades/contractors involved. Signatures by all in attendance must be on the HA, which will be filed in the Project Superintendent's safety file.
Incident Reporting	• Contact your foreman or project superintendent immediately to report an injury, near miss or incident. An investigation will immediately occur. • Never move an injured person unless it is absolutely necessary. Keep the injured as comfortable as possible and utilize job site first aid until an ambulance arrives. • Know what emergency procedures have been established for your jobsite. (Location of clinic, hospital, evacuation plan, etc.) • **Any employee or subcontractor that suspects dishonest, unsafe or fraudulent activities or irregularities on the jobsite can call the DeMaria Fraud Hotline at 1-248-596-2290 and leave an anonymous message.**

SAFETY ACCOUNTABILITY PROCEDURE

SAFETY BEFORE PRODUCTION

DeMaria believes that in order to maintain a safe and healthful workplace, the employees of DeMaria and our subcontractor employees must be cognizant and aware of all company, State, and Federal safety and health regulations as they apply to the specific job duties required. The following disciplinary policy is in effect and will be applied to all safety and health violations.

- Employee or worker observed of non-compliance of a safety rule will receive a written warning. This warning will be forwarded on to your company and DeMaria's Safety Director. Depending on the seriousness of the violation disciplinary action could be a 3-day removal to permanent remove from the project

- Employees or workers observed for a second time in non-compliance of a safety rule will be immediately and permanently removed from the project.

To assist in our efforts to provide a safe work place, subcontractors or their employees or agents involved in unsafe acts or conditions may be directed to cease the activity until the condition is brought into compliance with the site safety procedures. In addition, if a subcontractor or its sub-subcontractor refuses to correct unsafe conditions, DeMaria may correct the situation by using other employees. Subcontractors or their sub-subcontractors' non-complying employees may be prohibited from working at the project site at the sole discretion of DeMaria Site Management, without recourse.

A Zero Tolerance Policy

A zero tolerance policy has been established for serious safety violations that could result in causing serious harm to another worker, visitor, client or general public, also fighting, threats, harassment, drug and/or alcohol use and lewd behavior, etc. will not be tolerated. Should an employee's actions fall under this zero tolerance policy a mandatory meeting will be held with that subcontractor and members of the DeMaria project team and the employee may be immediately and permanently removed from the project.

A "**zero tolerance**" policy for serious violations include but are not limited to;

Violation	DeMaria Action
Removing fall protection without replacing	1st- 3-Day Removal from project – 2nd- Removed from Project
Personal fall protection violation	1st- 3-Day Removal from project – 2nd- Removed from Project
Caught-in or struck -by violation	1st- 3-Day Removal from project – 2nd- Removed from Project
Electrical Installation Hazard	1st- 3-Day Removal from project – 2nd- Removed from Project
Excavation/ Trenching Hazard	1st- 3-Day Removal from project – 2nd- Removed from Project

The severity of the discipline will be determined by the extent of the exposure to the employee in question, other employees, and the Company. DeMaria Management reserves the right to impose whatever disciplinary action it deems appropriate

Each employee on this project has the authority and responsibility to stop any unsafe working conditions or acts which could endanger the lives of others in the area. Each employee will have the full support of DeMaria should they report and/or stop any unsafe condition or act.

DeMaria Job Site Orientation Checklist

Employee:		Company:	
Sticker #		Position:	
Date		Foreman	

This checklist is a guideline for conducting employee safety orientations for personnel new to the jobsite. Once completed and signed by both superintendent and employee, it serves as documentation that orientation has taken place.

	Explained the site specific safety orientation program, including:
	Site Safety Requirements of DeMaria
	Drug Free Workplace & Secure Workplace
	Daily Safety Huddles & Participation in Weekly Toolbox talks
	Reviewing Hazard Analysis (HA)
	Disciplinary Procedures
	Use / care of personal protective equipment (100% Hard hat, fall protection, eye protection, etc.)
	Responsibility for immediately reporting injuries.
	When to report an injury
	How to report an injury
	Obtaining Treatment
	Location & Phone Number of facilities
	Safety Violations & "Zero Tolerance" Policy for serious violations
	Hazard Communication and Right to Know Rights; MSDS
	Emergency plan
	Exit location and evacuation routes
	Specific procedures (medical, chemical, etc.)
	Gathering Area for Workers after evacuation
	DeMARIA SUPERINTENDENT COMPLETES
	"Current" with Owner Requirements/ Must ☐Yes ☐No ; Copy for file (if applicable)
	10hr OSHA ☐Yes ☐No; **30hr OSHA** ☐Yes ☐No; **CPR/First Aid** ☐Yes ☐No **Other Certifications?** ☐Yes ☐No what? (Make copies for file)
	Competent Person Acknowledgement Form Signed (if applicable) ☐Yes ☐No
	Asbestos Awareness Training (if applicable) Copy for file ☐Yes ☐No
	Other Required Certifications (if applicable) Copy for file ☐Yes ☐No

NOTE TO EMPLOYEE: Do not sign unless ALL items are covered and ALL questions are satisfactorily answered. Your signature below documents that the items above have been discussed with you, and that you have had the opportunity to ask questions and get clarification of referenced items and agree to follow these rules and maintain a safe and healthful work environment.

I have gone through DeMaria's project safety orientation and make a commitment to:

_____

(name of kids, spouse, loved one, etc., expecting me home safely every night)

That I will plan for and work safely while on this project.

Employee/Worker Signature: _____ Date:_____

DeMaria Superintendent Signature: _____ Date:_____

DeMARIA HARD HAT STICKER LOG

STICKER #	NAME	CONTRACTOR	DATE OF ORIENTATION	DATE OF 1ST VIOLATION	DATE OF 2ND VIOLATION

Competent Person Acknowledgement

DeMaria and OSHA/MIOSHA requires that certain safety programs be guided by written procedure and have designated competent and qualified persons as the subject matter expert. Each Contractor is required to identify in writing the name(s) of the Competent Person(s) who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. There is the possibility that more than one competent person may be necessary, depending on the range of hazards on the project, the size of the project, and the distance between operations.

PURPOSE

This policy establishes the process for designating “competent persons” for the purpose of providing training or evaluating hazards or job performance for specific job tasks, or for working on job tasks whereby OSHA requires the designation.

DEFINITIONS

Competent Person: "Competent person" means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions, which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. The “competent person” designation requires the individual to have the authority to take prompt corrective action. This designation may be task specific or for the duration of employment. Form must be updated any time there is a change in designated representative(s)

“**Qualified Person**” means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the project.

RESPONSIBILITY

- Prior to commencement of project, each Subcontractor must complete the Competent Person Acknowledgement Form, and submit this form to the DeMaria Superintendent for the project files. Re-submission of the Competent Person Identification Form is required any time the Competent Person or alternate changes.
- The Competent Person Acknowledgement Form shall be filed in the project office.

The designated Contractor/Subcontractor Competent Person is responsible for recognizing and correcting safety risks/hazards.

- This person has the authority to stop work in the event of any potential safety concern in the work area they are responsible for.
- This form must be completed by the Contractors/Subcontractors Project Manager or Superintendent and the designated competent person and returned to DeMaria project superintendent.
- Where a Contractor is responsible for multiple crafts, it will be necessary to maintain additional designated competent persons and forms.

- Each Contractor/Subcontractor must submit this completed form to the Project Superintendent prior to beginning work on the project and update the forms any time there is a change in designated representative(s) or

COMPETENT PERSON ACKNOWLEDGEMENT FORM

Each Contractor/Subcontractor must submit this completed form to the Project Superintendent prior to beginning work on the project and update the forms any time there is a change in designated representative(s)

Acknowledgment

I, _____representing, _____
Contractor Supervisor Name of Employer

assigned _____to be the competent person in the areas indicated below and
Name of Competent Person

I acknowledge that this individual has been thoroughly trained and is experienced in hazard recognition and has the authority to stop work and correct hazards in the event of a potential hazardous or imminent danger situation.

_____ _____
Supervisor (Signature) Date

I, _____acknowledge that I have been thoroughly trained and have the experience
(competent person signature)

to perform the duties as the _____competent person in the areas marked below and
Name of Employer

	Fall Protection		Excavations/ Trenching		Welding/Cutting
	Demolition		Scaffolding		Slings
	Cranes/Derricks		Electrical-LO/TO		Confined Space
	Environmental Abatement		Steel Erection		Concrete & Masonry
	Respiratory Protection		Material/Personnel Hoists		First Aid/CPR
	Other:		Other:		Other:
	Other:		Other:		Other:

PRE-PLANNING SAFETY PROCESS

“Pre-plan and prevent, don't repair and repent.”

PRE-PLANNING FOR SAFETY

DeMaria believes that pre-planning and coordination is the key to employee and project safety. The planning process does not stop at the pre-planning stage, but is a continuous process of assessment and evaluation. When changes occur or new hazards are identified during the course of the Project, the work should be suspended while the plan is revised. The process includes the completion of **Hazard Analysis (HA)** of all major high risk work performed on the project and the completion of **Daily Huddle** by each crew prior to beginning work.

HIGH RISK WORK

- High risk work is defined as that work which presents a significant risk of causing serious personal injury or a fatality, if performed improperly.
- The increased risk can also be based upon characteristics inherent in the work task, location, and/or materials, or proximity to other hazardous operations.
- To provide the appropriate level of assurance that this work will be conducted in a reliable and safe manner, higher safety awareness and more rigorous hazard control mechanisms and work processes must be employed.
- Examples of High Risk Work Include:
  Energized Electrical Work >50 volts, Elevated Work ≥ 6’ (Where a fall hazard Exists), Excavations (digging w/ power equipment <3’ of underground utilities w/ hazardous energy or personnel entry into a ≥5’ deep excavation) Confined Space Entry, Building Demolition & Renovation, Applicable Welding/Burning Operations, Complex Lifting and Handling Operations, Work on Stored High-Energy Systems requiring, Crane Lifts, Use of Temporary Building Support System(s) or any other work deemed by as High Risk work

HAZARD ANALYSIS (HA)

- HA’s must be completed by the contractor prior to the performance of high risk work.
- Each HA should be maintained in the jobsite binder available to anyone concerned about the safety precautions relative to any major hazardous task.
- The chart below displays some of the high risk work hazards that will require a completed hazard analysis from the contractor doing the work.
- These hazard analyses must be reviewed and approved by the DeMaria Superintendent and Safety Director prior to any work being performed.
- These procedures will be reviewed with all affected employees prior to starting the work or after modifications to the HA, by the contractor.
- Documentation of this review will be submitted to DeMaria Superintendent prior to the start of the job task and on a regular basis.
- Contractors are responsible for training their respective employees and for complying with all project safety training requirements
- DeMaria reserves the right to request a completed HA on any other tasks it deems high risk and or as required by owner/client.
- Hazard Analysis (HA) should be submitted to the DeMaria Superintendent for approval at least 3-days prior to the start of work for any work activities listed below.
- Listed below are the minimum requirements for HA. DeMaria may require a HA for other tasks

Hazards Analysis Requiring Review by DeMaria Safety Director Prior to Task (not all inclusive)

Safety and Health Requirement		Requires Competent Person	Permit or Plan Required	Hazard Analysis Required	Safety Director Review before task
Roof Access Plan		Yes	Yes	Yes	Yes
Fall Protection >6 ft or more		Yes	Yes	Yes	Yes
Confined Spaces		Yes	Yes	Yes	Yes
Excavation/ Trenching >5 ft or more		Yes	Yes	Yes	Yes
Lockout/ Tagout		Yes	Yes	Yes	Yes
Demolition		Yes	Yes	Yes	Yes
Electrical/ High Voltage Electrical Work		Yes	Yes	Yes	Yes
Environmental Assessment & Abatement		Yes	Yes	Yes	Yes
Cranes or Heavy or Critical Lifts		Yes	Yes	Yes	Yes

INSTRUCTIONS FOR COMPLETING A HAZARD ANALYSIS (HA)
(aka Job Safety Analysis, Pre-Task Analysis, Job Hazard Analysis, ect)

What is a Hazard?

A hazard is the potential for harm, or the potential to adversely affect the health of people. This means anything which may cause harm, through injury or ill health to anyone at or near a workplace, is a hazard.

What is a Risk?

A risk is the likelihood that a hazard will cause harm, through injury or ill health, to anyone at, or near a workplace. The level of risk to health increases with the severity of the hazard, the duration and frequency of exposure.

What is Exposure?

Exposure occurs when a person comes into contact with a hazard. Exposure to hazardous substances could be by contact through inhalation (breathing in), ingestion (swallowing) or absorption (through skin).

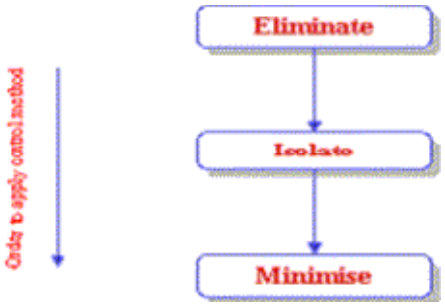
PURPOSE

A Hazard Analysis is the process of carefully pre-planning and recording each step of a job to identify existing and potential safety and health hazards before they occur, then evaluating the hazards to determine the best way to perform the job before the hazard can become an accident.

It focuses on the relationship between the worker, the task, the tools, and the work environment. Its goal is to identify unexpected hazards that may have been overlooked in the planning /design phase, or which have slipped-in as a result of subsequent modifications in work procedures, processes, site layout, equipment and tools, raw materials, as well as any intermediate and final products. These interim changes can increase the job hazard exposure in unexpected ways. DeMaria will utilize hazard analysis (HA) to determine potential hazards and identify methods to reduce exposure to the hazards

Hierarchy of Controls

To establish the control measures we use the following hierarchy:



1. Elimination
2. Substitution
3. Engineering/redesign, enclose, isolate
4. Administrative/safe work procedures, training, warning devices, minimize
5. Personnel Protective Equipment (last line of defense).

A combination of controls may be appropriate. Always work down this list using the higher level controls if possible

PROCEDURE:

1. Evaluate the process or task and determine specific steps in the task or process. Place these steps in proper sequence under "**Sequence of Tasks**" column. Examining a specific job by breaking it down into a series of steps or tasks, will enable you to discover potential hazards employees may encounter

2. Determine and list "**Potential Hazards**" (accidental injury, damage or exposure) for each particular step. Utilizing a "what-if" method of questioning is helpful in this section (i.e. what if the tool slips – potential for finger laceration). A hazard is a potential danger. The purpose of the Hazard Analysis is to identify ALL hazards - both those produced by the environment or conditions and those connected with the job procedure

3. Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the hazards that could lead to an accident, injury, or occupational illness List the proper safe job procedure (**controls measures**), personal protective equipment, or other safety measures to be taken to prevent or eliminate the potential accident or injury hazard. This section should include a listing of the proper tools, protective equipment, and energy isolation (Lockout/Tagout) methods and locations.

4. Indicate who is **responsible** to implement the control measures indicated in column 3.

All employees have the right to a safe and healthy work environment. In the event of imminent danger to the safety and health of workers, the public, or the environment, any and all personnel have both the right and responsibility to stop work.

DAILY JOB HUDDLE INSTRUCTIONS

The second component of the Pre-Planning Safety Process is the Daily Huddle. Prior to each work shift, the appropriate employees shall be assembled by the Contractor foreman to complete and conduct the Daily Job Huddle to review the day's work activities and to discuss with crew the safe work procedures established through the Hazard Analysis (HA) for the task as well as the day's associated risks, and relevant control measures. These huddles are informal and brief, usually five (5) minutes, and all workers must participate and sign the daily huddle form **and copy given to DeMaria Project Superintendent daily.**

SAMPLE-HAZARD ANALYSIS (HA)

JOB NAME: ***NEW CENTER PROJECT***		**DATE: 1/11/2011**	_x_ **NEW** __ **REVISED**
COMPETENT PERSON: ***JASON BOURNE***		**WRITTEN BY:** ***JOHN DOE***	
COMPANY/CONTRACTOR: *DeMaria*	**CONTRACTOR SUPERVISOR:** ***B. WELLS***	**REVIEWED BY**: ***BOB SMITH***	
STATEMENT OF WORK: ***TILT PANEL LIFT***		**APPROVED BY DeMARIA:** ***JAY JONES***	

1) Sequence of Tasks List the tasks required to perform the activity in the sequence they are performed	**2) Potential Hazards** Against each task list the hazards that could cause injury when the task is performed	**3) Control Measures** List the control measures required to eliminate or minimize the risk of injury arising from the identified hazard	**4) Person Responsible** name of the person responsible to implement the control measure
Plan work strategy	*Confusion over work to be performed.* *Injury to workers or public.* *Unable to set up Crane safely*	*Crane crew to have tool box meeting with supervisor.* *Approved traffic control, permits, barricades & signage.* *Specific site inspection*	*crane crew, supervisor.* *Supervisor.* *Supervisor, Crane crew.*
Set up crane. *(With Fly Jib as required.)*	*Collisions with other building, crushing.* *Soft, uneven, unstable ground, suspended slab-outriggers sinking.* *Crushing when extending outriggers, slewing or placing Counterweights.* *Possible manual handling injuries when packing under outriggers.* *Electrocution* *Crush injuries & or damage due to incorrect fly installation.*	*Dogman/Rigger to guide crane into position.* *Site Inspection. Extra timber pads or road plates under outrigger pads.* *Coordinate all functions with Dogman/Rigger.* *Share load if to heavy, use proper manual handling technique.* *Clear tail swing area, watch for overhead obstacles & keep mandatory distances from power lines.* *Configure crane & attachments by manufacturer's procedures by competent Dogman/Rigger only*	*Crane crew.* *Dogman/Rigger*
Rig load to be lifted.	*Shock load crane and or striking injury.* *Defective lifting gear eg, cuts, gouges, nicks, bends, twists, excessive rust, missing tags, broken safety catches, links stretched, uncertified.* *Trapping of hands or fingers.* *Slip, trip, fall.*	*Crane crew to ascertain loads to be lifted (known weight, engineer etc)* *ensure correct, certified lifting gear used only. Lifting gear must be checked for defects before use, if defective withdraw from use immediately.* *No crane functions without clear signaling from Dogman/Rigger.* *Maintain three points of contact & ensure footwear has sufficient grip when walking on load. If a fall distance of 2mts or more is likely then fall arrest is required eg, safety railing, safety harness worn*	*Crane crew.* *Dogman/ Rigger*

CREW PERSONNEL Acknowledgement (All Affected Personnel sign after job briefing)					
Name:	Company:	CPR / First Aid		Name:	Company:
		☐ Yes	☐ Yes		
		☐ Yes	☐ Yes		
		☐ Yes	☐ Yes		
		☐ Yes	☐ Yes		
		☐ Yes	☐ Yes		
		☐ Yes	☐ Yes		

REVIEWS, APPROVALS AND SIGNATURES			
DeMaria Superintendent and/or Safety Director		Subcontractor Supervisor	
Name	Signature/Date	Name	Signature/Date

DAILY JOB HUDDLE

Prior to each work shift, the appropriate employees shall be assembled by the Contractor foreman to complete and conduct the Daily Job Huddle with their crew to review the day's work activities and to remind crew of safe work procedures established through the Hazard Analysis (HA) for the task as well as the day's associated risks, and relevant control measures. These huddles are informal and brief, usually five (5) minutes, and all workers must participate and sign the daily huddle form and copy to DeMaria superintendent daily.

DAILY HUDDLE CREW

Job name_____ **Contractor**_____ **Date** _____

Foreman_____ **Today's Weather:**_____ **Job Conditions:**_____

List Work activities being performed today:

1._____ 6._____
2._____ 7._____
3._____ 8._____
4._____ 9._____
5._____ 10._____

What are the Safety requirements need to perform you work: MUST COMPLETE ALL QUESTIONS

1. **Hazard Analysis (HA)**, Foreman has read and reviewed HA with all crew members?

- Any Changes/ Updated need to be made/added to the Hazard Analysis?

2. **PPE**, List all required PPE to be used today:

3. **Safety Equipment**, List all required safety equipment to be used today;

4. **Approvals and/or Permits** : List permits (hot work, excavation, roof access , etc. required for the job;

5) **Special requirements**, Are there any special safety requirements needed to perform job? (List)

6. Any **Un-safe working conditions/ practices or safety concerns brought up by crew**?

Anything different about today than yesterday:

1. **Work Tasks?**,_____ 2. **Personnel**?_____

Signature of those in attendance at this meeting: Signing this sheet indicates that you attended the daily huddle safety meeting on the above date on the tasks and hazards indicated. I was given the opportunity to ask questions to ensure my full understanding of what was addressed

Print Name	Signature
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

WEEKLY SAFETY TOOLBOX TALK MEETINGS

IT IS IMPERATIVE THAT ALL WORKERS UNDERSTAND THAT NO TASK IS SO IMPORTANT OR SO URGENT THAT IT CANNOT BE DONE SAFELY. SAFETY BEFORE PRODUCTION!

A. **Purpose:** To assist in the detection and elimination of unsafe conditions and work procedures. The toolbox talks meetings is to assist construction trades in their efforts in detecting, preventing and controlling unsafe conditions and losses through continuous safety training

B. **Procedures:**

These meetings are held at the beginning of each job and at least weekly thereafter, according to the various circumstances involved or when necessary to clear working procedures. Review job procedures and recommend improvements (Hazard Analysis Form should be used)

a. Weekly toolbox talks will be conducted at least once a week with all onsite personnel and last approximately 10-15 minutes. The talks will include time for active participation by employees, including a question-and-answer session. Sub-contractors are also required to hold toolbox talk meetings on a weekly basis and turn in a signed copy to each DeMaria superintendent.

b. Each Project Superintendent is responsible for choosing an appropriate toolbox talk meeting which reflects what work tasks will be done on their project for that week. Each Project Superintendent will be given numerous toolbox topics to choose from a website is available to search for a toolbox topic to download and print. This website is: www.toolboxtopics.com.

c. At the end of each week, the Project Superintendents are required to maintain a binder of all toolbox talk meetings held at the project site for duration of project and saved with other project documents

d. It is important that the crew foreman/leaders talk daily on injury prevention and immediately upon witnessing an unsafe act.

e. All issues raised by employees throughout the tool box talks will be investigated and followed up by the site superintendent. Implementation of controls will be communicated to the employees in following Tool Box Talk meetings

How to Hold a ***Good*** Safety Toolbox Talk Meeting

1. Be certain everyone knows the time and place of the next meeting.

2. Insist that everyone attend. Before the next meeting, remind those who were late or failed to attend that **attendance is not optional**.

3. Pick an appropriate topic that applies to work tasks currently being done on projects.

4. Start the meeting on time. Don't waste time – give the meeting your undivided attention.

5. Be prepared to discuss the topic you have chosen. Don't wait until the meeting to choose your topic.

6. Use handouts or posters to illustrate your topic. Discuss current job site safety events, injuries and close calls.

7. Encourage employees to discuss safety problems as they arise. Do not save safety concerns for the meeting. Allow some time for employee questions or input at the end of the meeting.

8. Invite managers or owners to speak. Ask fellow employees to speak on a safety topic.

9. If you prevented *one* injury, it is time well spent. Your topic may be one that some employees have heard many times, but there may be one person who is new or has never been told of the safety requirement for that topic. Repeating topics several times during the course of a project is beneficial as long as it applies to the work being done.

10. Follow up on employee concerns or questions and get back to them with the answer before the next meeting.

11. Be certain to document the attendance and the topics discussed.

JOBSITE SAFETY INSPECTIONS

SELF-INSPECTION. The most widely accepted way to identify hazards in the workplace is to conduct safety and health self-inspections. You can only be certain that actual situations exist in the workplace if you check them from time to time.

Detecting, reporting and correcting hazards before incidents happen are the function of a productive jobsite safety audit program. To accomplish this, each Project Superintendent (or responsible designates) must tour the job site daily and observe potential safety/health hazards of all areas of the jobsite in addition to;

- Conducting a daily review of the job site area of work to observe any present or future safety hazards. Any safety hazard, or potential hazard, will be recorded and corrected by the competent person.
- Guarding against the hazard as set forth by the DeMaria Safety Manual and MIOSHA regulations.
- Providing personal protective equipment and enforcing its use according to the DeMaria Safety Manual and MIOSHA Regulations.
- Training workers in safe work practices. This can be achieved through weekly toolbox talks, but not limited, conducted by the competent person.
- Coordinating protection of workers through other contractors.
- Assigning a competent person to train and inspect hazards visually on the job site.
- Conduct weekly site inspection reports. These reports are to be kept on file at the job site office.
- In addition to the Walk-around safety inspections program, all employees will be encouraged to report hazards promptly. Again, prompt response must be taken on reported hazards.

SAFETY DIRECTOR AUDIT- On every job site visit, the Company safety director and the site superintendent should discuss the status of site safety and loss-control programs and performance results to date, as measured against Company targeted goals. The safety director will tour all Company work locations with the site superintendent to review job site working conditions and compliance with Company safety policies

COMPANY INSURANCE CARRIER- Carriers of the Company's workers' compensation, general liability, and automobile insurance may need to conduct a job site safety inspection or accident investigation. These Company insurance safety walk-thru should be scheduled with the Safety Director, who will in turn notify the site superintendent when the insurance representatives will be on site. Site supervisory personnel should cooperate fully with the Company's insurance representatives

DeMARIA SAFETY INSPECTION CHECKLIST

Date Inspection Conducted: _____ Location: _____
Job #, _____ Name(s) of person(s) participating in this inspection: _____

Indicate either:	S=Satisfactory/Yes	U=Unsatisfactory/No	N/A=Not Applicable

NOTE: A check in the box to the right of the heading indicates the entire category was satisfactory

PERSONAL PROTECTIVE EQUIPMENT		**HAZ COM**	
Safety glasses being used 100%?		MSDS openly available to all employees?	
Hard hats worn on construction site 100%?		Flammable liquids are in approved safety cans?	
Hand protection used/worn as required?		Flammable liquids storage containers labeled properly?	
Foot protection worn as required?		All hazardous containers labeled appropriately?	
Hearing protection worn where required?		Supplies on hand for accidental chemical spills?	
Fall protection, full body harness & lanyard used at > 6 ft?		**LADDER/STAIR SAFETY**	
Respirators if required? Type?		Ladders are safe and inspected as appropriate?	
		Stair rails - for 30" change in elevation or 4 risers?	
ELECTRICAL SAFETY		Stairs or ladder provided for access points > 19" high?	
GFCI's used for all portable electrical hand tools?		Extension & straight ladders extend 3' beyond landing?	
Electrical panels covered and labeled appropriately?		Stepladders are only used in open position?	
Light bulbs for illumination protected from breakage?		**CONFINED SPACE**	
Hazard Analysis & Permit Completed (if applicable)		Confined space entry permit completed & Posted?	
Damaged extension cords taken out of service?		Hazard Analysis & Permit Completed?	
Extension cords- hard usage cord includes three-wire cords marked		Proper safety equipment in place	
Electrical cords inspected & have all prongs intact?		Air monitoring?	
Proper NFPA 70E FR Clothing & PPE for task?		Training in place?	
COMPRESSED GASSES		**EXCAVATION**	
Compressed gas cylinders stored secured & upright?		Excavation – protection from cave-ins for > 4 ft?	
Oxygen stored separate from acetylene and all flammables by 20' or on a cart with a 5', (½ hour) fire rated wall?		Ramp (<45 degrees) or ladders if > 4ft deep? Extend 3 ft? Every 25 ft ?	
Compressed gas cylinders not in use have caps in place?		Hazard Analysis & Excavation Permit Completed over 5ft?	
		Spoils stored at least 2' from edge?	
		Competent person on hand and acknowledgement form completed and filed	
Signs/signals/barricades in place?		**EMERGENCY/FIRST AID**	
		Emergency phone numbers posted and known by all?	
		Emergency eyewash and/or shower units accessible?	
HAND TOOLS/POWER TOOLS		First aid kit available at work site?	
Grinders (portable & stationary) have guards in place?		Fire extinguishers readily available (not blocked)?	
Impact style air tools have safety clips/retainers installed?		Fire extinguishers inspected?	
Pneumatic power tools have hoses secured?		Exits marked? Not blocked?	
Portable circular saws equipped with protective guards?		**GENERAL SAFETY**	
Unsafe hand tools are prohibited?		General housekeeping is neat and orderly?	
Impact tools, hammers kept free of splinters/mushrooms?		Wall openings & floor holes are covered or guarded?	
JOBSITE INFORMATION		Rebar cabs used for protruding bars?	
All Permits in place (Hot work, excavation, confined space, lockout/tagout, electrical, ect)?		Concrete work? Silica dust training? Respirators?	
Tool-box talks conducted and documented?		Scaffolding–guardrails used?	
Jobsite trailer/office properly set up, clean, organized		Competent person on site?	
Training conducted and documented?		Scaffold design by qualified person?	
All required Job Hazard Analysis properly documented?		Monitoring of personnel and/or atmosphere as required	
All Required Daily Huddles properly documented?		Illumination adequate? *[1926.56]*	

CORRECTIVE ACTION PLAN

For all items marked as "U," list the item, person responsible, and expected completion date.

ACTION ITEM	PERSON RESPONSIBLE	DATE DUE	DATE VERIFIED*	Verified by**

OTHER OBSERVATIONS NOT RECORDED ABOVE

OBSERVABLE ITEM	REF.	PERSON RESPONSIBLE	DATE DUE	DATE VERIFIED*	Verified by**

*** Date Observation/Corrective Action was verified as completed.**

**** Initials of the individual verifying the Observation/Corrective Action was verified as completed.**

NO VIOLATIONS NOTED DURING THIS INSPECTION ☐

Signature of Superintendent (for daily inspection): _____

Signature of Safety Director (for safety audit): _____

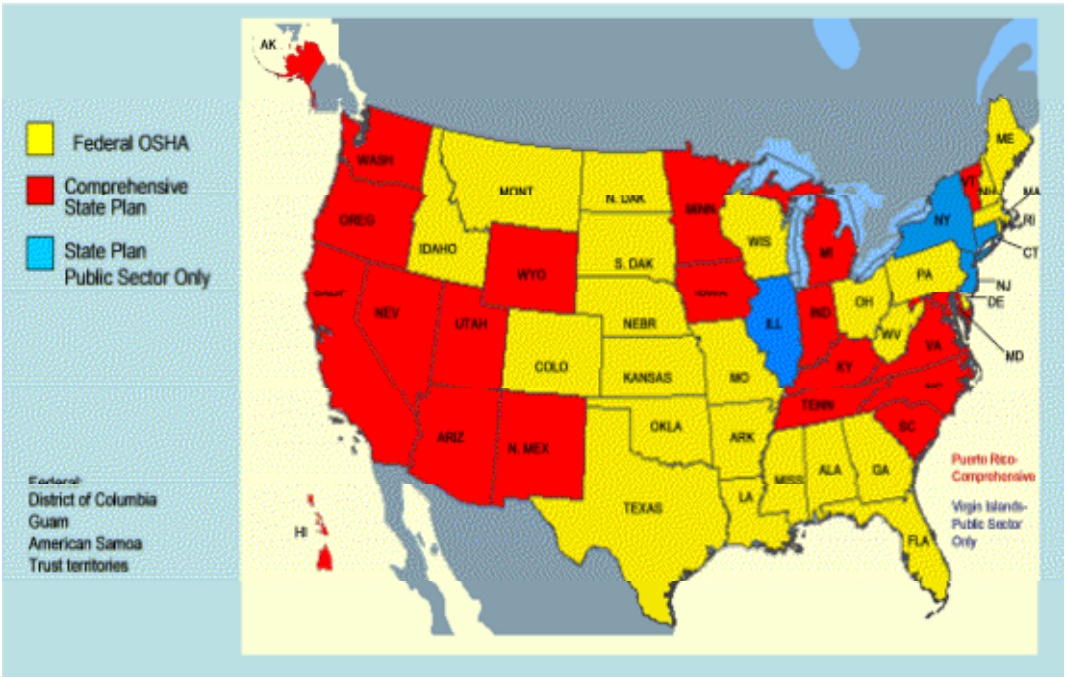
MANAGING OSHA or MIOSHA INSPECTION

OSHA or MI SHA

The diverse scope of our work and the geographically scattered locations of our projects cause DeMaria projects to come under the jurisdiction of many different governmental agencies. There are also numerous state and local agencies who may have either concurrent or exclusive jurisdiction. Federal OSHA or State (MIOSHA) Inspectors and/or Industrial Hygienists may conduct these inspections. See chart below

STATE OSHA PLANS

Some states have elected to develop their own occupational safety and health programs. These "state plans" must be approved by the Federal Occupational Safety and Health Administration and must meet or exceed minimum Federal OSHA Standards. Because of this, most State Plans are usually more restrictive than Federal OSHA. The following states have their own Occupational Safety and Health Program: Alaska, North Carolina, Arizona, Oregon, California, Puerto Rico, Connecticut, South Carolina, Hawaii, Tennessee, Indiana, Utah, Iowa, Vermont, Kentucky, Virginia, Maryland Virginia Islands, Michigan, Washington, Minnesota, Wyoming, Nevada, New Mexico and New York. Although the policies and procedures for state plans are substantially similar to Federal OSHA, if you are working under a "State Plan", Site Management should be aware of the policies and procedures unique to that state. Contact the Corporate Safety Director for assistance and information.



Investigations can have significant financial and practical consequences for DeMaria. Addressing these investigations effectively can spell the difference for DeMaria between huge administrative fines and surviving (relatively) unscathed. The Superintendent shall admit such persons only upon recognition or presentation of proper credentials. All other persons wishing to make safety inspections or accident investigations shall not be admitted without prior authorization from the DeMaria Safety Director.

The DeMaria Superintendent shall cooperate with all authorized safety personnel in developing and implementation of corrective measures for correction of safety hazards. For clarification or conflicts, contact DeMaria Safety Director. The following is a basic list of conditions/items that MIOSHA/OSHA Compliance Officers will ask to see or look for:

- NO Fall Protection Hazards on the Project. NO Electrical Hazards on the Project.
- NO Falling Object Hazards on the Project. NO Pinch Point Hazards on the Project.
- Written Health and Safety Program and Hazardous Communication Program.
- Listing & copy of all MSDS sheets for chemicals on the project.
- Documentation that safety training has been given to all employees on the project.
- Safety Meetings being held regularly on the project.
- OSHA 300 form posted (February 1-April 30) with all recordable cases up to date.
- Man Basket Training Program & guidelines for use (if applicable).
- First Aid Training Records.
- Approximate number of employees on site.
- Number of Subcontractors on site and their supervision.
- Subcontractors Safety Program (Written).
- Crane Manuals and Load Charts for all cranes on the project. Hand Signal Placard on outside of a crane.
- All open excavations must be barricaded.
- Federal & State posters required by law properly placed.
- Proper number of Fire extinguisher and inspection.
- Backup alarms and horns on equipment.
- Records of site inspections and corrective action taken.

OSHA has been directed to stop and investigate all of the following operations if they see them taking place:

1. Excavation and Trenching Operations.

2. Employees witnessed working over six (6) feet in the air with NO fall Protection.

3. Scaffolding Operations.

4. Visible Missing Fall Protection Devices. Example: Perimeter Guardrails missing or down.

5. Clouds of dust in the air. Respiratory Protection Compliance.

6. Masonry Wall Operations. Specifically to look at the bracing of the wall.

7. Confined Space operations

8. Lockout/ Tagout or electrical hazards

MANAGING OSHA or MIOSHA INSPECTION PROCEDURE

Upon learning of the presence of a Compliance Officer on a DeMaria worksite, the Project Superintendent will advise the Project Manager and Safety Director, before proceeding as follows.

VERIFICATION OF AUTHORITY

1. Verify the credentials of the officer.
2. Ask the question, "What is the reason for this inspection?" Possible answers could be: A complaint, programmed inspection, fatality/catastrophe investigation, An eminent danger situation, follow-up inspection
3. DO NOT allow the Compliance officer to be "unattended."
4. Initiate the DeMaria Inspection Report Form

INSPECTION PROCESS

1. Opening Conference
    a. Subcontractors normally included.
    b. Company information will be requested.
    c. Safety records and programs will be evaluated.
    d. Make written notes of which documents are photocopied.
2. **Walk Around**
    - Establish a friendly, cooperative relationship with the officer. Accompany the officer at all times.
    - Carry the same equipment (if available) as the officer (e.g., still camera, video camera, testing equipment) and duplicate samples, photographs, and evidence. If equipment is unavailable, request copies of photographs, samples, etc.
    - Take written notes of situations commented on by the officer and explain or resolve, as soon as possible, any conditions or practices which concern them but which do not result in a citation.
    - Ask the officer, the reasons and explanations for any unclear reference to possible violations. DO NOT make statements or admissions. REMEMBER, managers are agents of DeMaria and their statements can be legally binding on the Company.
    - Collect all available evidence regarding violations (e.g., witness location.)
    - Maintain a professional attitude and conduct at all times.
3. **Closing Conference**
    - Alleged violation(s) will be discussed.
    - Abatement dates and procedures will be established.

TYPES OF VIOLATIONS

Willful - Employer knew a hazardous condition existed but made no reasonable effort to eliminate the hazard and knowingly allowed employees to be exposed to the hazard.
Serious - A work place hazard that could result in serious injury or death. Repeated - May be cited for repeated violation if you have been cited previously for a substantially similar condition within last three (3) years.
Other - For violations which would not likely cause injury (i.e. record keeping, poster, etc.)

IN CASE OF A CITATION

After you receive a citation, you must post a copy at or near the place where each violation occurred for three (3) working days or until corrected. Even if the condition was abated or you contest the citation, you must post. Employers have the right to contest abatement dates in writing within fifteen (15) working days after receiving citation.

FOLLOW-UP INSPECTION AND FAILURE TO ABATE

If you receive a citation, a follow-up inspection may be conducted to verify that you have done the following:
1. Posted the citation as required,
2. Corrected the violations as required in the citation, and/or
3. Adequately protected employees and made appropriate progress in correcting hazards.
Note: New violations discovered during follow-up inspections can be cited

MIOSHA/OSHA INSPECTION REPORT FORM

If Safety Director cannot be present for the inspection the project superintendent must complete

Superintendent	Project Manager	
Job Name	Job Number	Date
Name of OSHA/MIOSHA Compliance Officer:		

(These forms are to be completed by Site Management during a Compliance Inspection and sent to the Corporate Safety Director within 8 hours.) If more space is required for any answer attach a separate sheet

1. Opening conference date and time:_____ Closing conference date and time:_____

3. Duration of field inspection:

4. Was DeMaria Safety Director advised prior to the opening conference and walk around? YES? NO? If No, Why not?

5. Were DeMaria subcontractors on site: YES? NO?

6. If so, were subcontractors involved in the inspection process? : YES? NO?

7. List all DeMaria and Subcontractor personnel who accompanied officer on inspection

8. Reason for inspection: (accident, complaint, follow-up, general, other)

9. Was this a "Focused Inspection: YES? NO?

10. Did Inspector take photographs: YES? NO?

11. Did DeMaria take photographs: YES? NO?

12. Were any tests made: YES? NO? If yes, explain:_____

13. Areas of project inspected:

14. Did the officer request to see any of DeMaria's safety or health records: YES? NO? If yes, explain:

15. What, if any, materials were removed from site by MIOSHA/OSHA?

16. Did the officer have discussion with or interview individual employees: YES? NO?

Name of Employees:

17. Summary of closing conference:

18. Did the officer imply that citations would be issued: YES? NO? If Yes What violations were alleged?

20. Attach list of subcontractors and alleged violations (if applicable).

Fax a copy of this report to the Corporate Safety Director immediately. Include copies of additional notes, pictures, warrants, complaints, etc.

Top 5 Highest OSHA Cited Standards (by Equipment Type)

1. Scaffolds
2. Fall Protection
3. Respiratory Protection
4. Lockout/Tagout
5. Ladders

Top 5 Highest OSHA Penalties (by Equipment Type)

1. Fall Protection
2. Scaffolds
3. Lockout/Tagout
4. Ladders
5. Forklifts (Powered Industrial Trucks)

Top 15 MIOSHA
Construction Safety Rule Violations
by Number of Serious Violations

Rank	Description	Rule #	Serious Violations	Initial Penalty
1.	Fall Protection - Construction Site Fall Hazards	1926.501(b)	349	$339,025
2.	Personal Protective Equipment - Use of Head Protection	408.40622(1)	97	$45,280
3.	Scaffold and Scaffold Platforms - Guardrail, Fall Arrest Devices	408.41213(1)	92	$73,215
4.	Personal Protective Equipment - Face & Eye Protection	408.40624(1)	64	$23,575
5.	Electrical Installations - Wiring, Attachment Receptacles, Extension and Trailing Cords, Hand lamps, Portable Electric Tools Used in Wet Environment (GFCI)	408.41725(11)	63	$20,200
6.	Fall Protection – Training	1926.503a	57	$4,050
7.	Excavation, Trenching & Shoring - Excavation, Angle of Repose	408.40941(1)	48	$79,725
8.	Scaffolds & Scaffold Platforms - Planking & Scaffold Platforms Generally	408.41217(1)	47	$19,450
9.	Electrical Installations - Electrical Wiring Apparatus & Equipment	408.41719(1)	45	$12,995
10.	Aerial Work Platforms-Fall Protection	408.43214(1)	44	$16,725
11.	Scaffolds & Scaffold Platforms - Rough Terrain Forklifts	408.41243(9)	40	$11,250
12.	Tools – Powered Staplers & Nailers	408.41937(4)	40	$8,475
13.	Fixed & Portable Ladders - Portable Ladders	408.41124(5)	35	$11,450
14.	Scaffolds & Scaffold Platforms - Construction & Capacity Generally	408.41210(11)	34	$10,100
15.	Fall Protection - Guardrail Systems	1926.502(b)	33	$91,400

HOUSEKEEPING

Poor housekeeping on construction projects creates unsafe walking and working conditions due to tripping hazards, but is an ever-present fire hazard due to the flammable and combustible nature of most construction debris. All Subcontractors shall participate in the housekeeping requirements established by DeMaria at the start of the project. Responsibilities for clean up and removal of debris will be distributed to all involved in the project.

During the course of construction, or repairs work areas, walkways, passageways, and stairs shall be kept clear of debris; garbage and flammable/hazardous waste shall be disposed, frequently and regularly. Materials will be stored in a designated laydown area in an orderly fashion to allow safe access. Project work areas will be kept in a neat and clean condition, with paper and debris picked up and placed in refuse containers on a daily basis. Unneeded construction materials, such as forms, excess reinforcing steel, and pipe will be removed from projects in a timely manner and disposed of or neatly placed in a designated area. Combustible scrap and debris shall be removed at regular intervals during the course of construction. Safe means shall be provided to facilitate such removal. Containers shall be provided for the collection and separation of trash, oily and used rags, and other refuse. Containers used for oily, flammable, or hazardous wastes, such as caustics, acids, harmful dusts, etc., shall be disposed of at frequent and regular intervals

RESPONSIBILITIES

Project Superintendent - Will hold each employee and subcontractor responsible for housekeeping.

Foremen - Foremen are to monitor the work area for adequate housekeeping, and require each employee to keep their work area clean and in an orderly fashion.

Employees - Each employee is responsible for the housekeeping in their work area. In addition, employees are required to identify and correct all housekeeping matters that constitute a safety hazard.

Subcontractors - Each subcontractor working on the site will be responsible for housekeeping in their work area. If a subcontractor's work area is deemed to be hazardous do to poor housekeeping they will be immediately notified. The Subcontractor shall comply or we will cleanup the area and they will be back charged for any cost accordingly.

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JOBSITE SECURITY MANAGEMENT

Security

Security of people, office/trailer and property on all DeMaria projects must be considered and planned for prior to the start of construction. Prevention from harm, loss of equipment, supplies, or in-place construction through theft or vandalism is vital to the success of the project.

Procedure – Site Security

- Each Subcontractor will be responsible for continually maintaining adequate protection of all their work and materials and to protect the property from injury or loss and protect adjacent property.
- Each subcontractors will make sure all gates and doors to hazardous areas are kept locked (e.g. chemical stores, electrical, gas)
  - All buildings are lockable, including windows
  - Critical business documents are secured
  - Measures are in place to prevent theft of company property
  - Barriers, lights and other protective devices are put in place around excavations, manholes, ditches, settling ponds, interceptor pits or other openings into which a person can fall.
  - Signs are erected to warn of potential danger e.g. “trucks turning”
  - Lock up/unlocking procedures adequate

Procedure – Employees & Visitors

All visitors to the site must meet at DeMaria jobsite trailer and undergo a visitor orientation if required. Family members and friends are not allowed to “hang out” at the job site or jobsite trailer

Exterior Protection Procedures

- When it is necessary to maintain employee or public use of work areas involving sidewalks, entrances to buildings, lobbies, corridors, aisles, stairways, and vehicular roadways, protect the public with appropriate guardrails, barricades, temporary fences, overhead protection, temporary partitions, shields, and adequate visibility**.** The work should be done in accordance with DeMaria, MIOSHA or owner requirements
- Keep sidewalks, entrances to buildings, lobbies, corridors, aisles, doors, and exits clear of obstructions to permit safe entrance and exit at all times.
- Conspicuously post appropriate warnings and instructional safety signs**.** In addition, a signal person must control the movement of motorized equipment in areas where traffic or pedestrians might be endangered.
- Provide sidewalks, sheds, canopies, catch-platforms, and appropriate fences when it is necessary to maintain public pedestrian traffic adjacent to the erection, demolition, or alteration of outside walls on a structure.
- Barricades meeting local requirements must be provided where sidewalk, shed, bridge fences, or guardrails are not required between work areas and pedestrian walkways, roadways, or occupied buildings**.** Secure barricades to prevent accidental displacement and maintain them except where temporary removal is necessary to perform work**.** Barricade the area where work is being done overhead.
- Provide temporary sidewalks when a permanent sidewalk is obstructed by work**.** Install temporary sidewalks in accordance with the requirements listed above.
- Maintain warning lights from dusk to sunrise around excavations, barricades, or obstructions in designated areas**.** Provide illumination from dusk to sunrise for temporary walkways.
- When exit routes or assembly areas are affected by work, notify the site safety organization in writing of the effect and proposed alternatives.

SECURE WORKPLACE & WEAPONS POLICY

DeMaria has adopted this no tolerance policy for workplace violence because it recognizes the need to protect its employees and associates. Consistent with this policy, acts or threats of physical violence, including intimidation, harassment, and/or coercion, which involve or affect DeMaria, will not be tolerated.

"Threats or acts of violence" include conduct against persons or property that is sufficiently severe, offensive, or intimidating to alter the employment conditions at DeMaria or to create a hostile, abusive, or intimidating work environment for one or more of its employees or associates.

General examples of workplace violence include, but are not limited to, the following:

1) All threats or acts of violence occurring on DeMaria property or its worksites, regardless of the relationship between DeMaria and the parties involved in the incident.
2) All threats or acts of violence not occurring on DeMaria's property or worksites but involving someone who is acting in the capacity of a representative of DeMaria.
2) All threats or acts of violence not occurring on DeMaria's property or worksites involving an employee of this organization if the threats or acts of violence affect the legitimate interests of DeMaria.
3) Any threats or acts resulting in the conviction of an employee or agent of DeMaria, or of any individual performing services on DeMaria's behalf on a contract or temporary basis, under any criminal code provision relating to threats or acts of violence that adversely affect the legitimate interests and goals of DeMaria.

DeMaria's prohibition against threats and acts of violence applies to all persons involved in its operations, including but not limited to DeMaria's personnel, contract workers, subcontractor employees and anyone else on DeMaria property or worksites. Violations of this policy by any individual on DeMaria property or jobsite, when his/her actions affect the public interest or DeMaria's business interests will be followed by legal action, as appropriate. Violation by an employee of any provision of this policy may lead to disciplinary action (up to and including termination). This policy and any sanctions related thereto are to be deemed supplemental to DeMaria's Personnel Rules and Regulations, and applicable State and Federal laws. Each employee of DeMaria and every person on DeMaria property or worksites are encouraged to report incidents of threats or acts of physical violence of which he/she is aware to their supervisor, or DeMaria management

WEAPONS POLICY

DeMaria strictly prohibits and does not tolerate weapons at the company's offices, on the company's properties, at any DeMaria jobsite, or at any company sponsored event. Weapons include visible and concealed weapons, **including those for which the owner has necessary permits** and **including those, which are stored in one's vehicle, if such vehicles are parked on the company's premises or jobsites**. Weapons are prohibited in company vehicles at all times

Subcontractor's employees found to be in violation of this policy are to be removed immediately from the job site and will be subject to further actions as determined by DeMaria's Management. If you are aware of any employee or subcontractor's employee possessing a weapon, you are encouraged to immediately report it to the Project Superintendent, DeMaria Management President.

DRUG AND ALCOHOL USE

DeMaria is committed to protecting the safety, health and well being of all employees and other individuals in our workplace. We recognize that alcohol and drug use pose a significant threat to those goals. To promote this objective, employees are required to report for work in appropriate mental and physical condition to perform their jobs in a satisfactory manner.

DeMaria prohibits the use, sale, possession, dispensing, distribution, sharing, testing positive for illegal drugs, being under the influence of alcohol, or the improper use of prescription medication while on company premises, at any company job sites, or while using any company vehicles or vehicles used on company business or while at company sponsored functions, or at any activity where employees are representing the organization.

The legal use of prescribed medications is permitted on the job but it is the employee's responsibility to ensure that their ability to work safely will not be affected. If an employee is in doubt, they must discuss this with their supervisor or the Human Resources Manager before working under the influence of prescribed medication. All medical issues will be kept strictly confidential. DeMaria reserves the right to remove any employee using prescribed medications from any jobsite, if DeMaria deems that action necessary or appropriate.

If the Company believes an employee is under the influence of drugs and/or alcohol while at work, we may take action such as requiring the employee submit to an immediate drug and/or alcohol test. The Company reserves the right to authorize or conduct searches on company property and/or contact law enforcement when appropriate.

Violations of this policy will result in disciplinary action up to and including suspension, required participation in a substance abuse rehabilitation or treatment program and/or termination of employment. Such violations may also have legal ramifications.

Any use of illegal drugs or alcohol at a company jobsite is strictly forbidden. All employees at such jobsites must conform to MUST standards regardless of whether the Owner requires such application at a specific jobsite. All DeMaria employees must be MUST qualified. MUST penalties will be assessed for any jobsite violations of this policy in addition to any other penalties that the Company may deem appropriate as permitted above.

Employees who think they may have a drug and/or alcohol problem *that has not resulted in, and are not the immediate subject of disciplinary action,* may request approval to take unpaid time off to receive treatment in a company approved program. Leave may be granted if the employee agrees to refrain from the use of drugs and alcohol and continues to abide by all company policies and if granting leave will not cause the company any undue hardship.

Under the Drug-Free Workplace Act, an employee who performs work for a government contract or grant must notify the company of a criminal conviction for drug-related activity occurring in the workplace. The report must be made with in five days of the conviction.

Certain client contract requirements may subject some employees to additional drug and alcohol screening.

A safe and productive drug and alcohol free work place is achieved through cooperation and shared responsibility. If you know of possession or use of alcohol or illegal drugs in the work place, it is your responsibility to report it confidentially, or anonymously to your immediate supervisor, Human Resources Manager and/ or the President. Information received in this manner will be fully investigated before any action is taken.

EMERGENCY EVACUATION

Each Project Superintendent shall prepare an Evacuation Plan for the jobsite. It will cover the following:

- The potential emergencies, which might occur at the jobsite.
- The emergency escape procedures and evacuation route assignments.
- Procedures to account for all persons known to be at the jobsite at the time of an emergency evacuation.
- Procedures for rescue and medical attention. This will normally be performed by the local fire and/or rescue organizations.
- Procedures for reporting fires and other emergencies.
- The names and job titles of persons who can be contacted for information or explanation of duties and/or plan details.

EMERGENCY PROCEDURES- In case of an emergency the following procedures should be instituted at each site:

1. Method of communication should be determined at each site, telephone, radio, etc.
2. Emergency telephone numbers should be posted: Police, Fire, and Ambulance
3. Post near communication station the address of your site.
4. Designate person to direct emergency crews to site of emergency.

WEATHER RELATED EMERGENCIES/EVACUATIONS

The project superintendent will be responsible for monitoring weather information. Contractor personnel will be kept informed of impending severe conditions such as severe wind, tornado, lightning, etc. that could endanger employees. In the event of severe weather, the superintendent or designee will alert all personnel to halt all operations, all personnel will secure their equipment, crane booms and other elevated equipment will be lowered to ground level. Superintendent will direct all personnel to a structural inside wall keeping away from windows or glass. Remain in sheltered area until all clear is announced. After the storm has passed, all employees will assemble at the job trailer to insure no one is missing or injured. All employees shall remain at this designated area until he/she has been accounted for.

OTHER EMERGENCIES WOULD INCLUDE:

- Any serious injury on a DeMaria jobsite (serious = requiring ambulance)
- Major loss of DeMaria equipment or property belonging to the owner, subcontractor, or the public

CRISIS MANAGEMENT PLAN

Section 1: GENERAL

DeMaria's Crisis Management Plan provides an outline of actions that must be taken to prepare for a crisis and response. The plan defines the action steps necessary and the responsibility assigned for such actions. A crisis is any event that has created and/or may still pose an immediate threat to life, property or business as usual. This may occur at a jobsite, Company offices or other locations related to our business.

Such situations may include, but are not limited to:

- Fatality or Serious Injury
- Fire- Project Site/ Building
- Building Collapse/ Failure
- Building Shutdown
- Bomb Threat
- Workplace violence
- Environmental exposures
- Labor Dispute
- Severe Weather/ Natural Disaster
- Terrorist Threat

All DeMaria operational staff must be familiar with the specifics of this plan outline and the responsibilities of each staff member to minimize/avoid loss exposures. This plan is intended to provide direction to DeMaria management teams but may not address all potential events that may be encountered.

The extent of actions required will be dictated by the severity of the event. Timely and sound judgment is essential to the success of any crisis management plan. It is critical that information about the event be quickly communicated up the chain of management for their involvement in further actions and maintenance of relationships with clients, communities and all involved parties.

- **The key to success in loss avoidance during and after an unanticipated event rests with the team's knowledge and preparedness for such an event.**
- **In addition to a pre-crisis checklist, this plan provides immediate action responses, specific information regarding catastrophic incidents, fatalities, fire, bomb threats, workplace violence and severe weather.**
- **Action checklists and emergency telephone lists are also included.**

DeMaria is committed to the development of a culture that promotes an Injury Free Environment and provides the safest workplace possible for our employees, contractors, clients and the communities in which we work. Therefore, it is our hope that these comprehensive crisis management plans never need to be utilized on a DeMaria project site.

Section 2: PREPARING FOR CRISIS

Project Rapid Response Team

Each project must have Rapid Response Teams that are ready to react to any crisis situation. Staff at all projects must be familiar with this Crisis Management Plan. Although each DeMaria project may be different in type of construction and management involved, it is important to have a consistent method of communication for those involved in any project. This consistency is to ensure that in the event of a crisis the manner in which the response is carried out is swift, calculated and proactive in providing solutions.

At the start of every project, Rapid Response Team(s) must be established and ready to respond to a crisis. This can and often should involve subcontractor staff. Responsibilities should be assigned that include:

- First aid/CPR
- Police/Fire departments contacts
- Monitoring weather in the event of storms or other severe weather event
- Traffic control/gate security
- Securing the incident site
- Media escort (to guide media representatives to a predetermined media location)
- Power/water/gas shutdown and control
- Securing equipment
- Incident Investigation- including capturing investigation detail in writing & photos were appropriate

Emergency Phone Lists for project Rapid Response Team

Our level of preparedness for a crisis will determine the success of effectively managing such an event. All project site employees must clearly understand their roles. Crisis practice drills are to be conducted semi-annually for project sites and offices and at the start of every project

Role	Name	Work #	Mobile #	Home #
Project Manager				
Project Superintendent				
Director HR & Safety				
Evacuation Head Count				
Owner Notification				
Securing Incident Site				
Traffic/Gate Control				
Media Escort				
Police Department		**911**		
Fire Department		**911**		
Electric Utility				
Water Utility				
Gas Utility				

Note: Each project must establish and post this emergency phone list at proper locations and include it in project safety program materials.

Project Crisis Preparedness Checklist- Our level of preparedness for a crisis prior to its occurrence will determine the success of effectively managing such an event. All Project Rapid Response Team employees and Crisis Management Team personnel must clearly understand their roles.

Please ensure that following actions have been completed prior to start of the work:

- ❑ Project Rapid Response Team has been developed and responsibility assigned for:
  - ❑ First aid/CPR Team
  - ❑ Police/Fire department contact
  - ❑ Monitoring weather
  - ❑ Traffic control/gate security
  - ❑ Securing the incident site and preserving incident evidence
  - ❑ Ensuring all personnel are accounted for after an evacuation
  - ❑ Power/water/gas shutdown and control
  - ❑ Phone monitoring
  - ❑ Media escort (to guide media to a pre-determined media location)
- ❑ Emergency Phone Lists complete for both Site Team & Crisis Team
- ❑ Project Rapid Response Team has been trained on project specific Crisis Plan and all crisis checklists
- ❑ A site specific evacuation plan has been developed and includes emergency warning system, pre-determined evacuation routes, meeting place and responsibility assigned for head count
- ❑ Identify a pre-determined command center that is equipped with dedicated phone line and other necessary equipment away from the site
- ❑ Site specific Crisis Plan has been reviewed and a copy of the building plans with exit routes identified for each area
- ❑ Bomb Threat Incident form and communication procedure reviewed with employees likely to receive in-coming calls
- ❑ Practice drills are conducted at least semi-annually and at the start of the project

Company Crisis Management Team

The Crisis Management Team is established to react to necessary management of the crisis. This team should include:

- Vice President, Commercial & Industrial Group
- Vice President, Healthcare & University Group
- Director of Human Resources and Safety
- Quality & Production Manager

The Group Vice President shall be responsible for establishment of this team, listing of required information and confirmation with each team member of their duties and responsibilities to the team. It is critical to collect and have readily available all pertinent office, mobile and home numbers in order to communicate quickly. Back-up individuals for each team member should also be identified. This information is to be updated regularly and is to be reviewed at the quarterly group meetings. This information should also be available at all projects/offices.

The function of this team is to provide overall management of the crisis; guidance to the Project Rapid Response Teams and to ensure necessary communication and coordination is in place between the DeMaria, insurance carriers, media, and family. In many instances it may be important to involve DeMaria Ownership and Company legal counsel early to establish “privileged” communications.

This team will also determine the need for and engage necessary consultants (structural, environmental, critical incident stress counselors, etc.) as required. This team should engage such consultants early on so they are prepared and ready to react quickly in the event of a crisis situation. This team will also coordinate all release of information. This will include coordination with the Owner and other entities involved in the project. This team will coordinate all potential medial communication.

Emergency Phone Lists Crisis Management Team

All Crisis Management personnel must clearly understand their roles.

Role	Name	Work #	Mobile #	Home #
Dir. HR & Safety				
Group Vice President				
Project Manager				
Quality/Production Mngr				

Note: Each project area and all project offices (sub contractors included) must establish a consistent location and post this emergency phone list and update as directed

****Important: Notification-** In the event of a severe injury or death on a DeMaria worksite, notification must be handled very carefully and properly:

- **DeMaria employee family members for serious injury**: The Group Vice President and/or Director of Human Resources and Safety will notify the family.
- **DeMaria employee family members for fatality**: The Group Vice President and Director of Human Resources and Safety or President.
- **Subcontractor employee family members**: The subcontractor will notify the family. (This plan assumes that each subcontractor has its own program for notification by its management of next of kin and other necessary parties.)
- **MIOSHA/OSHA**: The Director of Human Resources and Safety will notify the local area office.

WHEN ENCOUNTERING PERSONS OF THE NEWS MEDIA

Should persons of the news media present themselves at the security gate, the Project Manager/Superintendent shall be notified immediately.

1. The news media person shall be detained at the security gate until someone from the Project Manager/Superintendent's staff physically comes to accompany/escort them to the Project Manager/Superintendent's office. At no time shall the news media person be unescorted on the project site.

2. Should an individual employee be contacted in the field, the employee shall escort the news media person to their superintendent, who in turn shall immediately escort them to the Project Manager/Superintendent's office.

3. Any Subcontractor or their employee shall make no statements to a member of the news media until the appropriate representative of the owner, construction manager, or general contractor has authorized such statement.

Section 3: EVENT RESPONSE PLANS

First 60 Minutes (1-Hour) Response for Most Events

Several immediate and simultaneous actions must take place during a crisis regardless of the type of event. These actions should be directed by the Project Superintendent or, in his/her absence, the senior staff member at the location. In all cases, immediate notification must be made to your Business Group Crisis Team,

First 60 Minute(1-hour) actions include:

1. Protect the injured worker(s) and administer CPR/first aid

First Aid Certified Team Members: If the injured worker(s) is in immediate danger, action must be taken to eliminate the danger and/or move the injured person from danger. Secure the area to eliminate/reduce exposure of others to possible hazards. Render first aid to the injured. All projects should have a predetermined project CPR/First Aid Team developed by the Superintendent at job start up who shall respond to the victim(s) with the basic first aid equipment. This team shall stay with the victim(s) until the emergency medical response team arrives and takes over. Ensure inquiries are always made as to where the injured individuals are being taken and necessary communication must be made to medical providers.

2. Summon emergency help

Call 9-1-1 and advise of the type of incident, injuries and number of injured and location of incident. Be familiar with the police representatives who are responsible for your area. Some emergency situations, such as bomb threats, require special reporting practices. You must review with your local police department and/or fire department the proper way to notify them.

3. Account for all personnel

In the event of a crisis, it should be determined if evacuation is required. If so, the project should be evacuated in an orderly manner to the prearranged meeting place outside the project. All personnel must be accounted for by their. Project Superintendent in conjunction with subcontractor supervision. If it is determined that the project will be shut down for the day, everyone must be accounted for and instructions given as to start time the next day. Keep in mind that police and fire will want to know who was in the building at the time of the emergency. The Project Superintendent should be prepared to provide a workforce personnel incident de-brief prior to personnel leaving the job site. Any top-line details related to the incident should be provided to minimize the spread of rumors as well as directions on handling media inquires. Employees should be directed to contact their families immediately to communicate their personal condition.

4. Secure the jobsite

A “gatekeeper” who controls access to the location must be designated as part of the project Rapid Response Team. Do not allow anyone except authorized personnel to go into the building. All visitors should be escorted from the building, but remain available for questioning. Evidence should not be moved or altered in any way. Destruction of evidence due to the company’s failure to secure the site could play a role in determining liability. Steps should be taken to lock up, guard, or photograph any items of crucial evidence.

5. Immediately notify:

- ❑ Director Human Resources and Safety
- ❑ Subcontractors as appropriate
- ❑ Group Vice President, who will notify Company Ownership,
- ❑ Owner, who will notify, Company Attorney and insurance carrier

FOLLOW-UP ACTIONS

Meet with emergency personnel

The Project Superintendent or another responsible DeMaria employee must meet with the responding emergency department and advise them of the emergency situation and layout of the site. DeMaria, with the help of the subcontractors, will secure the site to bar entry of other vehicles. Any vehicles hindering access from the street must be removed immediately. Predetermined DeMaria and subcontractor staff shall assist the security personnel and remain stationed at assigned locations until relieved or advised by the DeMaria Project Superintendent that they are no longer needed. Have a list prepared to share with authorities of all hazardous chemicals and flammables as well as their locations.

Perform incident investigation

The Director of Human Resources and Safety will set up and organize an appropriate team to preserve evidence, identify all witnesses and initiate proper incident investigation. Director of Human Resources and Safety shall do so in close coordination with the Group Vice President, insurance carrier(s), and representatives of MIOSHA and other involved public agencies (e.g. police, fire).

Accompany the MIOSHA/OSHA investigator

If MIOSHA investigates the incident, a DeMaria staff member and the Director of Human Resources and Safety , if available, must accompany the MIOSHA Representative(s) to assure they receive accurate, correct information and benefit from our knowledge of the incident.

Post Incident Evaluation and Review

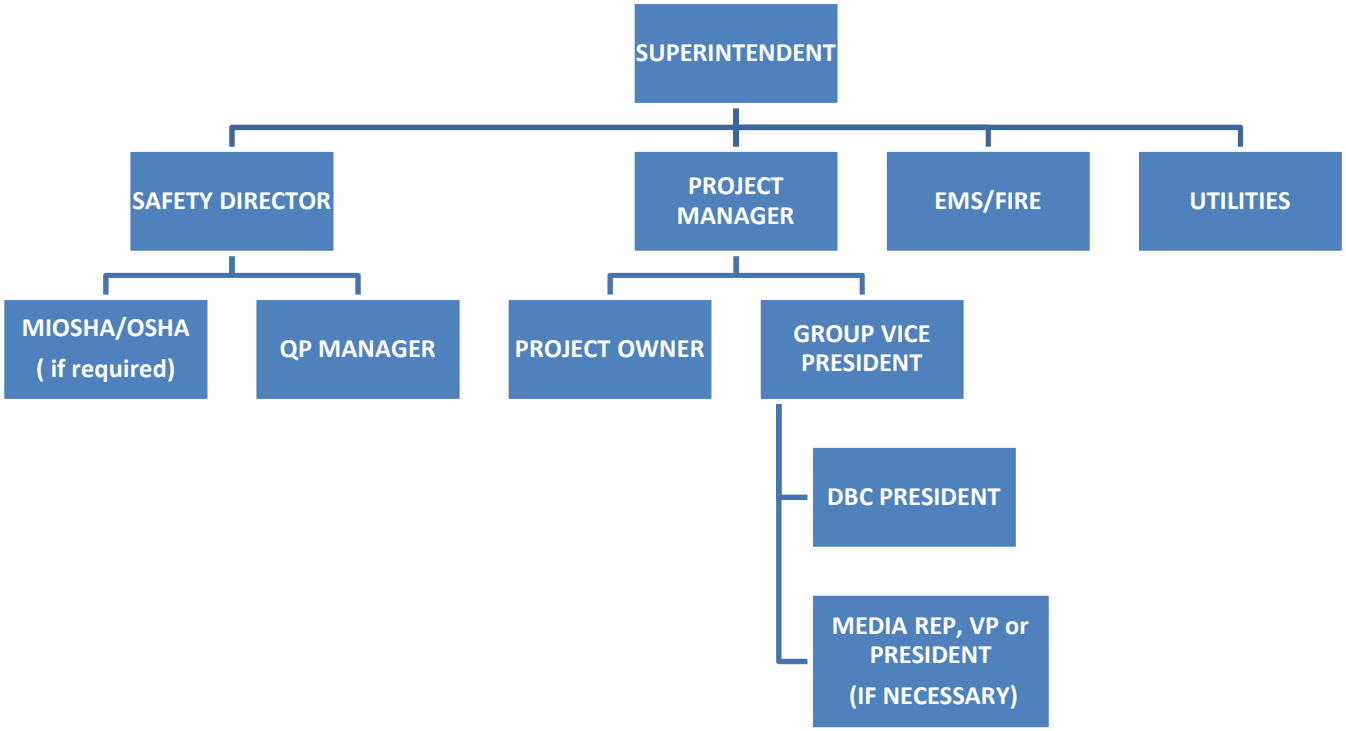
The Crisis Management Team should conduct a post-incident evaluation/review and any lessons learned should be updated in the plan and disseminated to the team.

Specific Event Response

While the initial response for many types of crisis events are the same, specific event response plans need to be developed to avoid time lost in figuring out what to do, how to organize, what resources are needed, etc.

While we cannot plan for hundreds of different contingencies we can develop specific event response plans with sufficient precision that all the necessary response functions are identified. Each Project Rapid Response Team should review the following specific event responses and prepare their crisis management plans in accordance with the outlines following. Accordingly, you should follow the steps outlined in the First Hour Response for any of the events following. In all cases, immediate notification must be made to the Crisis Management Team.

Rapid Response Team Flow Chart



FATALITIES/ SERIOUS INJURY

A job fatality, serious injury or other such catastrophic incident sets off a chain of events involving the safety, legal, insurance, communication departments, and other entities. **The Project Rapid Response team** should immediately:

- Direct attention toward immediate aid to the injured
- Eliminate further risk to others
- Seal off the area for later inspection
- Control access to the incident location
- Secure witnesses
- Contact Company Crisis Management Team
- Deny all unauthorized persons access to the site, including the news media**.**
- All unauthorized persons found on the site should be escorted off the premises.

The Group Vice President will decide as to whether the project site should be shut down and all workers asked to leave the premises. This is determined by the nature and seriousness of the incident. The Group Vice President will be the main contact to relatives and family members to ensure all e arrangements are being handled appropriately

Fatalities/Serious Injuries Checklist

- ❑ If the area is safe, provide and administer First Aid/CPR to any injured personnel. Have someone call the 911 if possible while providing aid
- ❑ Provide and administer First Aid/CPR to any injured personnel
  - ❑ If injured is in immediate danger, take action to eliminate danger and/or move the injured person from danger
- ❑ Secure the area to eliminate/reduce exposure for others
- ❑ Notify the Crisis Management Team that the incident has occurred

Vice President	____-____-____
Director HR/ Safety	____-____-____
Project Manager	____-____-____
Quality & Production Manager	____-____-____

- ❑ Send designated team member to meet the police/fire/ambulance
- ❑ Find out immediately where the injured parties are being taken for treatment
- ❑ Secure the incident site to prevent unauthorized access and ensure the preservation of evidence
- ❑ Identify witnesses that need to be interviewed prior to anyone leaving the
- ❑ Begin a thorough investigation using sketches, photos to document events, positioning of people and equipment
- ❑ Coordinate communication with the families with Crisis Management Team
  - ❑ In the case of a fatality and/or serious injury of a DeMaria employee, the Group Vice President and the Director of Human Resources and Safety will be responsible to notify families in person
  - ❑ If the incident involves a subcontractor's employee, the subcontractor will notify the families
- ❑ Consideration must be taken relative to the immediate family's needs. Provide what aid is appropriate like childcare, transportation, lodging near hospital etc.
- ❑ If the employee lives out of town and in-person notification is not possible, consider involving local police to assist
- ❑ Always pre-plan your notification, being direct. Expect emotions
- ❑ If shutdown of the site is necessary, always conduct a personnel debrief prior to people leaving the site

FIRE PROJECT SITE/ BUILDING

Risk of fire during building construction is always a consideration usually because of the lack of fire-fighting facilities, the presence of combustible material and potential lack of control of heat sources. The proper design and use of fire resistant materials is necessary in both permanent and temporary work. The use of electrical tools, oxygen, acetylene, flammable gases, welding equipment, gasoline and combustible materials on projects must be managed appropriately to minimize fire risks.

The planning of general fire prevention is the responsibility of the Superintendent on a project.

- Suitable fire-fighting equipment must be readily available at all times.
- Employees should be trained in basic fire prevention techniques and be able to respond accordingly.
- If the Owner has existing fire extinguishing facilities it may be possible to make arrangements for their use.

Once the fire equipment is set up, the Superintendent should assign its maintenance to certain responsible members of the staff. The Superintendent should regularly check the availability and condition of equipment, assess possibilities of new risks, and reassign responsibilities as staff changes occur. The DeMaria Safety Manual should be referenced when developing site-specific fire prevention plans. This plan should be reviewed with all personnel. In the event of a fire the local Fire Department will be notified.

Fire Response Checklist

- ❑ Provide and administer First Aid/CPR to any injured personnel. Have someone call 911 dispatch the local Fire Department and EMS group and notify the Project Rapid Response Team

If injured is in immediate danger, take action to eliminate danger and/or move the injured person from danger

- ❑ Secure the area to eliminate/reduce exposure for others. If possible, and prudent, attempt to suppress the fire.

- ❑ Send designated team member to meet the police/fire/ambulance to direct them to the portion of the project site or building involved.
- ❑ Assess the need for a partial or full evacuation; evacuate if warranted following the established gathering protocols.
- ❑ Never use hoists and/or elevators for an evacuation
- ❑ Account for all personnel
- ❑ Shut down all gas feeds and electrical power to the immediate area
- ❑ Consider the control of potential environmental exposures including chemical releases and storm water discharge contamination from fire fighting and smoke exposure to persons from burning poison.
- ❑ Contact you're the Crisis Management Team immediately.

BUILDING COLLAPSE/ FAILURE

A building collapse or failure can take many forms, from a partial wall collapse to an entire structural failure. The most important activities after such an occurrence are outlined in the **First Hour Response**. These actions should be directed by the Project Superintendent or, in his/her absence, a senior staff member at the location.

- Immediately render first aid to the injured. All projects must have a predetermined First Aid/CPR Team to respond to such needs.
- Utilize proper care and discretion to ensure others are not placed at risk. For example, do not rush into a collapsed building without ensuring the immediate area is safe. Call-911 immediately to summon emergency help.

Account for all jobsite personnel and implement the site's evacuation procedures if so warranted.

- The project should be evacuated in an orderly manner to the prearranged meeting place. The respective supervisors must account for all personnel.
- Secure the jobsite to prohibit access to the location.

BUILDING SHUTDOWN

The decision on whether a project site should be shut down and all workers asked to leave the premises will be determined by the nature and seriousness of the incident. The Group Vice President will make this decision.

In the event of a shutdown of a project site, the Project Rapid Response Team should immediately:

- Ensure that all personnel are accounted for and have left the building.
- Station security outside to make sure no one re-enters the building until instructed to do so by the Group Vice President or the Director of Human Resources and Safety.
- Close and monitor all gates, except the main gate, as indicated above.
- Deny all unauthorized persons access to the site, including the news media. All unauthorized persons found on the site should be escorted off the premises.
- Notify the owner's representative.

BOMB THREATS

If you receive a bomb threat contact the local police department immediately. **Follow steps three through five in the First Hour Response.** Upon evaluation, should it be determined an evacuation is warranted; the project site should be evacuated in an orderly manner in accordance with emergency evacuation procedures. The Group Vice President or the Director of Human Resources and Safety is the only people that can direct employees to return to work and only after a search of the building has been completed by law enforcement personnel.

Telephone Bomb Threat Report/ Checklist

If you receive such a call, listen carefully to what is said. Stay calm; alert someone within range that you are receiving a bomb threat. Fill out as such as possible in the following sections. When the caller hangs up – **DO NOT HANG UP THE PHONE.** Notify a Project Rapid Response Team member immediately and continue to fill in as much information as possible.

INSTRUCTIONS: BE CALM, BE COURTEOUS. LISTEN. DO NOT INTERRUPT THE CALLER.

YOUR NAME: _____ TIME: _____ DATE: _____

CALLER'S IDENTITY SEX: Male _____ Female ____ Adult ____ Juvenile ____

VOICE CHARACTERISTICS

___ Loud
___ High Pitch
___ Raspy
___ Intoxicated
___ Soft
___ Deep
___ Pleasant
_____ Other

ACCENT

___ Local
___ Foreign
___ Race
___ Not Local
___ Region

SPEECH

___ Fast
___ Distinct
___ Stutter
___ Slurred
___ Slow
___ Distorted
___ Nasal
_____ Other

MANNER

___ Calm
___ Rational
___ Coherent
___ Deliberate
___ Righteous
___ Angry
___ Irrational
___ Incoherent
___ Emotional
___ Laughing

LANGUAGE

___ Excellent
___ Fair
___ Foul
___ Good
___ Poor
_____ Other

BACKGROUND NOISES

___ Factory
___ Machines
___ Music
___ Office
___ Machines
___ Street
___ Traffic
___ Trains
___ Animals
___ Quiet
___ Voices
___ Airplanes
___ Party
___ Atmosphere

PRETEND DIFFICULTY HEARING - KEEP CALLER TALKING - IF CALLER SEEMS AGREEABLE TO FURTHER CONVERSATION, ASK QUESTIONS LIKE:

When will it go off? Certain Hour ____ Time Remaining_____

Where is it located? Building _____ Area _____

What kind of bomb? _____

What kind of package? _____

What is your name and address_____?

Did the caller appear familiar with plant or building (by his/her description of the bomb location)? Write out the message in its entirety and any other comments on a separate sheet of paper and Attach to this checklist.

ENVIROMENTAL CRISIS

An environmental crisis occurs when a chemical release or spill, or water spill or discharge

1) Threatens the environment,

2) Negatively impacts community/owner relations,

3) Creates regulatory intervention or

4) Creates media attention.

Caution! Do not attempt to clean up an emergency spill unless you have been trained to do so.

Emergency Spill Response

The first person responding to an emergency spill should immediately notify the Project Superintendent, or senior staff member. If it is safe to do so the first person responding to an emergency spill should immediately, after notifying personnel listed above, take the following actions:

- Stop the source of the spill.
- Report the spill to his supervisor or make sure someone else does.
- If the spilled material is flammable, eliminate ignition sources.
- Protect storm drains, floor drains, and sink drains, if necessary.
- Dial 911 for assistance from the local fire department.
    1. State where the emergency is at.
    2. Describe the spill, including:
        - Location of the spill.
        - Identify the spilled material, if known.
        - Approximate size of the spill.
        - Whether there is fire or explosion, and extent of any injuries.
        - Source of the spill, if known.
        - Extent of environmental contamination.
        - When the spill occurred, if known.
        - Whether or not the spill is contained.
        - Give your name, location, and telephone number.
        - Remain on the phone until the emergency dispatcher instructs you to hang up.
- Contain the spill by surrounding the perimeter of the spill with containment material such as absorbent pads and berms.
- Cordon off the area.
- Remain in the area to direct emergency personnel to the scene.
- Provide information to emergency personnel.
- Follow the instructions of the local fire department and other responding emergency personnel.

Environmental Crisis Checklist

Should a release of material occur that has the potential to harm people, property or the environment the following is a guide to your response:

- ❑ Dial 911 if someone has been injured or could be injured from the incident and call or have someone contact any Crisis Management Team member
- ❑ If there is no danger to you, provide and administer First Aid/CPR to any injured personnel to your level of training. If injured is in immediate danger, take action to eliminate danger and/or move the injured person from danger.
- ❑ Gather as much information as possible about the type of material that may have been released (hydraulic oil from broken line), about how much is involved (two square feet on pavement) and what it might be affecting (storm drains, waterways etc.)
- ❑ Assess need for partial or full evacuation; evacuate if warranted.
- ❑ Summon emergency help
- ❑ Account for all personnel in the immediate area and potentially downwind of the site if warranted.
- ❑ If you can stop the release without endangering yourself – do so, otherwise secure the area to eliminate/reduce exposure for others.
- ❑ If possible, and you are trained to that level of expertise, shut off and/or contain the environmental hazard to avoid further exposure
    - ❑ Place absorption material to contain spill or
    - ❑ Cover drains to prevent storm water contamination or
    - ❑ Valve off the gas leak
- ❑ Turn off all heat, spark or fire sources in the immediate area
- ❑ The owner will provide notification to governing agencies in regard to the spill. DeMaria does not perform any remediation.

LABOR DISPUTES

Labor Disputes may disrupt project progress and present personnel risks that must be managed accordingly. The Project Manager or Project Superintendent at the site should determine the nature of the dispute or picketing by questions to Labor Representatives and/or Subcontractors. Immediately contact the Group Vice President and Director of Human Resources and Safety advising of issue and to seek legal counsel. Do not engage in confrontational discussion, physical contact or offer opinions on the nature of the dispute.

A project site staff member should monitor the location with a communication device and immediate contact Project Manager if any activity presents threat to personnel or site. Contact the local police if the dispute is un-restful and/or disorderly. For procedures in establishing a "Dual Gate" system, signage requirements and appropriate notices, see Group Vice President. Only officers of the company should ever respond to media inquires.

Labor Disputes (Pickets) Checklist

Our level of preparedness for a crisis will determine the success of effectively managing such an event. All project site employees and Business Unit personnel must clearly understand their roles. Crisis practice drills are to be conducted semi-annually for project sites and offices and at the start of every project.
Determine nature of dispute or picketing by questions to Labor Representative and/or Subcontractor(s). Contact Project team members and alert them of the potential for a dispute or picketing.

- ❑ Contact Project Owner and Group Vice President advising of issue and seek legal counsel.
- ❑ Take pictures of the picket sign(s) or operation in dispute.
- ❑ Labor disputers and/or picketers are never to be allowed within a DeMaria site and must stay outside fencing at all times.
- ❑ Place Company Representative or Security Guard with communication devices to monitor the location.
- ❑ Call local police if dispute is un-restful and /or disorderly.
- ❑ Establish a "Dual-Gate" system, signage requirements and appropriate notices, see Group Vice President for requirements**.**
- ❑ Note: Gate Contamination-gate can be "contaminated" by employees (including DeMaria) entering and exiting the wrong gate.

For anticipated Long Running Disputes

- ❑ Group Vice President will meet with local police to discuss monitoring site access and emergency response protocol. Attempt to coordinate material deliveries outside of normal picket times.

SEVERE WEATHER/ NATURAL DISASTERS

A severe weather plan and team with assigned responsibility is necessary in case of earthquake, tornado, flooding, or other acts of God. A specific project may require additional efforts to be ready for a severe weather event.

Additional responsibilities include:

- Complete the DeMaria personnel telephone list at the beginning of each project and continue to update as the project staff changes.
- Review project specific plans with the Owner and subcontractors at the beginning of each job.
- Review the overall plan with all employees once a year.
- Review the checklist items included at the end of this plan.
- After a severe weather incident, a debriefing should take place and the plan should be reviewed and revised based on the feedback from the team on what went well and what needs improvement.

The Project Manager shall be involved in project shutdowns and post project inspections with the Owners. Additionally, if a severe weather event affects a project office, a temporary office may be set up in a location that will allow operations to continue**.**

Severe Weather/Natural Disasters Checklist

Early notification of a severe weather alert is fundamental for success in these events.
Ensure all site personnel are aware of the potential of a severe weather event. Secure all cranes, including lowering mobile crane booms to the ground

- ❑ Assess the need for a partial or full evacuation; evacuate if warranted
- ❑ Shut off all power supplies, turn off all temporary water sources
- ❑ Secure/strap down all material, check all tie downs on office trailers
- ❑ If necessary, have appropriate de-watering equipment delivered to the site and secured
- ❑ Check all area and street storm sewer gratings to ensure they are free of debris and protected against runoff from the project
- ❑ If necessary have emergency generators delivered and secured
- ❑ Deliver all blueprints, permits, inspection logs and other critical documents to DeMaria's main office or other secure site
- ❑ Back up all computers
- ❑ Update and post site emergency telephone lists
- ❑ Broom clean project site and remove trash
- ❑ If appropriate, cover all windows and openings with plywood
- ❑ Secure all gates and enclosures
- ❑ Use mobile phones
- ❑ Conduct an employee and subcontractor debrief on possible work stoppage for the next day and where to call for information on restarting the work.
- ❑ Assign one DeMaria employee to monitor jobsite periodically and report any weather related emergencies to the Project Manager, Superintendent, and Owner.
- ❑ Assess the need for a partial or full evacuation; evacuate if warranted
- ❑ Account for all personnel

Specific Severe Weather Event Considerations

Earthquake:

- ❑ Place large or heavy objects (tools, material, equipment, etc.) on floor and away from openings. Move hanging heavy items such as pictures and mirrors away from chairs, couches and anywhere people sit
- ❑ Identify safe places in the building: against inside walls, away from windows where glass could shatter or where heavy objects could fall
- ❑ If outdoors, locate safe places in the open away from buildings, trees, telephone and electric lines, overpasses or elevated expressways
- ❑ Be prepared for aftershocks; these can often cause additional damage or bring weakened structures down

Tornado:

- ❑ Understand the difference between a "tornado watch," which means that conditions are right for a tornado and a "tornado warning," which means that a tornado has been sighted on radar
- ❑ Monitor weather conditions as necessary
- ❑ Designate an area in the building where all employees can go in the event of a tornado threat
- ❑ In the event of a tornado, direct all personnel to the pre-determined safe area

Hurricane:

- ❑ Understand the difference between a hurricane watch and warning. A hurricane watch is issued when there is a threat of a hurricane within the next 24-36 hours.
- ❑ Monitor weather conditions as necessary
- ❑ Always stay inside, away from window, skylights and glass doors.

Floods:

- ❑ Turn on battery operated radios or television to get the latest news on the emergency situation. If told to leave, do so immediately. If you're caught outdoors climb to high ground and stay there till help arrives. Avoid walking through any floodwaters as they could be very deep. Do not try to drive through the water

WORKPLACE VIOLENCE

It is a criminal offense for anyone to threaten, harass, and/or physically assault another person:
In the event of verbal threats and/or harassment or potential occurrence of physical violence, the Project Superintendent will:

- Contact the Project Manager and the Director of Human Resources and Safety
- Conduct a brief preliminary interview of the employee(s) who reported the allegation to determine the details of the incident.
- Question employees who have been identified by the alleging employee as being involved in the incident.
- Assess the situation for any ongoing threat or imminent danger to other employees.
- If necessary, remove the employee from the worksite and contain the situation.
- Contact law enforcement if warranted to protect other workers.
- The Director of Human Resources and Safety will insure that an investigation takes place and all facts are collected and properly investigated.

If you are the victim of, or are involved in, any company violation of the law such as assault, robbery, theft, overt sexual behavior, etc.,. Scream - your voice is one of your best weapons, try to run from the assailant, and do not take any unnecessary risk. Notify Police as soon as possible and give them the following information:

Nature of incident, Location of incident, Description of person(s) involved, Description of property involved

- Always remember to remain calm and be courteous.
- If a person is getting aggressive, ask the him/her to leave. If they not leave, remove yourself from the situation, call your supervisor or Police,
- Further investigation of the incident will be the responsibility of the Human Resources Manager.

Do not attempt to reason with someone who is wielding a weapon. Call law enforcement immediately and evacuate the area as quickly as possible.

TERRORIST THREATS

Consideration must be made to your location's exposure to potential acts of terrorism. Things to consider include the tenants of the building in which you occupy or are working in, the proximity of your site to high risk buildings such as:

- Government buildings
- Airports
- Religious institutions
- Criminal detention facilities
- Densely populated buildings
- Local or national landmarks
- "Trophy" buildings,

While you may not be able to pre-plan all potential threats, conducting a location specific risk assessment and planning accordingly is your best defense. All projects should maintain the security of the site and manage the access of visitors to control unauthorized personnel from entering property that DeMaria controls. It is very important that site personnel know what subcontractors are working on DeMaria sites.

DeMaria employees who handle the receipt and distribution of mail and other packages must be very diligent about any suspicious packages. Special attention should be made for any packages without return addresses or are moist, bulging or otherwise distorted. Your local police should be immediately notified of any suspicious mail or packages.

Terrorist Threats Checklist

- ❑ Conduct a location Risk Assessment to assist in determining your location's exposure to acts of terrorist threats. Consider:
  - ❑ The tenants of the building you occupy or are working in
  - ❑ Your location's proximity to government buildings, airports, religious institutions, criminal detention facilities or densely populated buildings
- ❑ Ensure you know what subcontractors are on site each day
- ❑ Maintain the security of the site; conduct a daily perimeter fence inspection
- ❑ Manage the access of visitors by maintaining a visitor sign-in log
- ❑ Employees that handle the receipt and distribution of mail should review the Mail Handling Guidelines

If a terrorist event occurs:

- ❑ Provide and administer First Aid/CPR to any injured personnel or visitors. Contact or have someone call 911 for emergency services
  - ❑ If injured is in immediate danger, take action to eliminate danger, move the injured person from danger
- ❑ Secure the area to eliminate/reduce exposure for others. Account for all personnel

Summon emergency help designated team member to meet the police/fire/ambulance

SUBCONTRACTOR EMERGENCY

- ❑ If the emergency was caused by a subcontractor, it becomes (company) responsibility to initiate its crisis management plan.
- ❑ All subcontractors must be notified that they are to contact (company) most senior person on site in the event of any emergency, summon emergency help, designated team member to meet the police/fire/ambulance
- ❑ Notification to the family and/or spouse of injury/fatality is the responsibility of the subcontractor's management team. If the subcontractor's management team cannot be located, (company) management team will make the notification in a timely manner.

ACCIDENT/INJURY MANAGEMENT

"IT TAKES LONGER TO REPORT AN ACCIDENT THAN TO PREVENT ONE"

Should an accident, near hit or loss occur on a jobsite, the Project Superintendent is responsible for contacting the Safety Director and the Project Manager as soon as the area and/or victim are secure. It will be determined at that point if an investigation needs to take place and who must be involved. The Project Superintendent along with the Foreman of the contractor, as well as the employee(s) involved, must fill out an Incident Investigation Report Form. This form must be turned into the Safety Director no later than 24 hours of the incident. Reports are to be completed as soon as possible to avoid changes in physical conditions and witness reports. Note: Any accident that causes a fatality or three or more employees to be hospitalized must be reported to MIOSHA within eight hours of the incident.

The superintendent must:

- Ensure that each employee receives prompt first aid treatment for all injuries.
- Review and correct the causes of all minor injuries to his or her employees.
- Take any emergency action necessary to minimize the extent of loss to both employees and property when a serious accident occurs.
- Investigate and report findings and recommendations by completing the **Supervisor Injury/ Incident Form.**
- Have Employee Complete the **Employee Incident form** with you present
- Have any witnesses complete the **Witness Incident form** with you present.

Accident reports highlight problem areas. Through the use of good reports, accident patterns can be detected and resources directed toward prevention. Accident reports make excellent training tools. The cause and effect of accidents can be reviewed at safety meetings.

- All accidents/incidents must be investigated regardless of the extent of the injury or damage.
- Employees will never be allowed to fill out their own accident investigation report.
- Focus must be fact finding *not* fault finding.
- Superintendents and foremen must identify the unsafe act or unsafe condition.

"Near hit" -The term "near hit" is actually a more accurate description of the event. "Near miss" tends to minimize the event while "near hit" gives it the importance it deserves. Additionally, events occur where someone, for example, is struck by an object but because there was no resulting injury it is referred to as a "near miss" when it actually was a direct hit!

INCIDENT REVIEW PROCESS

The incident review process and incident review meeting serve two basic purposes:

First, acting as an organized and documented process for the Subcontractor to present the facts surrounding an incident. And second, as a process for the corrective actions developed by the Subcontractor to prevent a similar type of incident.

- This review applies for all Lost Time Incidents, OSHA Recordable Incidents, and/or Near Hits involving a Subcontractor or other project employee.
- The DeMaria Safety Director is responsible for scheduling and facilitating incident review meetings within 5 days of the incident. The Subcontractor is responsible for promptly investigating incidents, identifying causal factors, and developing corrective action
- Lessons learned report will be completed by Safety Director and used a toolbox talk for all DeMaria project the following week.

STEPS TO TAKE DURING AN EMPLOYEE INJURY/ACCIDENT

1) **TAKE COMMAND. ISOLATE THE ACCIDENT SCENE**

Assign the following duties to specific personnel. Barricade, rope off or post a guard at the scene to make sure that nothing is moved or changed until authorities have completed their investigation


2) **PROVIDE PROTECTION**

Protect the accident scene from continuing or further hazards (ex. traffic, operating machinery, fire or live wires)

3) **GIVE FIRST AID**

Give first aid to the injured as soon as possible.

4) CALL AN AMBULANCE. GUIDE THE AMBULANCE. GET NAME OF HOSPITAL

Call an ambulance and any other emergency services required. Meet and direct the ambulance to the accident scene. Find out where the injured is being taken



5) **ADVISE MANAGEMENT**

Inform senior management. They can then contact relatives, notify authorities, and start procedures for reporting and investigating the accident.

SUBCONTRACTOR INCIDENT MANAGEMENT

ASSESS

Subcontractor shall immediately assess each incident for the following:

- Scope of the incident — injury to personnel, damage to property, service interruption, near hit.
- Severity of the incident — e.g., life-threatening.
- Community impacts — public/environmental impact, evacuation, traffic flow/routes, property damage.
- Determination of facts — who, what, when, where, and why (no speculation/opinions).

MANAGE

Subcontractor shall manage each incident according to its severity:

- Render aid.
- Contact appropriate emergency response personnel.
- Initiate safety procedures to ensure employees and the public are safe-guarded against further loss.
- Initiate measures to immediately mitigate environmental impacts.
- Secure the scene.
- Preserve evidence.

NOTIFY

Subcontractor shall:

- Ensure that the employee immediately reports the incident to his/her supervisor.
- Notify the DeMaria Project Superintendent immediately of any incident or event (e.g., injury, property loss, fire, fire suppression release, civil/public disturbance).
- Call Subcontractor's management and/or Safety Representative.
- Notify utilities and appropriate regulatory authorities as required, including State and Federal OSHA

INVESTIGATE

Subcontractor shall investigate each incident, including near hit events:

- Take photographs of the incident site (digital photos are preferred for ease of communication).
- Conduct and document interviews. Document the investigation by completing the Incident Report
- Support and/or cooperate with any DeMaria investigation of Subcontractor incident, injury, or near hit.
- After completing the investigation, determine the cause and contributing factors and complete all identified corrective actions on the investigation form.

REPORT

Subcontractor shall provide a copy of the Incident Investigation Report to the Project Superintendent within 24hrs of the incident.

ACCIDENT/ INJURY INVESTIGATION

ACCIDENT/INJURY INVESTIGATION

Responsibilities of the Site Superintendent

What to investigate: All incidents resulting in personal injury or property damage and near hit incidents that could have caused injury or damage. This is for all incidents onsite, whether DeMaria is involved or not

How to Investigate

An investigation may be prompted by an injury to an
employee, an incident which caused delays or damaged material, a machine breakdown, or just some condition which you notice and do not think is as it should be. In any event, your investigation procedure is the same. Questioning properly gets answers.

Use the "W"questions, WHY, WHAT, WHERE, WHEN, WHO, AND HOW.

-- Order of questioning will vary.
-- Backtracking is frequently necessary.
-- Find out "What happened."
-- Then question "Why it happened."
-- This helps decide "What should be done."

Don't write down answers, except as notes, until you have reached this point. Then complete the accident Investigation form.

Whenever an accident happens, using the word “carelessness” to explain why it occurred is the lazy way out. It doesn’t mean anything. It does not explain what went wrong. The word is of no help to the supervisor trying to prevent a repeat accident. Furthermore, it’s a buck-passing word. “Carelessness” doesn’t place the blame where it belongs. In analyzing the human factors that might have caused an accident, keep these guidelines in mind - and don’t use the umbrella word “carelessness”. **Someone involved in an accident probably Didn’t** follow instructions, **Didn’t** follow rules and regulations, **Didn’t** use safe work methods, **Didn’t** pay any attention to what they were doing or to the equipment they were operating, **Didn’t** wear protective equipment, **Didn’t** think ahead or plan ahead, **Didn’t** know their own physical limitations, **Didn’t** have the necessary skills, **Didn’t** know the limit of strength of the materials being used, **Didn’t** use the tools or equipment properly. **Didn’t** anticipate safety or health requirements, **Didn’t** look, **Didn’t** have a good safety attitude.

BASIC GUIDELINES FOR ACCIDENT INVESTIGATION

- The purpose of an investigation is to find the cause of an incident and prevent future occurrences, not to fix blame. An unbiased approach is necessary to obtain objective findings.
- Visit the incident scene as soon as possible – while facts are fresh and before witnesses forget important details.
- If possible, interview the injured worker at the scene of the incident and “walk” him or her through a re-enactment. Be careful not to actually repeat the act that caused the injury.
- All interviews should be conducted as privately as possible. Interview witnesses one at a time. Talk with anyone who has knowledge of the incident, even if they did not actually witness the mishap.
- Take signed statements in cases where facts are unclear or there is an element of controversy
- Graphically document details of the incident: area, tools, and equipment. Use sketches, diagrams, and photos as needed, and take measurements when appropriate.
- Focus on causes and hazards. Develop an analysis of what happened, how it happened, and how it could have been prevented. Determine what caused the incident itself (unsafe equipment/condition, unsafe act, etc), not just the injury. How will you prevent such incidents in the future? Every investigation should include an action plan.

- If a third party or defective product or equipment contributed to the incident, save any evidence. It could be critical to the recovery of the claim costs.

CLASSIFICATION OF INJURIES

1. **Near Hit:**
   An unplanned event that did not result in injury, illness, or damage, but had the potential to do so.

2. **First Aid - Examples**
   - Using non-prescription medications
   - Vaccines: Tetanus / Hip B / Rabies
   - Wound coverings-bandages, non support aids, eye patches
   - Removing splinters
   - Drilling nail bed or blisters
   - Hot or cold therapy
   - First visit Antiseptics
   - Negative x-ray
   - Observation Removing foreign bodies from the eye using only irrigation or a cotton swab
   - Removing splinters or foreign material from areas other by the way of irrigation, tweezers, cotton swabs
   - Using finger guards
   - Using massage
   - Drinking fluids to relieve heat stress

3. **OSHA recordable, non-lost time** (Medical treatment beyond first aid)
   - Physical Therapy or Occupational Therapy
   - Physical Therapy/Occupational Therapy
   - Prescription Medications
   - Chiropractic treatment
   - Sutures, staples
   - Rigid immobilization, ex. Wrist splints
   - Second or Third Degree Burns
   - Admission to a Hospital
   - Positive X-ray Diagnosis

$$\text{Incident Rate} = \frac{\text{Number of OSHA Recordable Cases X 200,000}}{\text{Number of Employee labor hours worked}}$$

4. **OSHA recordable, restricted time** ((RWA) Restricted Work Activity)
   Restricted duty is often referred to as "modified duty" and is defined as: any modification to an employee's job duties that he or she normally performs at least once a week, or employee inability to work a full shift (restrictions require a physician order)
5. **OSHA recordable, lost time** (Days Away from Work) Any days that an employee is unable to work because of a work-place injury. (requires a physician order)
   ***Note:** OSHA restricted/lost time days are often both referred to as lost time cases even if the injury has restricted days only.

Recordable Accident vs. Non Recordable Accident

Recordable Injury/Illness	Non-Recordable Injury/Illness
Fatality	
Loss of consciousness	
Days away from work (severity) due to injury/illness	
Restricted/light duty work ordered by provider	
Transfer to another job	
Medical treatment beyond first aid Diagnostic tests with positive findings (x-rays, CT scan etc.) Usually includes *admission* to hospital Sutures given Therapy prescribed/given Using a type of derma-bond material to close a wound	Visit to provider solely for observation or evaluation Diagnostic tests done but negative findings First Aid given including: • Tetanus shot • Cleaning, flushing or soaking surface wound • Wound coverings (includes butterfly bandage, steristrips) • Hot/cold therapy (ice pack etc.) • Non-rigid type of support (wrap) • Temporary immobilization device used to transport accident victims • Drilling of finger nail/toe nail • Draining fluid from blister • Eye patch • Removing foreign body from eye with irrigation/cotton swab • Removing splinters/foreign body from all other areas by irrigation, tweezers, swab etc. • Finger guard • Massage • Drink fluids for relief of heat stress • Using a type of liquid bandage which only covers a wound
Prescription medications (including general OTC medications given at prescription level)	Non-prescription or over the counter medications given
Significant injury/illness diagnosed by a physician	
Accident/illness happened in the course of work	Accident/illness happened outside course of work (i.e., walking in parking lot after work hours. This would be different, however if an employee were in the parking lot for work reasons, such as removing snow in which this would be recordable)

	Personal illness (EXCEPTION: Must call OSHA if fatal heart attack – OSHA will investigate to determine work-relatedness)

FIRST AID & CPR TRAINING

PURPOSE To afford the employees immediate and effective attention should an injury result, the Project Superintendent will ensure that a certified first aider(s) will be available. We have adopted this program in order to implement the **MIOSHA Construction Safety Standard - Part 1. General Rules First Aid and Emergency Requirements**

1. To meet the above objectives, the following procedures will be followed:
   a. Each project superintendent is responsible for and is be required to be trained and certified in CPR/First Aid. **Rule 132 (3) requires a person with a valid first aid certificate on each jobsite**. At least one employee at every jobsite must be trained and ready to provide first aid treatment in an emergency situation, and must be present at the worksite during construction activities

   b. Each sub-contractor is required to have their foreman or one of their on-site employees be certified in CPR/First Aid trained.

   c. Other persons will be trained in order to augment or surpass the standard requirements.

   d. Valid first aid cards are recognized as ones that include both first aid and cardiopulmonary resuscitation (CPR) and have not reached the expiration date.

2. **First aid training, kits, and procedures will be in accordance with the requirements of the Part 1, Rule 132, of the MIOSHA standard for emergency preparedness, first aid training, and supplies**.

   a. **Rule 132 (5) requires first aid supplies be available on each jobsite.** It states: "An employer shall assure that there are first aid supplies at each jobsite and that the supplies are readily accessible." First aid supplies must be sealed in individual packages, stored in a weather proof container and inspected before they are sent out to the jobsite and at least weekly to replace any expended items. Employees must be made aware of the location of the first aid supplies.

   b. The size of the jobsite, the type of work, the number of employees, past experience, and physician consultation must guide the selection of and number of first aid kits, location, inspection and re-supply, and the types of first aid supplies.

   d. **Rule 132 (6) requires that the contents of a first aid kit must be approved by a consulting physician.** The American National Standards Institute (ANSI) Z308.1-2003 "Minimum Requirements for Workplace First Aid Kits" requires certain first aid supplies and quantities for compliance with Z308.1-2003.

3. Posters listing emergency numbers, procedures, etc., will be strategically located, such as on the first aid kit, at telephones, and in other areas where employees have easy access.

CPR- The "Good Samaritan" Act

First aid assistance rendered by an employee, who is not required to do so by his/her employer, is covered under the “Good Samaritan” Act. The following information is for those individuals that perform a “Good Samaritan” Act when administering first aid and/or CPR.

1. All body fluids (blood, saliva, etc.) should be considered potentially infectious

2. Job first aid boxes will have and employees are to use protective equipment (latex gloves, mouth tubes, etc.) to eliminate body fluid contact.
3. If body fluid contact is made, hand washing with soap and at least tepid running water must be performed as soon as feasible, particularly in cases of gross contamination.

4. Equipment and washrooms that have been contaminated with fluids are to be cleaned and decontaminated. All cleaning and disinfecting is to be done while wearing protective gloves and/or clothes to avoid contact with the fluids.

5. Rags, towels, and materials used to assist the injured person and to clean the affected area, shall be considered contaminated and disposed of in a proper biomedical manner.

6. An employee coming into contact with another person’s body fluids, because of an accident or mishap in the workplace, is to be vaccinated or offered a Hepatitis B vaccination within 24 hours of exposure.

7. Each site will have at least two (2) employees who are trained in the proper procedures of administering First Aid and CPR. This training will include the procedures related to the hazards related to blood borne pathogens.

8. Cleanup of blood or other bodily fluids will be performed by personnel that have had the First Aid and Bloodborne Pathogen training. Cleanup will be performed by spraying the affected area with a 10-part water to 1-part Bleach solution to kill any pathogens. Personnel will don disposable rubber gloves and goggles and use disposable towels to clean up the fluids. The towels, fluids and rubber gloves will be taken to the dumpster for disposal.

THIS REPORT MUST BE SUBMITTED TO: SAFETY DIRECTOR WITHIN 24 HOURS of INCIDENT/ACCIDENT.

SUPERVISOR / MANAGER

A

Employee Name: _____
Title:_____
Group/ Dept: _____
Employee Supervisor: _____

LOCATION OF INCIDENT:
Location:_____
Area:_____
Other:_____

DATE OF INCIDENT: _____ _____
(YYYY/MM/DD) (TIME)

DATE REPORTED: _____ _____
(YYYY/MM/DD) (TIME)

B

DESCRIPTION OF INJURY:
Part of Body: _____ Left [ ] Right [ ]
First Aid Treatment: _____
Property Damage: _____

Employee [ ]
Sub-Contractor [ ]
Client/Customer [ ]
Student/Other [ ]

DESCRIPTION OF OCCURRENCE/HAZARD: (What occurred? Task performed? Sequence of events? Who was involved? Type, size, weight or equipment, height from ground, personal protective equipment?)

_____
_____
_____
_____

Who was the occurrence reported to? _____
IF LOST TIME: Date & Hour last worked: _____Employee's first day off work: _____
Normal working hours last day worked: _____
Date Employer became aware incident caused lost time: _____

NO WITNESSES: [ ] WITNESSES: (Name): _____
_____
(attach statements)

C

RELATED OR CONTRIBUTING FACTORS:
(What conditions contributed to the cause of the occurrence – facts only)

_____
_____
_____
_____
_____

CORRECTIVE / PREVENTATIVE ACTION:

Short Term:
_____
_____

Long Term:
_____
_____

Person Responsible: Target Date:
_____

Had injured person received instruction or training concerning the task they were performing? Yes [ ] No [ ]
If yes, please describe: _____

Previous or similar injury/ disability? Yes [ ] No [ ] Explain: _____
Do you believe this to be a valid claim? Yes [ ] No [ ] Explain: _____

SIGNATURES:	NAME (please print)	SIGNATURE	DATE (YYYY/MM/DD)
Supervisor	_____	_____	_____
Safety Director	_____	_____	_____

This is to certify that the above answers are full, complete and true to the best of my knowledge.

SAFETY DIRECTOR

D

NAME OF TREATMENT PROVIDER: _____
Employee seen/called: _____ Date (YYYY/MM/DD): _____ Hour: _____
Description of injuries: _____
_____
Corrective Actions Required?: _____

Signature: _____
Position: _____ Date (YYYY/MM/DD): _____

Near Hit (no injury) [ ] Recordable [ ]
First Aid Only [ ] Lost Time [ ]

COPY DISTRIBUTION: EMPLOYEE FILE

SUPERVISOR INCIDENT/ACCIDENT REPORT

Please ensure form is completely filled out and signed (SEE REVERSE SIDE OF REPORT FOR INSTRUCTIONS)

GUIDELINES FOR INCIDENT INVESTIGATION COMPLETION

GUIDELINES AND RESPONSIBILITIES

TYPES OF INCIDENT RESULTS:

Near Hit (no injury)	• caused by a substandard act, a substandard condition or a combination of both in the work environment which could have resulted in property loss and/or physical harm
First Aid	• an injury of minor nature that treatment can be carried out without outside medical attention
Recordable	• is an injury or illness that requires medical treatment more than simple first aid and must be reported
Lost Time	• a work-related injury which results in time lost from work beyond the day of injury and results in cost to DeMaria

EMPLOYER & EMPLOYEE RESPONSIBILITIES: – regarding hazard identification & correction

Employer:	• To implement and enforce work place Health and Safety rules, regulations and procedures; to take every reasonable precaution protect workers; to take steps to eliminate hazards in the workplace etc
Employee:	• To comply with the DeMaria policy; to use and/or wear personal protective equipment, to report accident and hazardous occurrences; to report any incidents; assist in prevention; to follow safety procedures. (ie: report and work to prevent accidents from occurring)

REPORTING RESPONSIBILITIES:

Employee:	• Report incident immediately to Supervisor and complete Employee Statement of Incident Form
Supervisor:	• Investigate incident. Complete Sections A, B &C and add any additional facts or information
Safety Director:	• Complete Section D, review reports, determine if disciplinary action need to taken, Investigate incident (if situation requires)

SECTION A:

Location of Incident: specific exact location ; **Date of Incident and Date Reported:** record date and time of incident and when it was reported

SECTION B:

DESCRIPTION OF INCIDENT / HAZARD

Include:

- Activity being performed at time of incident – positioning of body, etc
- Describe the direct cause of injury – what is immediately responsible for the incident to have occurred
- Identify the root cause of injury – the underlying reason why the incident occurred – which if eliminated would prevent a recurrence
- State size, weight of any materials or clients/customers involved, type of lift used
- Specify tools, equipment, machinery, chemicals, materials involved
- State only pertinent client/customer information

EXAMPLES OF INCIDENTS:

- Struck by/against objects or caught between two objects
- Slip, trip, fall on a walking surface or from height
- Sharps - needlestick wound
- Cut/laceration/puncture – include all other sharp objects
- Over exterion / strain – activities resulting in strain injuries (lifting, pushing, pulling)
- Exposure / contact with chemicals, hot materials, blood, tissue, body fluids, electrical
- Aggression / violence (ie: strikes employee)

WITNESSES:

Record name(s) of eye witnesses to the incident or persons who had immediate and direct knowledge of occurrence

Attach information gathered to incident investigation report

SECTION C:

RELATED OR CONTRIBUTING FACTORS

Investigate and consider:

- Were procedures available, understood, followed?
- Was equipment appropriate, maintained, operated properly?
- Was employee training, skill, knowledge and motivation adequate?
- Do you believe the incident/injury to be a valid claim?
- Were work materials and personal protective equipment (PPE) available?

CORRECTIVE / PREVENTATIVE ACTION:

- Identify the corrective action taken and planned
- For follow-up, indicate who is responsible and the completion dated of planned action

Investigation should be scaled to the severity (actual or potential) of the incident

NOTIFY THE SAFETY DIRECTOR AND THE VICE PRESIDENT IMMEDIATELY IF A SERIOUS OR CRITICAL INJURY/ INCIDENT IS SUSPECTED.

For our purposes a serious or critical injury/incident is defined as an injury of a serious nature that – places life in jeopardy, requires hospitalization of

24 hours or more, results in substantial blood loss, involves structural failure or collapse of scaffold, concrete formwork, excavated shaft or tunnel…***or any other serious incident***
SECTION D: Completed by the Safety Director Include explanation of injury noting body part, right or left, etc.& Corrective Action Required

EMPLOYEE INCIDENT REPORT

NAME OF INJURED (Last Name, First Name)	S.S.#:	D.O.B.:	SEX: M ☐ F ☐
ADDRESS:	CITY/ZIP CODE	HOME PHONE #:	
DEPT.:	JOB TITLE:	WORK LOCATION:	

WHEN	**Date and Time of Incident: / / ☐ AM ☐ PM** **Date reported to supervisor: / / If delayed, Why?**
DESCRIPTION OF INCIDENT	Detail what you were doing and/or what physical objects, materials ect. were involved:
WHAT	**State body parts injured:** **Was treatment beyond first aid required? ☐ YES ☐ NO If yes, explain:** **Did you go to Clinic?: ☐ YES ☐ NO When: _____ Where_____** **What should be done to prevent recurrence of this type of incident?**
WHERE	**Exact location where incident occurred:**
WITNESSES	**(Last Name, First Name / Title/:)**
WHY	**Comment on the causes of this incident:**
SIGNATURE	All the information I have provided in this report is true and correct. I understand that providing false or misleading information or omission of information on this report or any other form related to this injury may result in termination of my employment. I hereby authorize all hospitals, medical centers, medical doctors, physicians, surgeons, doctors of osteopathy, chiropractors, and all other persons who have examined me or who have been consulted concerning me at any time to release and furnish to DeMaria or its representatives any and all information in their records and within their knowledge concerning me specific to the above injury . This authorization includes the furnishing to DeMaria of reproduced or photographic copies of notes, reports, and records. I also authorize any insurance company to release and furnish to DeMaria or its representatives any and all information in their records concerning me that might further aid in the review of my claim. **Employee Signature _____Date _____/___/_____**

WITNESS STATEMENT

To Be Completed By Witness of Injury/ Incident

Name of
Witness:_____
Last First

If applicable, Job title of Witness:_____ Date of hire:_____

Injured Employee's
Name_____
Last First

Location/Area of accident:_____
Name of building, area, street

Describe fully how accident occurred (use back page if necessary)_____

_____

_____

_____

Describe bodily injury sustained – be specific about body part/s injured: _____

_____

_____

Recommendation on how to prevent this accident from recurring: _____

Name of Witness' Supervisor:

_____

_____ _____ _____

Witness's Printed Name Witness's Signature Date

SAFETY ACCOUNTABILITY

DeMaria believes that in order to maintain a safe and healthful workplace, the employees and contractors must be cognizant and aware of all company, State, and Federal safety and health regulations as they apply to the specific job duties required. The following disciplinary policy is in effect and will be applied to all safety violations. No phase of our Company's operations is of greater importance than accident prevention. All of us must be aware of and vigorously pursue project safety goals so all employees will know there is only one acceptable way to do the job—**the safe way**. Every employee shall be held accountable for his or her safety performance.

- The site superintendent will issue a written reprimand as soon as an employee or subcontract employee has been observed of non-compliance of a safety rule. This warning will be forwarded on to your company and DeMaria's Safety Director. Depending on the seriousness of the violation disciplinary action could be a 3-day removal to permanent remove from the project

- Employees observed for a second time in non-compliance of a safety rule will be immediately and permanently removed from the project.

To assist in our efforts to provide a safe work place,

A "zero tolerance" policy for serious violations includes but is not limited to;

Violation	**DeMaria Action**
Removing fall protection without replacing	1st- 3-Day Removal from project – 2nd- Removed from Project
Personal fall protection violation	1st- 3-Day Removal from project – 2nd- Removed from Project
Caught-in or struck -by violation	1st- 3-Day Removal from project – 2nd- Removed from Project
Electrical Installation Hazard	1st- 3-Day Removal from project – 2nd- Removed from Project
Excavation/ Trenching Hazard	1st- 3-Day Removal from project – 2nd- Removed from Project

**A zero tolerance policy has been established for serious violations, actions that could result in causing serious harm to another employee, threats, harassment and lewd behavior, etc. Should an employee's actions fall under this zero tolerance policy a mandatory meeting will be held with that subcontractor and members of the DeMaria project team and the employee will be immediately and permanently removed from the project.

Every worker on any DeMaria project has the authority and responsibility to stop any unsafe working conditions or acts which could endanger the lives of others in the area. Each employee will have the full support of DeMaria should they report and/or stop any unsafe condition or act.

The severity of the discipline will be determined by the extent of the exposure to the employee in question, other employees, and the Company. Management reserves the right to impose whatever disciplinary action it deems appropriate.

PERSONAL PROTECTIVE EQUIPMENT

PPE is the last line of defense against workplace hazards. OSHA defines PPE as "equipment for the eyes, face head and extremities protective clothing respiratory devices protective shields and barriers." Many OSHA regulations state that PPE must meet criteria set by the American National Standards Institute (ANSI).

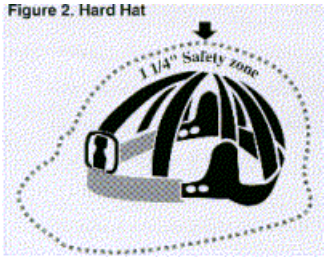
All contractors are responsible for providing and ensuring use of the required personal protection equipment. Protective equipment, including PPE for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers must be provided, used, and maintained in a sanitary and reliable condition. PPE must be provided whenever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants (i.e., flying chips or sparks, abrasive moving parts) encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation, or physical

HEAD PROTECTION

It is the policy of DeMaria that:

- Hard hats displaying the site orientation decal and must be worn 100% of the time by all DeMaria employees, subcontractor employees and visitors to project sites that comply with ANSI Z89.1.
- Aluminum hardhats, and bump caps are not permitted on DeMaria Construction Company Projects.
- No baseball caps or other hats that may reduce the hardhats effectiveness shall be worn under hardhat

- All hardhats shall display the contractor name and/or decal indicating whom the employee works for.
- All PPE shall be visually inspected by the employee before use and after each hazard increasing event which may have adversely affected the PPE.



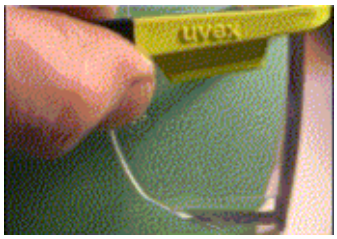
Reverse Donning: Helmets marked with a "reverse donning arrow"  can be worn frontward or backward in accordance with the manufacturer's wearing instructions. They pass all testing requirements, whether worn frontward or backward **in accordance with the manufacturer's wearing instructions.** Look for the reverse donning arrow on the inside of the helmet to verify this capability

Non-DeMaria employees shall not wear a DeMaria decaled hardhat. Only DeMaria employees are allowed to wear a hardhat with the DeMaria Log on the front. If a subcontractor does not have a hard had they may be able to use a generic hard hart if available in jobsite office or they must find another appropriate way to secure a hard hat

EYE PROTECTION- Safety Glasses and Face Protection

All work areas require 100% eye protection 100% of the time. A minimum of ANSI Z.87 stamped “Safety Glasses” is required at all times while in a construction area. This includes welding and grinding. Employees required to wear prescription glasses must wear approved side shields on their glasses at all times while in a construction area. **Dark lenses are not to be worn inside of buildings, in enclosed areas or at night**. Prescription eyeglasses and sunglasses that do not comply with ANSI Z87.1 are prohibited.

All protective eyewear must be permanently stamped with the manufacturer and "Z87."



This may happen when failing to wear safety glasses

FACE PROTECTION

is required for any activity, which produces the potential for flying debris, such as grinding or buffing. When face-shields are required, it does not eliminate the requirement for safety glasses. Additional eye and face protection shall be worn by employees when employees are performing work that could potentially cause materials to become flying objects such as, but not limited to, chipping, welding, grinding, cutting and chiseling or harmful contacts or exposures, such as glare, liquids, injurious radiation, electrical flash or a combination of these they shall utilize a face shield in addition to safety glasses. A face shield shall be worn while using powder-actuated tools.

Proper Face Protection

Not Proper Face Protection!

SAFETY SHOES

Hard sole safety shoes or boots (over the ankle) are required on all projects as they will provide employees both impact and compression protection, safety shoes should provide puncture protection. No other footwear allowed. Employees need to make sure they wear proper work boots for their type of work and keep them in good condition or replace when necessary.

CLOTHING

Clothing must be worn at all times. Shirts must have sleeves (min of 4” length) (no tank tops, cut off shirts, etc.) and long pants (no large/gaping holes, sweats, etc.). Loose, dangling jewelry is prohibited

HAND PROTECTION

Workers exposed to harmful substances through skin absorption, severe cuts or lacerations, severe abrasions, chemical burns, thermal burns, and harmful temperature extremes will
benefit from appropriate gloves/hand protection

HEARING PROTECTION

Hearing protection includes: ear plugs, semi-aural devices, or ear muffs. Each provides a different level of protection. Wearing earplugs or earmuffs can help prevent damage to hearing. Exposure to high noise levels can cause irreversible hearing loss or impairment as well as physical and psychological stress. The employee will be provided with the appropriate hearing protection. Cotton balls are not acceptable hearing protection.

RESPRITORY PROTECTION

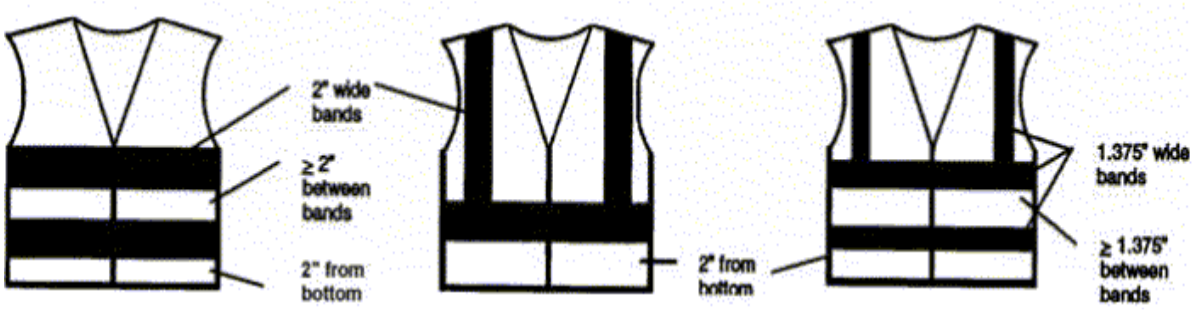
When engineering controls are not feasible, workers must use appropriate respirators to protect against adverse health effects caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors. Respirators generally cover the nose and mouth or the entire face or head and help prevent illness and injury. A proper fit is essential, however, for respirators to be effective. Required respirators must be NIOSH-approved and medical evaluation and training must be provided before use. Respirators will also be made available for voluntary use by employees.

WELDING & CUTTING

Welder helmets shall be used during all arc welding or arc cutting operations, excluding submerged arc welding. Appropriately, shaded spectacles with side shields and cup or cover-type, goggles may be used for all gas welding and cutting operations. Transparent shields or goggles may be used for resistance welding or resistance brazing. Helmets shall be provided with window lenses and filter cover plates. Goggles shall be ventilated to prevent fogging of the lenses. Lenses shall bear a permanent distinctive marking which may readily identify the shade. Helmets and goggles shall be kept clean and in good repair.

REFLECTIVE VESTS & JACKETS (Class 1 or Class 2):

1. Shall provide 360° visibility (ex. encircle the torso).
2. Horizontal bands must be placed at least 2 inches from the bottom edge of the garment.
3. Multiple horizontal or vertical bands must be separated by a distance at least equal to the width of the band.
4. Horizontal gaps in retro reflective and background materials shall be ≤ 2 inches



Retro-reflective Placement for Jackets (Class 1, Class 2, or Class 3)

Same as vest placement (1-4) plus . . .

5. Sleeve placement (optional) - Horizontal bands:
   Lower band shall be at least 2 inches from the bottom of the sleeve.
   Upper band placed between elbow and shoulder at the same height as torso band.

OTHER

Other required equipment to be used under unusual circumstances such as high temperature work, handling corrosive liquids, etc., not specifically covered in this section shall be reviewed by the contractor and will be furnished by the contractor when required

HAZARD COMMUNICATION

This program includes guidelines on identification of chemical hazards and the preparation and proper use of container labels, placards and other types of warning devices.

A. CHEMICAL INVENTORY

Each DeMaria project maintains an inventory of all known chemicals used on for that project. A chemical inventory list is available from the Project Superintendent for the project you are working on.

Hazardous chemicals brought onto the worksite by DeMaria will be included on the hazardous chemical list.

B. CONTAINER LABELING

All chemicals on site will be stored in their original or approved containers with a proper label attached, except in small quantities for immediate use. Any containers not properly labeled should be given to the Project Superintendent for labeling or proper disposal.

Workers may dispense chemicals from original containers only in small quantities intended for immediate use. Any chemical left after work is completed must be returned to the original container or the Project Manager for proper handling.

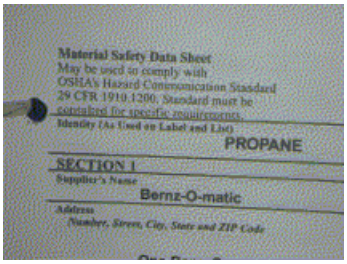
No unmarked containers of any size are to be left in the work area unattended.

DeMaria will rely on manufacturer applied labels whenever possible, and will ensure that these labels are maintained. Containers that are not labeled or on which the manufacturer's label has been removed will be relabeled.

The Project Superintendent will ensure that each container is labeled with the identity of the hazardous chemical contained and any appropriate hazard warnings.

C. MATERIAL SAFETY DATA SHEETS (MSDS)

Employees working with a Hazardous Chemical may request a copy of the material safety data sheet (MSDS). Requests for MSDS's should be made to the Project Superintendent.



MSDS should be available and standard chemical reference may also be available on the site to provide immediate reference to chemical safety information.

The Project Superintendent will provide the owner and/or the construction manager, upon request, copies of the MSDS for the chemicals brought on that project.

D. EMPLOYEE TRAINING

Employees will be trained to work safely with hazardous chemicals. Employee training will include:

- Methods that may be used to detect a release of a hazardous chemical(s) in the workplace
- Physical and health hazards associated with chemicals
- Protective measures to be taken
- Safe work practices, emergency responses and use of personal

protective equipment
- Information on the Hazard Communication standard including

    1. Labeling and warning systems
    2. An explanation of Material Safety Data Sheets

E. PERSONAL PROTECTIVE EQUIPMENT (PPE)

Required PPE is available from the Project Superintendent. Any employee found in violation of PPE requirements may be subject to disciplinary actions up to and including discharge.

F. EMERGENCY RESPONSE

Any incident of overexposure or spill of a hazardous chemical/substance must be reported to the project superintendent at once. The Foreman or the Project Superintendent will be responsible for insuring that proper emergency response actions are taken in leak/spill situations.

G. HAZARDS OF NON-ROUTINE TASKS

Project Superintendents will inform employees of any special tasks that may arise which would involve possible exposure to hazardous chemicals.

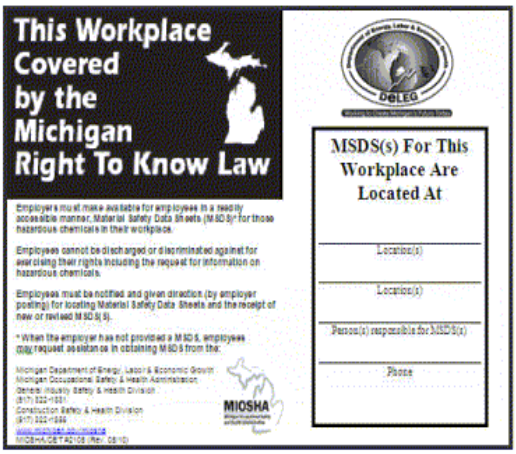
Review of safe work procedures and use of required PPE will be conducted prior to the start of such tasks. Where necessary, areas will be posted to indicate the nature of the hazard involved.

H. INFORMING OTHER EMPLOYERS

Other on site employers are required to adhere to the provisions of the Hazard Communication standard.

Information on hazardous chemicals known to be present will be exchanged with other employers. Employers will be responsible for providing necessary information to their employees.

I. DeMaria has posted information for employees at this jobsite to know the exact location of the MSDS for the chemicals on this project.



ENVIROMENTAL HEALTH HAZARDS

*HAZARD ANALYSIS (HA) REQUIRED

INDOOR HEALTH HAZARDS

Before each project begins the project team will explore the possibility of existing hazardous materials that may be on site. The Project Manager and Project Superintendent will request any and all surveys from the owner. In the event surveys do not exist, the Safety Director will be notified to discuss the project to generate a project specific survey.

Potential hazardous materials to look for:

- Lead (paint, varnish, lined drywall) Cadmium
- Asbestos containing material (plaster, floor/ceiling tile, pipe insulation/wrap)
- Silica
- Mold
- Chemicals: barrels, oils, lubricants, discoloration and/or odor of soils
- Oxygen deficiency (created by combustible engines, or presence of other wastes)
- Radiation
- Biological hazards (hospital waste, insects, animals)
- PCB's – light fixtures, electrical panels

Procedure where encountered

- Cease operations
- Assess the area for immediate danger to life and health (IDLH)
    - If condition exists, clear area immediately and barricade
    - Keep all personnel and public away from area
- Notify Project Superintendent immediately
- Project Superintendent will notify Project Manager and Safety Director
- Project team will discuss possible resolutions
- Notification to owner will be made by the Project Team

Asbestos Hazard

DEMARIA "ACM" POLICY.

DEMARIA EMPLOYEES AND SUBCONTRACTORS ARE PROHIBITED FROM PERFORMING ANY WORK, WHICH REQUIRES THE DISTURBANCE OR REMOVAL OF ANY ASBESTOS CONTAINING MATERIAL.

PROCEDURES

Until DeMaria is provided written documentation indicating otherwise, All materials must be considered to be Asbestos Containing

1. Assume material is asbestos.
2. Do not disturb.
3. Contact Project Manager or Safety Director.
4. The Project Manager or Safety Director will take care of getting the necessary documentation.
5. Do not proceed with work without documentation.
6. If documentation indicates the presence of asbestos, the client must have the condition abated prior to the commencement of work. In the event documentation indicates that an area has been abated and there is belief that a problem still exists, contact the Safety Director for review.

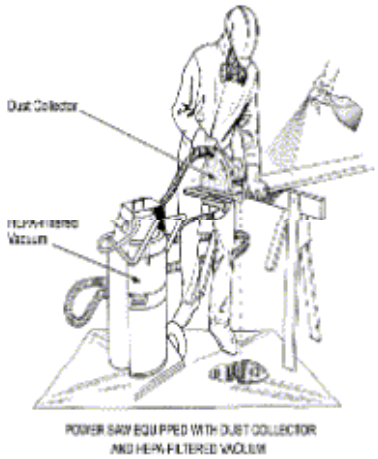
ABATEMENT PROCEDURES

All asbestos abatement must be performed by an Asbestos Abatement Specialty Contractor. Abatement contractors employ certified abatement personnel and provide the only legal method of asbestos removal.

The two basic methods of asbestos abatement are removal and encapsulation.

1. **Removal** - The area removal of asbestos requires the area to be isolated with a negative pressure atmosphere. The atmosphere in the isolated area must be continuously monitored for asbestos content. Exhaust air from the isolated area must pass through High-efficiency filter to prevent contamination of surrounding areas. When abatement is completed, a clean air test must be accomplished before the negative pressure isolation can be eliminated. Removal - Spot removal, such as clearing a piece of pipe for cutting, can be accomplished utilizing the glove bag method. This method isolates the material to be removed, contains that material and provides for safe disposal.

2. **Encapsulation** - This method utilizes a plasticized coating material which encases the asbestos and prevents erosion of the material and airborne (friable) asbestos fibers. Encapsulation is utilized on the exposed ends of insulation when portions of the insulation are removed to allow us to perform our work. Care must still be taken to prevent damage to the encapsulated areas. Encapsulation is truly an intermediate abatement step. It prevents the asbestos containing material from being hazardous in an undisturbed state.



POWER SAW EQUIPPED WITH DUST COLLECTOR AND HEPA-FILTERED VACUUM

In the event of a disturbance of suspected Asbestos Containing Material (ACM), specific procedures must be followed to minimize and control potential exposure to our employees, our Client and the General Public.

1. Isolate area to control traffic in any potentially contaminated area.
2. Contact the following personnel immediately so that appropriate measures and actions can be taken.
Job site Project Manager & Superintendent

Building Owner and Contractor/ Employer Responsibilities

The MIOSHA Asbestos for General Industry Standard, Part 305, and the Asbestos Standards for Construction, Part 602, both require

Building Owner Requirements

- Requires pre-1981 building owners to conduct a thorough asbestos building survey. Obligates the building/facility owner to notify immediate employees and contractors working in facility of asbestos building/facility survey results This survey must identify the presence, location and quantity of asbestos-containing material (ACM) and/or presumed asbestos-containing material (PACM) within the building. Pre-1981 materials presumed to contain asbestos include thermal system insulation (e.g., applied to pipes, fittings, boilers, breeching, tanks, ducts, or other structural components to prevent heat loss or gain) and surfacing material (e.g., sprayed, toweled-on, or otherwise applied to surfaces for acoustical, fireproofing, or other purposes). It also includes asphalt and vinyl flooring materials.

Contractor Requirements

- Contractor must obtain a copy of the asbestos building survey prior to initiating work in the facility. If the building survey is not available, it obligates contractors/employers to presume suspect materials contain asbestos until a proper rebuttal through material sampling/analysis is performed. If the owner does not supply one then we must have a survey conducted by a licensed Asbestos Abatement Contractor
- The only way a contractor can rebut the designation of PACM is by having material sampling and laboratory analysis performed in accordance with Part 602, 1926.1101 (k)(5). Once the building has been determined to have ACM/PACM, a contractor working in the facility must assess whether their work may require them to disturb or remove these materials during renovation/demolition activities. If so, they must comply with applicable work practices and procedures in Part 602.
- Ensure that a Michigan licensed abatement contractor performs asbestos removal work with properly accredited employees. Contractors removing or encapsulating friable ACM/PACM may require licensing under the Michigan Asbestos Abatement Contractor Licensing Act (Act 135, P.A. 1986, as amended).
- Verify that all suspect ACM that employees will disturb has been tested and confirmed to be non-ACM (i.e., cross check with the asbestos building survey).
- Requires the contractor perform clearance air monitoring at the completion of asbestos abatement projects involving a negative pressure enclosure
- Requires asbestos awareness training for employees who may contact but not disturb ACM and/or PACM. Training focuses on building materials that may contain asbestos to help assure that the building survey identified these materials and to prevent unintended disturbances. A key element of this training is to teach employees to recognize materials that may contain asbestos.
- Specifies required work practices, protective equipment and procedures for employees removing and/or disturbing ACM and/or PACM

All asbestos must be thoroughly wetted before being stripped and it must remain wet until it is placed in approved containers . Also, asbestos-containing material must be carefully lowered to the ground, using leak-proof chutes when necessary to avoid unnecessary damage. After being removed, pieces of waste that have sharp edges or are small enough to fit into containers must be sealed into them, and larger pieces must be wrapped in airtight plastic with warning labels affixed. After the abatement is completed, care must be taken to properly dispose of the dangerous waste

Be aware of other contractors on-site and their work activities that may disturb ACM/PACM.

Asbestos Chart	Class I	Class II	Class III	Class IV
Definition	**Removal of thermal system insulation (TSI) and surfacing material (SM) containing > 1% asbestos**	**Removal of material other than TSI or SM containing > 1% asbestos**	**Maintenance and repair operations disturbing material containing > 1% asbestos**	**Housekeeping and custodial cleanup of dust, waste, and debris from Class I, II, or III activities**
Regulated Areas	Required (warning signs mandatory)	Required (warning signs mandatory)	Required (warning signs mandatory)	Required (warning signs mandatory)
competent person	•Must be onsite •Must inspect each workshift •Must attend supervisory training	•Must be onsite •Must inspect often •Must attend supervisory training	•Must be onsite •Must inspect often •Must attend operational and maintenance training	•Must be onsite •Must inspect often •Must attend operational and maintenance training
Air Monitoring	•Initial if no negative exposure assessment (NEA) •Daily unless positive pressure mode respirator is used •Additional if conditions change **Note:** Terminate if < permissible exposure limits (PELs)	•Initial if no NEA •Daily unless positive pressure mode respirator is used •Additional if conditions change **Note:** Terminate if < PELs	•Initial if no NEA •Periodic to accurately predict if > PELs •Additional if conditions change **Note:** Terminate if < PELs	•Initial if no NEA •Periodic to accurately predict if > PELs •Additional if conditions change **Note:** Terminate if < PELs
Medical > Surveillance	Required if Wearing negative- pressure respirator, or > 30 days of work/year	Required if •Wearing negative-pressure respirator, or •> 30 days of work/year	Required if Wearing negative-pressure respirator, or > 30 days of work/year	Required if •Wearing negative-pressure respirator, or •> PEL for more than 30 days/year
Respirators	Mandatory for all Class I jobs	Mandatory if •Non-intact removal, or •No NEA, or •> PEL, or •Dry removal (except for roofing), or •In emergencies	Mandatory if •No NEA, or •TSI or SM disturbed, or •> PEL, or •Dry removal (except for roofing), or •In emergencies	Mandatory •In regulated area where required, or •If > PEL, or •In emergencies
Protective Clothing and Equipment	Required for all jobs if •> 25 linear or 10 square feet of TSI or •SM removal, or •No NEA, or •> PEL	Required for all jobs if •No NEA, or •> PEL	Required for all jobs if •No NEA, or •> PEL	Required for all jobs if •No NEA, or •> PEL
Generally Required Work Practices and Engineering Controls	•Wet methods •HEPA vacuum •Prompt cleanup/disposal	•Wet methods •HEPA vacuum •Prompt cleanup/disposal	•Wet methods •HEPA vacuum •Prompt cleanup/disposal	•Wet methods •HEPA vacuum •Prompt cleanup/disposal
Required Work Practices and Engineering Controls to Comply with PELs	•HEPA local exhaust •Enclosure or isolation •Directed ventilation •Other work practices •Respirators	•HEPA local exhaust •Enclosure •Directed ventilation •Other work practices •Respirators	•HEPA local exhaust •Enclosure •Directed ventilation •Other work practices •Respirators	•HEPA local exhaust •Enclosure •Directed ventilation •Other work practices •Respirators
Prohibited Work Practices and Administrative Controls	•High-speed abrasive disc saws without HEPA •Compressed air without capture device •Dry sweeping/shoveling	•High-speed abrasive disc saws without HEPA •Compressed air without capture device •Dry sweeping/shoveling	•High-speed abrasive disc saws without HEPA •Compressed air without capture device •Dry sweeping/shoveling	•High-speed abrasive disc saws without HEPA •Compressed air without capture device •Employee rotation

Lead Hazard

What is Lead Abatement?

The process of safely reducing lead paint hazards. Lead Abatement refers to the complete containment of an area containing lead based paint. If containment is done improperly air particles can escape putting all workers at risk. Preventing this from happening is a major priority when dealing with lead paint. Negative air pressure must be achieved (in the abatement area) as to prevent lead dust from escaping containment. Negative pressure is achieved by having a 100% air tight containment and using one or multiple Hepa-Air Negative Air Machines. Lead abatement includes: Removal of lead paint, complete encapsulation of lead based paint, removal of lead contaminated soil and all fixtures that come in contact with lead based paint or lead dust
Lead Remediation

Once its presence has been determined, lead can be handled in the following ways:

1. Replacement—remove the entire contaminated piece and replace.
2. Encapsulation—cover the lead with another material.
3. Chemical removal—remove lead by chemical process
4. Physical removal—remove lead by heat gun and manual scraping
5. Blasting—remove by water or vacuum

Contractor/ Employer Responsibilities

- Any employer who has a workplace or operation that is covered by the standard is required to initially determine if employees are exposed to lead at or in excess of the eight-hour Action Level of 30 ug/m3 (micrograms per cubic meter of air).
- If the work operations include tasks such as spray painting with lead paint, or manual demolition of structures, manual sanding, heat gun applications, power tool cleaning, lead burning, rivet busting, abrasive blasting, welding, cutting, torch burning, cleanup activities where dry expendable abrasives are used or abrasive blasting enclosure movement and removal, where lead coatings or paint are present, the contractor is required to provide the affected employees with appropriate interim protection (i.e., respiratory protection, personal protective clothing, change areas, hand washing facilities, biological monitoring, and training) until such time that employee exposures have been determined.
- Lead containing materials being demolished need to be adequately wet misted during the operation and the area beneath the demolition area needs to be covered with plastic to contain and collect the materials and not contaminate the floors and other work surfaces. Lead painted surfaces as a demolition activity shall be performed and accomplished in accordance with the State/Federal guidelines

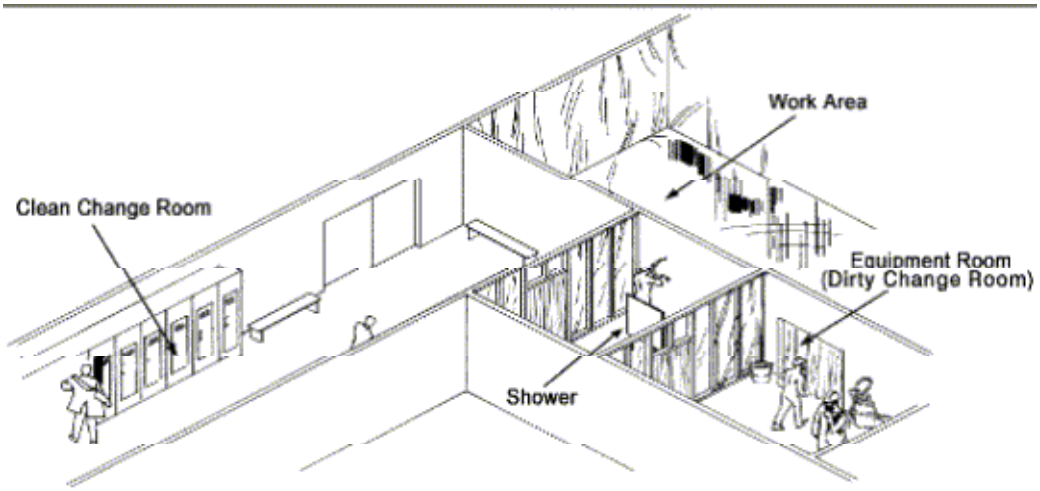
Many of the standard's provisions are triggered by the level of employee exposure to lead.

- Each employer who has a workplace or operation covered by this standard must initially determine if any employee may be exposed to lead at or above the action level of 30 micro-grams per cubic meter (30 mg/m 3) of air calculated as an 8-hour time-weighted average. A negative exposure assessment (NEA) shall be established to determine what personal exposures are prior to performing further work that may displace or impact lead containing materials

- The employer must assure that no employee is exposed to lead at concentrations greater than 50 micrograms per cubic meter (50 mg/m 3) of air averaged over an 8-hour period (the permissible exposure limit PEL). Whenever there has been a change of equipment, process, control, personnel, or a new task has been initiated that may result in exposure above the PEL, the employer must conduct additional monitoring.

- Employee exposures in excess of the PEL require additional actions by the employer including, routine air monitoring, methods of complying with the PEL, the use of respiratory protection, the use of protective work clothing and equipment, housekeeping practices, hygiene facilities (i.e. change areas, shower and

hand washing facilities, and eating facilities), medical surveillance and medical removal protection, employee information and training, warning signs, and record keeping.



TYPICAL ENTRY / DECONTAMINATION LAYOUT

- Training must be provided in accordance with the Hazard Communication Standard and additional training must be provided for employees exposed at or above the action level. Prior to the start of the job, each employer must establish and implement a written compliance program.
- Where airborne concentrations of lead equal or exceed the action level at any time, an initial medical examination consisting of blood sampling and analysis must be made available for each employee prior to initial assignment to the area.
- A report from the Environmental Consultant summarizing the work; the outcome of the air sampling and the outcome of the TCLP test shall be provided to the DeMaria Superintendent before the remainder of the work commences. Modifications to the work plan will be modified based on elevated sampling from the LEA.

Effective late April 2010, new EPA regulations will apply to contractors performing renovation, repair, and painting (RRP) projects in homes, child care facilities, and schools built prior to 1978. The new requirements essentially mean that such facilities will be treated as if contaminated with lead paint.

The new regulations require specific containment procedures, detailed record keeping, and an employee certified as a lead renovator on site at all times during setup, demolition, and cleanup. The EPA also requires a post-cleanup dust test. EPA certification is mandatory and takes a minimum of 90 days to obtain. Violation fees start at $32,500 per day, per violation. The financial toll of non-compliance with RRP regulations could be devastating for your insured's' businesses.

How to Avoid Hazards

When employees are exposed above the PEL, the employer must develop a compliance program that includes engineering and work practice controls. The best way to prevent over-exposure to lead is to install and maintain engineering controls to eliminate or reduce the hazard. Examples of engineering and other controls include:

- Conduct bulk material analysis to determine if lead is present.
- Provide interim protection until air monitoring determines exposure levels.
- Use exhaust ventilation and dust collection systems. For example, power tools used for grinding surfaces coated with lead containing paint can be equipped with dust collection systems. Use local exhaust ventilation where feasible.

Poly enclosure with HEPA “negative air” unit

- Do not dry sweep or use compressed air to clean work areas contaminated with lead materials; use wet methods or a vacuum equipped with a high efficiency particulate (HEPA) filter.
- Comply with all requirements of Part 603 with regard to air monitoring, compliance program, use of protective work clothing and equipment, housekeeping, hygiene facilities, medical surveillance and medical removal protection, employee information and training, warning signs, and record keeping.
- If engineering and work practice controls cannot be used or do not reduce exposure to an acceptable level, then the employer must provide respiratory protection. The type of respiratory protection required is based on the level of exposure determined by air monitoring. The minimum respirator required is a half mask, air-purifying respirator with HEPA filters. Remember, the employer must then implement a respiratory protection program as required by MIOSHA Part 451, Respiratory Protection.
- If respirators are used to protect employees, then a regulated area should be established to prevent unprotected employees from entering the exposure area.

Cadmium Hazard

Employer Responsibilities:

Manufacturing operations that use or produce materials or products containing cadmium must assess exposure to cadmium. Construction or maintenance activities that may result in exposure to cadmium include, but are not limited to, demolition, renovation and salvaging structures where cadmium or cadmium-containing materials are present; cutting, brazing, grinding, or welding on surfaces that are painted or coated with cadmium-containing compounds; and transporting, storing, and disposing of cadmium or cadmium-containing materials on site or location at which construction activities are performed.

Following are requirements of the level of employee exposure to cadmium:

- An employer whose workplace or work operation involves cadmium in any way must determine if any employee may be exposed to cadmium at or above the Action Level (AL) of 2.5 micrograms per cubic meter of air (µg/m3). An employer must identify which employees potentially are exposed to cadmium at or above the AL and must conduct exposure monitoring to determine what the exposure levels are.
- Before performing work where employees may be exposed to cadmium, an employer must establish the applicability of the rules by determining whether cadmium is present in the workplace. The employer must designate a competent person to make this determination. All employees who may be exposed to cadmium must be provided training in accordance with the standard.
- When employee exposures are determined to be at or in excess of the AL, the employer must implement periodic air monitoring.
- Employee exposures in excess of the PEL of 5 µg/m3 require additional actions including, the establishment of regulated areas with warning signs, the application of engineering and work practice controls, the implementation of a written compliance program, the use of respiratory protection, the use of protective work clothing and equipment, and the use of hygiene facilities (i.e., change areas, shower and hand washing facilities, and eating facilities). Medical surveillance is required for employees exposed above the AL for 30 or more days per year.

How to Avoid Hazards

When employees are exposed above the PEL, the employer must develop a compliance program that includes engineering and work practice controls. The best way to prevent over-exposure to cadmium is to install and maintain engineering controls to eliminate or reduce the hazard. Examples of engineering and other controls include:

- Conduct bulk material analysis to determine if cadmium is present.
- Provide interim protection (i.e., respirator and protective equipment, gloves, coveralls, etc.) until air monitoring determines exposure levels.
- Use exhaust ventilation and dust collection systems. For example, power tools used for grinding surfaces coated with cadmium containing paint can be equipped with localized exhaust ventilation dust collection systems.
- Do not dry sweep or use compressed air to clean work areas contaminated with cadmium materials; use wet methods or a vacuum equipped with a high efficiency particulate (HEPA) filter.
- Comply with all requirements of Part 309 with regard to air monitoring, regulated areas, compliance program, use of protective work clothing and equipment, housekeeping, hygiene facilities, medical surveillance and medical removal protection, employee information and training, warning signs, and record keeping.
- If engineering and work practice controls are not effective in reducing exposure to an acceptable level, then the employer must provide respiratory protection. The type of respiratory protection required is based on the level of exposure determined by air monitoring. The minimum respirator required is a half mask, air-purifying respirator with HEPA filters. When respirators are used, the employer must then implement a respiratory protection program as required by **MIOSHA Part 451, Respiratory Protection.**

SILICA DUST

Silica is the second most common mineral in the earth's crust and is a major component of sand, rock and mineral ores. Some of the activities that pose the greatest potential for worker exposure are: Sawing, hammering, drilling, grinding, and chipping of concrete or masonry. Abrasive blasting of concrete (regardless of abrasive used), Demolition of concrete and masonry structures, Dry sweeping or pressurized air blowing of concrete, rock or sand dust. Even material containing small amounts of crystalline silica may hazardous if they are used in ways that produce high dust concentrations.

Exposure Limits

The Permissible Exposure Limit (PEL) for respirable crystalline silica depends upon the amount of silica in the sample. The formula for determining the PEL is as follows:

$$\frac{10\ \text{mg/m3}}{\%\ \text{Silica} + 2}$$

For example: If an employee is monitored for silica exposure and the amount of silica in the sample is 20% then the PEL = 0.45 mg/m3. The sample result would then be compared to the PEL to determine if the employee was over-exposed. The National Institute for Occupational Safety and Health (NIOSH) and the American Conference of Governmental Industrial Hygienists (ACGIH) both recommend a PEL of 0.05 mg/m3.

How to Avoid Hazards

Remember, nearly all concrete, block, brick and other masonry material contains silica. If you cut it, drill it, jack-hammer it, or break/crush it, you can create hazardous exposure to silica. Examples of engineering and other controls include:

- Employees must be trained on the hazards of exposure to silica in Hazard Communication.
- In the case of abrasive blasting, utilize abrasive blasting materials with <1% crystalline silica. Materials such as steel-shot or iron-shot can be used for abrasive blasting instead of silica sand.
- Use exhaust ventilation and dust collection systems. For example, power tools used for cutting masonry materials can be equipped with dust collection systems.
- Use wet methods to keep dust to a minimum when cutting/drilling silica containing materials
- Enclose cabs on machinery to prevent operator exposure.
- Do not dry sweep or use compressed air to clean work areas, use wet methods or a vacuum equipped with a high efficiency particulate (HEPA) filter.
- Use work practice controls such as opening doors and windows to provide general ventilation and stay up-wind of a dusty operation.
- Take advantage of the prevailing wind to blow dust away from employees, or use exhaust fans for dust control. Use caution to prevent all workers from airborne dust
- If engineering and work practice controls cannot be used or do not reduce the dust to an acceptable level, then the employer must provide respiratory protection. For operations other than abrasive blasting, the protection recommended is an air-purifying respirator with HEPA filters. Air supplied type CE abrasive blasting respirators are the only respirators suitable for abrasive blasting operations. Remember, the employer must then implement a respiratory protection program. If respirators are used to protect employees, then a regulated area should be established to prevent unprotected employees from entering the exposure area.

PCB'S HAZARD

Commercial Use of PCBs Poly Chlorinated Biphenyl's or more commonly named PCBs are linked to numerous health effects including cancer and non-cancer effects of the endocrine, reproductive and immune systems. PCBs are regulated under the Toxic Substances Control Act (TSCA). TSCA now bans the manufacturer, processing, use and distribution in commerce of PCBs. Although no longer commercially produced in the United States, PCBs may be present in products and materials produced before the 1979 PCB ban. Products that may contain PCBs include:

Transformers and capacitors , Other electrical equipment including voltage regulators, switches, reclosers, bushings, and electromagnets, Old electrical devices or appliances containing PCB capacitors, Fluorescent light ballasts, Cable insulation, Thermal insulation material including fiberglass, felt, foam, and cork, Caulking.
The most common trade name is Aroclor

How to Avoid Hazards

1. Equipment and materials that contain PCB's need to be identified to DeMaria and its subcontractors by the building or facility owner, or construction management group prior to demolishing or removing and disposing of these items.

2. Work involved with handling, removal and disposal of PCB's shall be performed by trained and licensed environmental contractors while wearing disposable suits with booties and rubber gloves that will be disposed of as hazardous materials. Personnel will need to remove the disposable items before leaving the established regulated area to assure that they do not contaminate other areas of the project.

3. A written PCB removal plan will need to be established by the environmental contractor and/or by their environmental consultant and will need to be submitted and approved by DeMaria, and the building or facility owner environmental consultant or representative before the work takes place.

4. Work involving the handling or removal of PCB's shall be conducted in established regulated area. The regulated area setup shall be determined through the contractors approved plan.

5. The removal area and regulated areas shall be setup with two layers of 6 mil plastic placed beneath the work area and/or stored materials and extended as large enough to encompass the established PCB work area.

6. If the stored materials are intended to be stacked in the regulated area then the two layers of 6 mil plastic needs to be placed on the walls as high as the materials will be stacked. If items that contain or have been contaminated with PCB's are to be stored in impermeable drums then the regulated storage areas only needs to have one layer of 6 mil plastic placed beneath the drums.

7. The regulated area shall also be identified with the proper PCB Danger – Do Not Enter – Authorized Personnel Only signage.

8. All plastic used on the floors during removal and on the floor and on the floors and walls of the regulated areas shall be removed and disposed of as PCB contaminated materials.

9. If and when light fixtures or other items are found to have contained leaking PCB's, then the ballast, entire fixture, cover, and lenses need to be disposed of as contaminated hazardous waste.

10 The storage trailer that will remove the PCB's from site will need to be lined with two layers of 6 mil plastic as high as the materials will be stored. The floor plastic needs to extend up the walls a minimum of 12" and the wall plastic needs to extend down over the floors a minimum of 12".

BLOODBORNE PATHOGENS

Blood borne Pathogens are disease-causing organisms transmitted through contact with infected blood and other bodily fluids. Diseases such as the Human Immunodeficiency Virus (HIV) and Hepatitis B are among the most common forms of blood borne pathogens. Any exposure to an infected individual's body fluids may result in transmission of blood borne pathogens, which could lead to disease or death. This program will apply to all DeMaria employees who could be "reasonable anticipated", as a result of performing their job duties, to come in contact with blood and other potentially infectious bodily fluids. DeMaria employees trained and certified in first aid and CPR who might be "reasonable anticipated" to come in contact with bodily fluids also must follow the rules and regulations set forth in this program.

Procedures

1. When dealing with blood or other bodily fluids, Subcontractor employees are required to follow Universal Precautions. Accordingly, all human blood and other human body fluids are treated as if known to be infectious for HIV, Hepatitis B, and other blood borne pathogens.

2. All Subcontractors are required to make available to their employees rubber gloves (usually latex) rated at 5 microns or less and one – way resuscitation masks.

3. All certified first aid providers are required to wear disposable latex gloves and eye protection while performing first aid on an injured individual. If rescue breathing or CPR is performed, a one – way resuscitation mask shall be provided by for the protection of the injured and the provider.

4. All blood spills shall be immediately contained and cleaned with an anti-viral solution, or by a 5:1 water to bleach solution. by the Subcontractor. (Unless local authorities prohibit such action)

5. Any material saturated with blood shall be considered Regulated Waste. This means liquid or semi-liquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; and items that are caked with dried blood or other potentially infectious materials. Discarded Band-Aids and gauze containing small amounts of blood products are not considered regulated waste. Disposal of all regulated waste shall be the responsibility of emergency medical personnel or the Subcontractor of the injured employee

6. Contractors who are required to come in contact with blood and other potentially infectious bodily fluids, must have a Blood borne Pathogens program, meeting MIOSHA requirements, including adequate training in handling and clean-up.

7. Waste created from the clean-up of a BBP, should be considered hazardous and will be identified with the biohazard symbol.

8. Contractors who may come in contact with potentially contaminated fluids should use universal precautions to protect themselves, including safety glasses, gloves, masks, etc.

CARBON MONOXIDE

Carbon monoxide is formed by the incomplete combustion of carbonaceous materials such as coke, oil, gasoline, and natural or manufactured gas. It is flammable, toxic, nonirritating, tasteless, odorless, and heavier than air. When inhaled it combines with hemoglobin of blood, excluding oxygen from the tissues, ultimately resulting in asphyxia. Some of the common symptoms of carbon monoxide poisoning are shortness of breath, headache, dizziness, muscular weakness and nausea. Temporary heaters and/or gasoline motors used where people are working in confined and/or depressed areas produce the greatest carbon monoxide poisoning exposures and are prohibited on this project.

Procedures

Use of any device that discharges the products of combustion into a inside work area of any employee requires testing defined below:

1. Monitor the work area to determine the concentration of carbon monoxide at least three times each 8 hour period. Monitoring shall be conducted with a UL approved monitoring device, such as a LEL/02/H2S/CO 4-gas monitor.

2. Monitor several different points within the area and at the breathing heights of an employee.

3. Maintain a record of these tests, noting the date, time and result of each test. Provide the monitoring results to all affected employees within the work area, if requested. Once the project is complete, these records must be archived with Business Unit Safety Director.

4. Remove the employees from the area when the concentration of carbon monoxide reaches 20 PPM. Supplemental ventilation or elimination of the source shall be provided to reduce the concentration to a level below 20 PPM before the employees are allowed to resume work in the area.

5. Test greater than 3 times per day when the concentration reaches a steady concentration greater than 20 PPM. Solid Fuel Salamanders are prohibited within buildings and on scaffolds.

OSHA has interpreted that this rule was adopted to prevent fires and carbon monoxide hazards associated with the burning of spark-producing fuels (wood and paper) in open salamanders, and was not intended to apply to properly constructed and equipped solid fuel (coke and coal) salamanders used in structures under construction. The use of solid fuel salamanders (heating units with combustion exhausting into the surrounding enclosed atmosphere) are only allowed in open spaced areas.

VENTILATION AND DUST CONTROL

1. Adequate ventilation shall be provided in all work locations where it is necessary or determined to be a respiratory health concern (i.e. interior welding, cutting demolition, airborne dust displacement type activities, etc.)

2. Dust protection measures shall be established to assure that airborne dust does not migrate into the building.

3. Acceptable indoor air quality shall be continuously maintained in the work areas.

4. Sweeping compound or the use of water shall be implemented to assist in minimizing dust during clean-up.

5. Wet misting of the area shall be administered to reduce the airborne dust and remove the potential of employee exposure where adequate ventilation cannot be provided.

6. Wet misting shall not be conducted if potential electrical hazards exit.

7. Saw cutting of store shall take place using wet methods to control airborne dust.

8. Negative air machines with HEPA filter dust collectors will be used when warranted to filter the air and provide acceptable indoor air quality.

CONTAMINATED SOIL OR UNKNOWN MATERIAL HAZARD

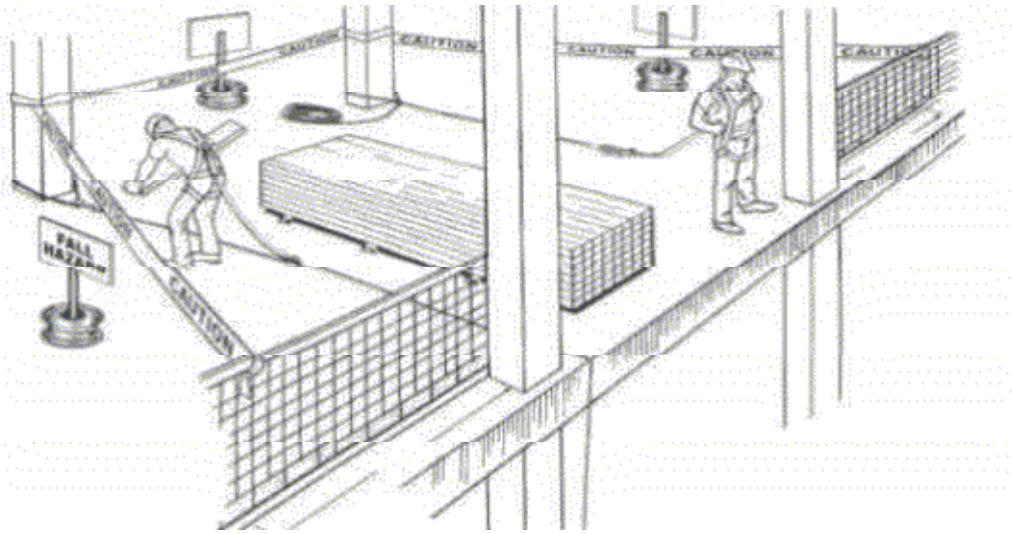
During work activities. If suspected contaminated soils, groundwater, or other unidentified material is encountered contact DeMaria superintendent.

- Contaminated soil or groundwater may exhibit chemical or unusual odors or colors or sheen and may contain man-made debris
- All excavation, dewatering, transport, or disturbance of suspected material shall stop immediately but not before the site is safe and stabilized

FALL PROTECTION SAFETY RULES

***HAZARD ANALYSIS (HA) & FALL PROTECTION WORK PLAN REQUIRED**

Fall protection will be required 100% of the time for all employees and subcontract employees working at elevated work locations that are six feet above a floor or ground. It also applies to certain hazardous conditions involving less than a six foot fall hazard when the employee is exposed to moving equipment, working over equipment, re-steel or other items posing a safety hazard. No employee or work operation is exempt from the 100% fall protection requirement.



When physical means cannot be provided, such as engineering and design controls to eliminate the hazards, then the use of personal fall protection equipment must be implemented. Full body harnesses with shock absorbing lanyards and double locking snap hooks will be worn for fall arrest. The employees on a specific job must be trained in the fall hazards and the method used to implement fall protection. The evaluation of the jobsite and the completion of the fall protection work plan will be completed by a designated "competent person," who has an understanding of MIOSHA/ OSHA fall protection requirements, the fall protection systems available for use, and has the authority to take corrective action to eliminate employee exposure to fall hazards.

Fall Protection

Fall Restraint

(Stopped BEFORE falling)

- **Guardrails**
- **Safety Belt/ Harness**
- **Warning Line System & Safety Monitor**

Fall Arrest

(Stopped AFTER the fall)

- **Full-Body Harness**
- **Safety Nets**
- **Catch Platforms**

FALL PROTECTION SYSTEMS

Fall protection systems will be assembled and maintained according to manufacturer's instructions when using a manufactured system. Any fall protection system used will meet OSHA/MIOSHA standards

1. Must provide fall protection at 6' or higher, this includes:

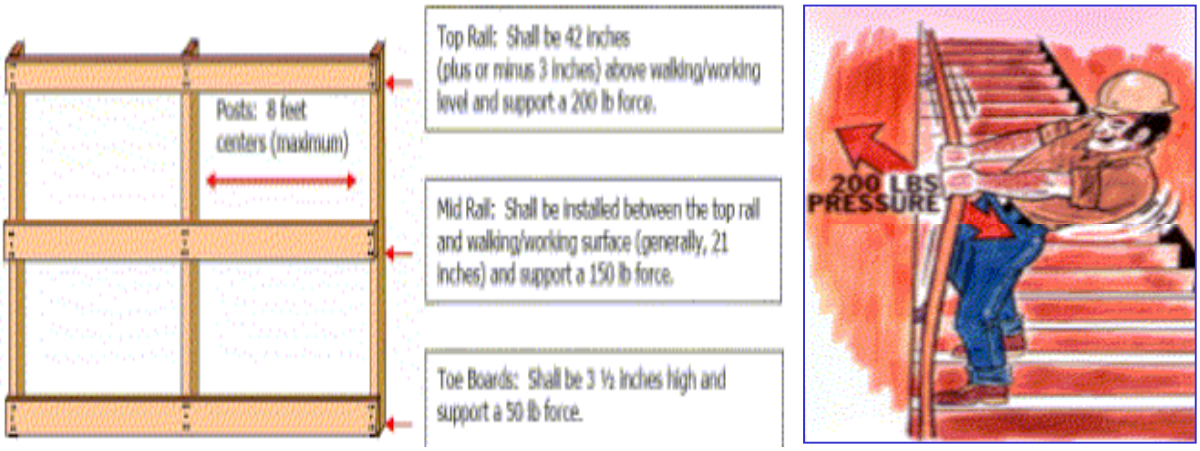
- Elevation greater than 6'
- Open-sided floor, open sides of structures, open sided walking or working surfaces
- Floor, roof or wall openings
- Stairways, runways, ramps or bridges
- Excavations or trenches (Excavation over 6' require barriers or guardrails if they are wells, pits, shafts, or similar OR if the excavation edge is not readily seen)
- Elevated work platforms
- Leading edges, Perimeter edges
- Aerial lifts, Extensible boom platforms
- Holes and skylights
- Any other walking/working surface

Holes must be covered and covers must: withstand twice-anticipated load be marked "hole" or "cover" and be secured

2. Each employee on a walking/working surface with an unprotected side or edge which is 6 feet or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.

STANDARD GUARDRAILS

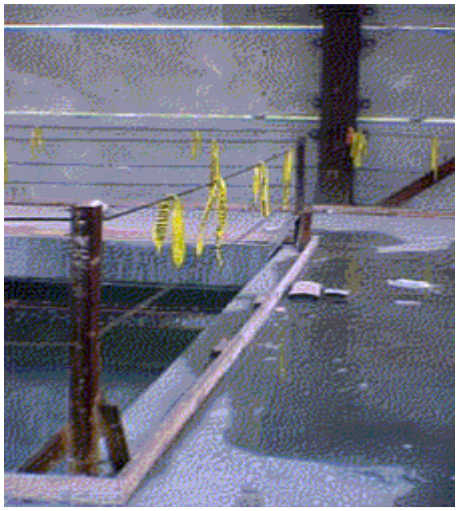
- Be 42" high, plus or minus 3" above the work surface at top rail with midrail and toe board.
- Toprail must be able to support 200 pounds of outward and downward force.
- Midrails must be able to support 150lbs of outward and downward force.
- Must be inspected regularly for damaged or missing components.
- Wire rope must be flagged every 6ft
- Wire rope must not deflect more than 3 inches
- A guardrail does not protect a person standing on a ladder, box, or other surface above the work surface

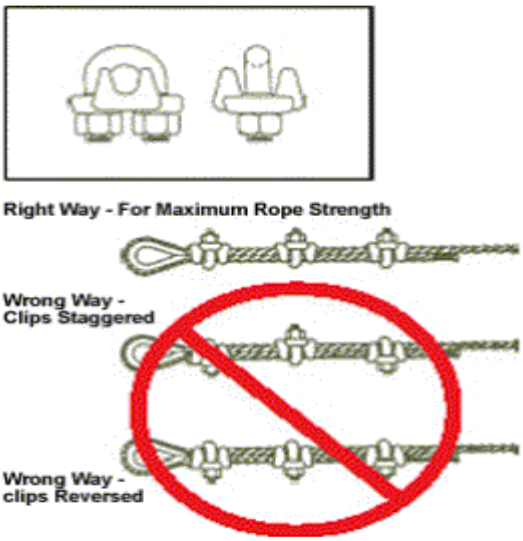


WIRE ROPE

When using wire rope for fall cables, follow rope manufacturer's recommendations on:

- Spacing of clips, Length of overlay, Number of clips
- **"Never saddle a dead horse"** ("Never saddle a dead horse" is a catch phrase to help you remember which way to install a cable clamp-- The dead end of the cable is the end not supporting any weight, the saddle should always be towards the live end.)
- The most common method used to make an eye or attach a wire rope to a piece of equipment is with cable or Crosby clips of the U-Bolt and saddle type.
- U-Bolt clips must have the U-Bolt section on the dead or short end of the rope and the saddle on the live or long end of the rope. The wrong application of even one clip can reduce the strength of the connection to 40%.
- Never use fewer than the number of clips recommended. Turn back the correct amount of rope for dead ending to permit proper spacing of the clips. Always use new clips; re-used clips will not develop the proper efficiency. It is equally important to always use a thimble to prevent the rope from wearing the eye and to provide a safer connection.
- After the rope has been in operation for an hour or so, all nuts on the clip bolts will have to be retightened, and they should be checked for tightness at frequent intervals thereafter. This is necessary because the rope will stretch slightly, causing a reduction in diameter which will loosen the clips.
- Never use any kind of clip to directly connect two straight lengths of rope.
- Must be made from ¼ inch diameter cable or larger.
- Must be flagged every 6 feet with a high visibility material like caution or surveyors tape.



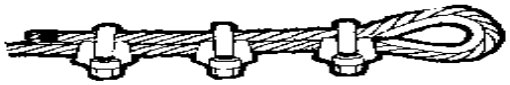


METHOD OF CLIP INSTALLATION

APPLY FIRST CLIP – one base width from dead end of wire rope – U-bolt over dead end-live end rests in clip saddle. Tighten nuts evenly to recommend torque.

APPLY SECOND CLIP – as close to the loop as possible – U-bolt over dead end – turn on nuts firm but DO NOT TIGHTEN.

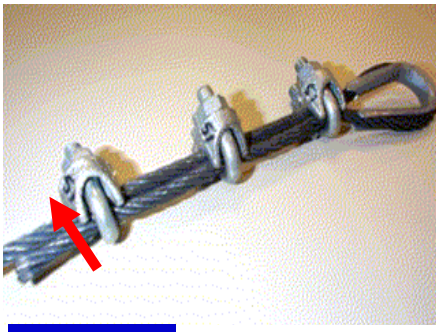
ALL OTHER CLIPS – space equally between first two – this should be no more than one clip base apart – turn on nuts – take up rope slack – TIGHTEN ALL NUTS EVENLY ON ALL CLIPS TO RECOMMENDED TORQUE.



NOTE: All clip saddles must bear on live end of rope and match rope size. The distance between the clips on a wire rope is governed by the diameter of the rope. For rope sizes from ½" to 2 ¼" in diameter, the number of clips varies from 3 clips for ½" rope to 8 clips for 2 ¼" rope. The length of turned back rope also varies from 9" of turnback for ½" rope, to 112" of turnback for the 2 ½" rope.

NUMBER AND SPACING OF U-BOLT WIRE ROPE CLIPS

Improved plow steel, rope diameter (inches)	Number of clips		Minimum spacing (inches)
	Drop forged	Other material	
1/2 or less	3	4	3
5/8	3	4	3-3/4
3/4	4	5	4-1/2
7/8	4	5	5-1/4
1	5	6	6
1-1/8	6	6	6-3/4
1-1/4	6	7	7-1/2
1-3/8	7	7	8-1/4
1-1/2	7	8	9



Dead End

This is the correct method

COVERS, HATCHES & HOLES

- Be able to support twice the weight of employees and equipment that would be on it at the same time or twice the maximum axle load of the largest vehicle that would cross it.
- Be secured to prevent accidental displacement.
- Be marked with the word “Cover” or “Hole

Must be covered!

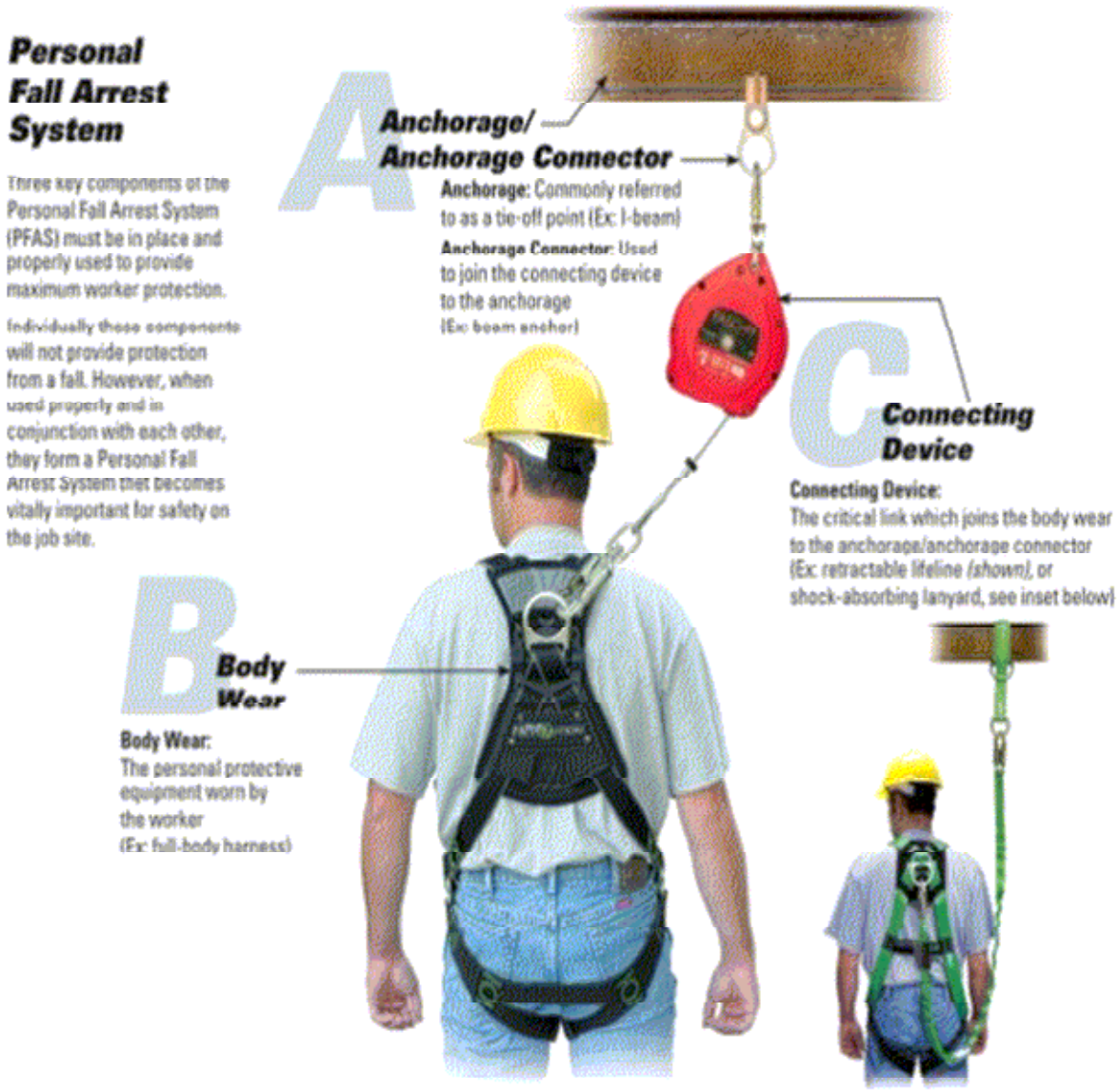
SAFETY NETS

- Must be installed within 30 feet vertically of the work surface. Fall Distance into net no more than 30ft
- Nets must extend beyond working surface 8’, 10’, or 13’ depending on distance below surface
- Must extend out from the outermost projection of the work surface as specified.
- Must be tested or certified to withstand a 400 pound object dropped from the highest work area.
- Mesh at any point must not exceed 36 square inches with the largest opening being 6 inches side to side.

Safety nets shall extend outward from the outermost projection of the work surface as follows: **VERTICAL DISTANCE FROM WORKING LEVEL TO HORIZONTAL PLANE OF NET**	**MINIMUM REQUIRED HORIZONTAL DISTANCEOF OUTER EDGE OF NETFROM THE EDGE OF THE WORKING SURFACE**
Up to 5 feet	8 feet
More than 5 feet up to 10 feet	10 feet
More than 10 feet	13 feet

PERSONAL FALL ARREST SYSTEM (PFAS)

- 100% tie-off required above 6ft
- Must have anchor points capable of withstanding a 5000 pound shock
- Free fall distance may not exceed 6ft. A lower level may not be contacted during a fall.
- Lanyards must be shock-absorbing. Harnesses and lanyards must be inspected daily
- A Rescue Plan is required that will provide a means to retrieve a victim that has fallen and is suspended by their harness and lanyard
- Lifelines must be placed or protected to prevent abrasion damage.
- Snap hooks may not be connected to each other, or to loops in webbing.
- Inspect components for deformation, wear, and mildew



6 Easy Steps That Could Save Your Life

How To Don A Harness

Hold harness by back D-ring. Shake harness to allow all straps to fall in place.

If chest, leg and/or waist straps are buckled, release straps and unbuckle at this time.

Slip straps over shoulders so **D-ring is located in middle of back between shoulder blades.**

Pull leg strap between legs and connect to opposite end. Repeat with second leg strap. If belted harness, connect waist strap after leg straps.

Connect chest strap and position in midchest area. Tighten to keep shoulder straps taut.

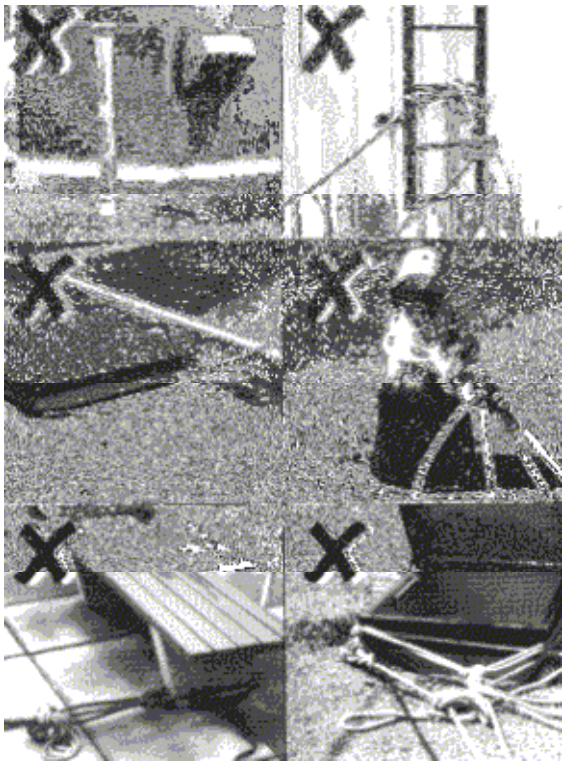
After all straps have been buckled, **tighten all buckles so that harness fits snug but allows full range of movement.** Pass excess strap through loop keepers.

ANCHOR POINTS

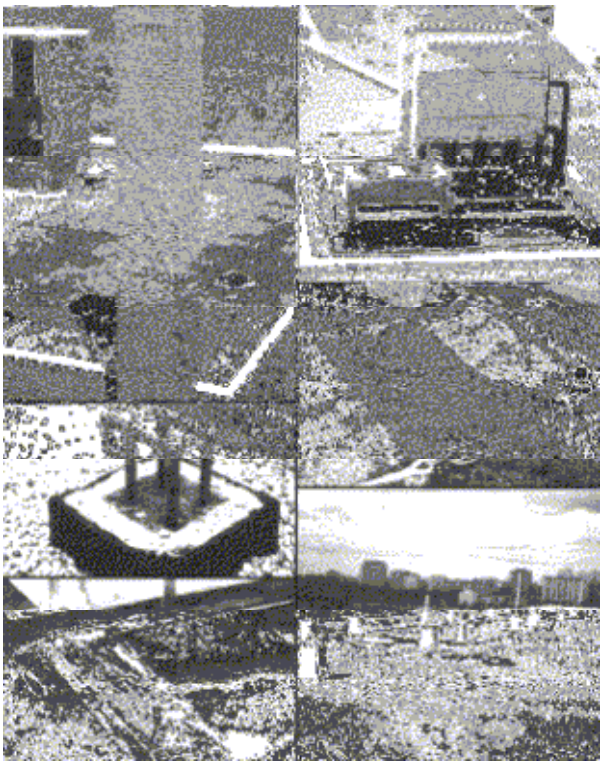
Anchorages used for attachment of personal fall arrest equipment shall be capable of supporting at least 5000 pounds per employee attached, or the system shall be designed, installed and used under the supervision of a qualified person, as part of a complete personal fall arrest system, maintaining a minimal safety factor of at least two. Personal fall arrest systems, when *stopping* a fall, shall be rigged such that an employee can neither free fall more than 6 feet, nor contact any lower level When using a body harness as part of a *positioning device* system, the system must be set up so that a worker can free fall no more than 2 feet.

Height - Anchorage must be at least the height of the body support D-Ring.
Strength - Must be 5,000 lb minimum or 3000 lb for self retracting Lifelines.
Location - Must be above the head during movement such that a swing fall will not reasonably cause injury.
Mobility - Accommodates the ability to move consistent with the job function requirements.
Inspected - Must be inspected daily or prior to each use.

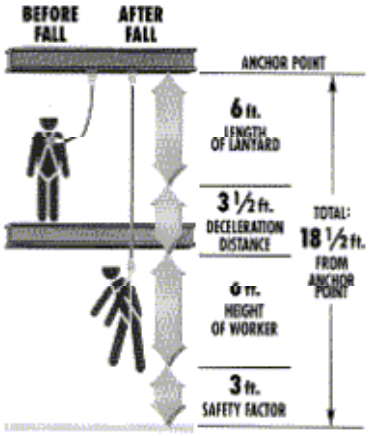
Examples of <u>inadequate</u> anchorage points



Examples of adequate anchorage points



When using retractable lifelines, anchor point shall be directly overhead. The worker shall not travel more than six feet in any direction from center point.



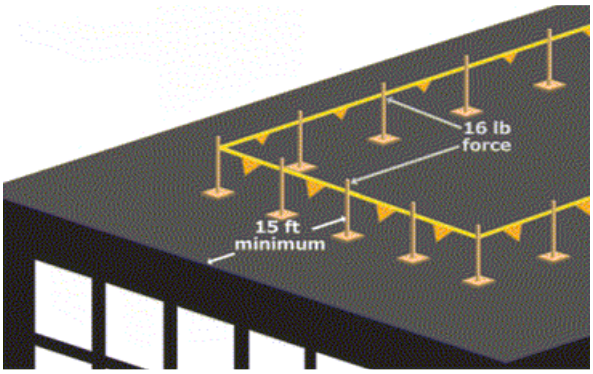
Swing fall/ Pendulum hazards must be considered when selecting an anchor point. Ideally, work should be performed directly below the anchor point. The further a worker is away from this ideal position, the greater the potential for the worker to swing like a pendulum into objects if the worker falls.

Bottoming Out:

Bottoming out occurs when a falling worker hits a lower level, the ground, or other hazard before the fall is fully arrested. This occurs when the total fall distance is greater than the distance from the work surface to the next level, the ground, or some other hazard below.

WARNING LINE SYSTEMS

- Be made of ropes, wire or chain between 39” and 45” above the surface height. The rope, wire, or chain shall be rigged and supported in such a way that its lowest point (including sag) is no less than 34 inches from the walking/working surface and its highest point is no more than 39 inches from the walking/working surface
- The warning line shall be erected around all sides of the roof work area. Be placed 15ft feet back from the edge. Be flagged at 6 foot intervals. Be attached to stanchions such that pulling on one section of chain will not take up slack in the other sections. Have a minimum tensile strength of 500 pounds. Caution tape is prohibited for a warning line
- Points of access, materials handling areas, storage areas, and hoisting areas shall be connected to the work area by an access path formed by two warning lines
- After being erected, with the rope, wire, or chain attached, stanchions shall be capable of resisting, without tipping over, a force of at least 16 pounds applied horizontally against the stanchion, 30 inches above the walking/working surface, perpendicular to the warning line, and in the direction of the floor, roof, or platform edge
- No employee shall be allowed in the area between a roof edge and a warning line unless the employee is wearing proper fall protection. The contractor must effectively implement a work rule prohibiting going beyond the warning line



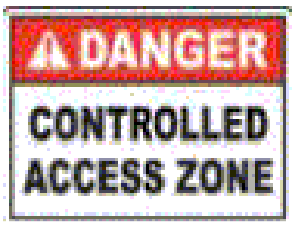
SAFETY MONITORING SYSTEMS

A safety monitoring system means a fall protection system in which a competent person is responsible for recognizing and warning employees of fall hazards. The duties of the safety monitor are to:

1. Warn by voice when approaching the open edge in an unsafe manner.
2. Warn by voice if there is a dangerous situation developing which cannot be seen by another person involved with product placement, such as a member getting out of control.
3. Make the designated erectors aware they are in a dangerous area.
4. Be competent in recognizing fall hazards.
5. Warn employees when they appear to be unaware of a fall hazard or are acting in an unsafe manner.
6. Be on the same walking/working surface as the monitored employees and within visual sighting distance of the monitored employees.
7. Be close enough to communicate orally with the employees.
8. The safety monitor shall not have other responsibilities which could take the monitor’s attention from the monitoring function. The safety monitoring system shall not be used when the wind is strong enough to cause loads with large surface areas to swing out of radius, or result in loss of control of the load, or when weather conditions cause the walking-working surfaces to become icy or slippery.

At no time shall a Safety Monitor system be used as the only means of fall protection

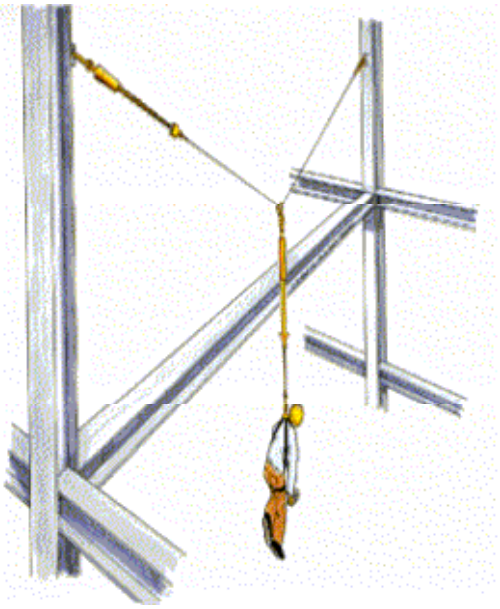
CONTROLLED ACCESS ZONE



A controlled access zone means an area designated and clearly marked, in which leading edge work may take place without the use of guardrail, safety net or personal fall arrest systems to protect the employees in the area. Control zone systems shall comply with the following provisions:

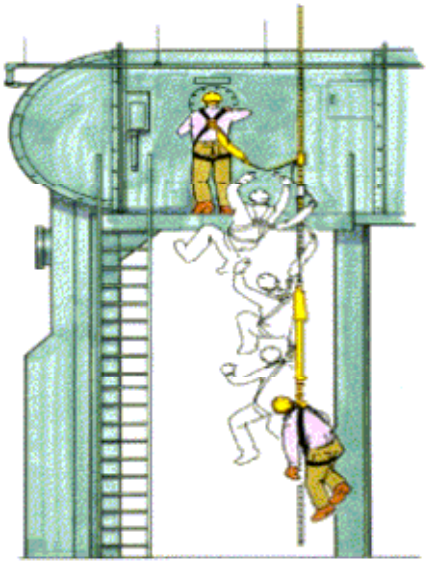
- When used to control access to areas where leading edge and other operations are taking place the controlled access zone shall be defined by a control line or by any other means that restricts access.
- When control lines are used, they shall be erected not less than 15 feet nor more than 25 feet from the unprotected or leading edge, except when erecting precast concrete members.
- 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.
- The control line shall be connected on each side to a guardrail system or wall.
- Control lines shall consist of ropes, wires, tapes, or equivalent materials, and supporting stanchions as follows:
    - Each line shall be flagged or otherwise clearly marked at not more than 6-foot intervals with high-visibility material.
    - Each line shall be rigged and supported in such a way that its lowest point (including sag) is not less than 39 inches from the walking/ working surface and its highest point is not more than 45 inches from the walking/working surface.
    - Each line shall have a minimum breaking strength of 200 pounds.
    - This system is not to be used in adverse weather conditions such as snow, rain, or high wind, nor after dark.
    - On floors 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. 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 take place, only that portion of the guardrail necessary to accomplish the day's work shall be removed.

THINGS TO REMEMBER…

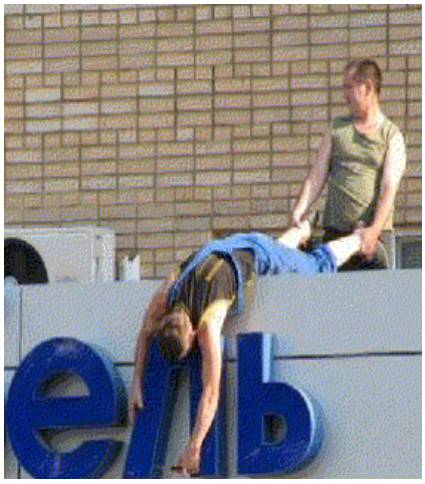


Horizontal lifelines will sag and can increase required clearance distance

Retractable lifelines can reduce clearance required



Rope lifelines stretch as much as 10%-15% which Must be considered when determining clearance



NOT PROPER FALL PROTECTION!

This plan is designed to help employees to recognize the fall hazards on this job and to establish the procedures that are to be followed in order to prevent falls to lower levels or through holes and openings in walking/working surfaces. Each employee will be trained in these procedures and strictly adhere to them except when doing so would expose the employee to a greater hazard.

FALL PROTECTION WORK PLAN

Note: Employees review the requirements of this fall protection work plan prior to starting work. This plan is available at the jobsite during work activities. Also, employees are trained and instructed in accordance with MIOSHA Part 45 Fall Protection.

Job Location & Task Description:

1. **Identify all fall hazards >6 ft or more in the work area:**

☐ Unprotected sides or edges	☐ Fall from one work level to the other	☐ Excavation
☐ Floor & wall openings and holes	☐ Ladders	☐ Steel erection or Form Work
☐ Scaffold erection/disassembly	☐ Roof work	☐ Slip, trip, fall
☐ Other (describe):		

2. **Method of fall protection to be provided:**

☐ Fall restraint	☐ Guardrails	☐ Warning line
☐ Fall arrest	☐ Anchorage point(s) (see #7)	☐ Safety monitor
Describe in more detail all fall protection to be used:		

3. Describe the correct procedure for assembly, maintenance, inspection, and disassembly of the fall protection system to be used: (Assembly and disassembly of all equipment will be done according to manufacturers' recommended procedures)

4. Describe the correct procedure for handling, storage, and securing of equipment, tools and material: A visual inspection of all safety equipment will be done daily or before each use. Any defective equipment will be tagged and removed from use immediately. (The manufacturer's recommendations for maintenance and inspection will be followed)

5. Describe the method of providing overhead protection for workers who may be in, or pass through, the area below the work site:

☐ Barricading	☐ Toeboards on scaffolds and floor openings
☐ Hard hats & Safety Glasses required	☐ Warning signs
Describe:	

6. Describe the method for prompt, safe removal of injured workers: Normal first aid procedures should be performed as the situation arises. If the area is safe for entry, the first aid should be done by a certified individual.

FALL PROTECTION WORK PLAN

	☐ Initiate emergency response (911)	☐ Use drop lines or retraction devices	☐ Use ladders
	☐ Utilize lift truck or personnel platform	☐ Utilize scaffolds	
	☐ Other (describe):		
7.	Describe the method used to determine the adequacy of attachment points:		
	☐ Manufacturer's data	☐ Existing engineering/design documents	
	☐ Evaluation by qualified engineer	☐ Good faith assessment. Explain?	

8. The written fall protection work plan will be reviewed before work begins on the job site. Those employees attending will sign below

9. Identify the safety monitor(s) (if used – or N/A):

10. Justify selecting controlled access zone and/or safety monitor (if used – or N/A):

Approvals

Fall Protection Plan Completed By: Contractor:

Competent Person:

Approved By:

Project Superintendent	Date	Safety Director	Date

MIOSHA Threshold Heights Requiring Fall Prevention/Protection Equipment

(DeMaria may have more stringent requirements)

This chart provides a breakdown of the fall protection requirements of MIOSHA construction standards. Check to see if specific rules relate to your industry or activities. It's important that you look at the specific language in the standard,

Condition	Threshold	Method	Standard and Rule
All conditions except: scaffolds (Part 12); cranes and derricks (Part 10); aerial work platforms (Part 32); steel erection (Part 26); tunneling (Part 14); electric transmission and distribution (Part 16); stairways and ladders (Part 11).	6 feet	Guardrail system, safety net system or personal fall arrest system.	Part 45. Fall Protection, 1926.501.
All conditions except: guardrail systems on scaffolds (Part 12); stairways, stair rail systems, and hand rails (Part 11 and Part 21); personal climbing equipment (Part 6).	6 feet	Guardrail system, safety net system or personal fall arrest system.	Part 45. Fall Protection, 1926.502.
Employees in steel erection activity except: leading edge work in a controlled decking zone and initial connecting.	15 feet	Guardrail system, safety net system, personal fall arrest system, positioning device system, or fall restraint system.	Part 26. Steel Erection, Rule 2645.
Employees in steel erection activity, initial connecting.	2 stories or 30 feet, whichever is less.	Guardrail system, safety net system, personal fall arrest system, positioning device system, or fall restraint system.	Part 26. Steel Erection, Rule 2646.
Employees in steel erection activity, leading edge work in a controlled decking zone.	2 stories or 30 feet, whichever is less.	Guardrail system, safety net system, personal fall arrest system, positioning device system, or fall restraint system.	Part 26. Steel Erection, Rule 2648.
Employees working in a boom-supported or truck-mounted aerial work platform.	No minimum	Personal fall arrest system or restraint system in addition to the standard guardrail system.	Part 32. Aerial Work Platforms, Rule 3209 (11) & (12).
Employees working on a scaffold, 10 feet or more above the floor or ground.	10 feet	Guardrail system and/or personal fall arrest system.	Part 12. Scaffolds and Scaffold Platforms, Rule 1213.
Employees working on stairways.	4 risers or 30 inches, whichever is less.	Stair rails and/or handrails	Part 21. Guarding of Walking and Working Areas, Rule 2155 and 2156.
Employees working on high pitched roofs (a roof having a slope greater than 4 in 12, vertical to horizontal) or dome-type roofs.	No minimum	Roofing brackets and a working plank or crawling board (high pitched roofs), and guardrail system, safety net system, or personal fall arrest system.	Part 21. Guarding of Walking and Working Areas, Rule 2131. Part 45. Fall Protection, Rule 1926.501.
Employees working on low pitched roofs (a roof having a slope less than or equal to 4 in 12, vertical to horizontal).	6 feet	Guardrail system, safety net systems, personal fall arrest systems, or a combination of these systems along with a warning line system and/or monitoring system.	Part 45. Fall Protection, Rule 1926.501.
Employees using personal climbing equipment.	No minimum	Lineman's belt and safety strap, safety net system.	Part 6. Personal Protective Equipment, Rules 633, 634 & 635.
Employees constructing electric transmission and distribution lines and equipment.	No minimum	Lineman's belt, safety strap, lifelines, lanyards and personal climbing equipment.	Part 16. Power Transmission and Distribution, Rules 1634 & 1635.
Employees on a work platform suspended from a crane or derrick.	No minimum	Guardrail system and personal fall arrest system.	Part 10. Lifting and Digging Equipment, Rule 1015a & 1018a.

Structural steel connectors riding the headache ball.	No minimum	Positioning device system or personal fall arrest system.	Part 28. Personnel Hoisting in Steel Erection, Rule 2809.
Employees on a suspended work platform, working in a tunnel shaft or caisson.	No minimum	In accordance with Part 10.	Part 14. Tunnels, Shafts, Caissons and Cofferdams, Rule 1478.

DEMOLITION SAFETY PROGRAM

*HAZARD ANALYSIS (HA) & DEMOLITION PERMIT REQUIRED & CHECKLIST

Demolition Requirements

It is the intent of DeMaria to monitor and review the safety procedures during demolition processes to ensure the safety of all employees and subcontractors. The subcontractor superintendent/foreman will be responsible for providing direction and guidance to all of its employees during the demolition operation. It is the sole responsibility of the subcontractor who conducts these processes to utilize and enforce the following procedures and meet all current federal, state, and/or local laws relevant to the operation(s). Each Subcontractor must submit a Demolition Plan and a Hazard Analysis (HA) to DeMaria project superintendent a minimum of three days prior to the start of demolition for each phase.

PROCEDURES

All Subcontractors must follow the requirements of this program before and during all demolition activities.
A Competent person that is adequately capable of communicating with the DeMaria Superintendent will be onsite and monitoring the demolition activities at all times during the work shift and will have a communication device so that they can be contacted if needed or to use in case of an emergency.

ENGINERING SURVEY

Prior to beginning demolition operations, an engineering survey will be made by a qualified person designated by the Subcontractor. This survey shall determine the condition of the framing, floors, and walls, and will also determine the possibility of an unplanned collapse of any part of this structure. Adjacent structures will be checked for structural integrity. Written evidence of the results and approval of this survey are to be given to DeMaria superintendent and safety director and shall ensure that there is a written report of the survey at the field office/trailer until the completion of the job . In addition, the subcontractor shall supply a hazard analysis of the demolition operation. The plan provides the written operating guidelines and procedures to be used before the start of every demolition job. The subcontractor must take a number of steps to safeguard the health and safety of workers at the job site. These preparatory operations involve the overall planning of the demolition job, including the methods to be used to bring the structure down, the equipment necessary to do the job, and the measures to be taken to perform the work safely

ENVIROMENTAL HAZARD DTERMINATION

Prior to beginning demolition operations, DeMaria will obtain from the owner a site survey identifying the locations of hazardous containing materials. If the owner is unable to provide this information, DeMaria will conduct bulk sample of lead paint as required and have them tested for lead paint and cadmium content. If results are positive for either the Subcontractor shall follow the MIOSHA guidelines for Lead containing materials prior to their disturbance during the demolition operation at their own cost. Hazardous material examples include, but are not limited to the following: asbestos-containing materials, lead-containing materials, PCB-containing material. If an area or item, such as a pipe, tank, or bin, is known or suspected to contain a hazardous

substance, then the subcontractor shall ensure that testing is performed and the hazard eliminated before demolition is permitted to begin

- **Contractors performing the demolition of painted surfaces that contain or have lead-based paint is required by the law and MIOSHA standards to conduct an 8hr time weighted air sample by a qualified abatement contractor**. A copy of accurate records of all monitoring and other data used in conducting employee exposure assessments must be turned into DeMaria and include the following:

- The date(s), number, duration, location and results of each of the samples taken if any, including a description of the sampling procedure used to determine representative employee exposure where applicable; A description of the sampling and analytical methods used and evidence of their accuracy; The type of respiratory protective devices worn, if any; Name, social security number, and job classification of the employee monitored and of all other employees whose exposure the measurement is intended to represent; and The environmental variables that could affect the measurement of employee exposure.

- The subcontractor shall collect personal samples representative of a full shift including at least one sample for each job classification in each work area either for each shift or for the shift with the highest exposure level. Full shift personal samples shall be representative of the monitored employee's regular, daily exposure to lead.

- All hazardous materials shall be removed in accordance with MIOSHA/OSHA standards prior to demolition. Where hazardous materials cannot be removed prior to demolition (e.g. lead-coated surfaces), a plan shall be developed by the subcontractor that details the procedures to be used for the safe handling and disposal of the material(s). Generated debris will be placed in 6 mil plastic bags and labeled as LEAD WASTE. All hazardous materials that remain in the structure/demolition area during the demolition shall be clearly marked by the subcontractor, signifying the presence of the hazard

SYSTEMS VERIFICATION

All subcontractors will verify and make all systems safe before demolition work takes place. This will include the implementation of lockout tagout devices in accordance with the DeMaria or building owner procedures, whichever is more stringent, before work begins. All responsible contractors shall paint or otherwise properly identify the items or systems that they are responsible for in the areas scheduled for demolition accordingly with the appropriate paint before work begins.

RED paint = DO NOT DEMOLISH
GREEN paint = SAFE TO DEMOLISH
NOT MARKED?, ASK DeMARIA SUPERINTENDENT
NOT SURE?, ASK DeMARIA SUPERINTENDENT

FIRE PRECAUTIONS

A "fire plan" should be set up prior to beginning a demolition job. This plan should outline the assignments of key personnel in the event of a fire and provide an evacuation plan for workers on the site. An sufficient number of fully charged portable fire extinguishers should be provided throughout the operation. All mobile equipment should be equipped with an approved fire extinguisher. A fire watch must be maintained for a minimum of 30 minutes after all cutting and burning had been completed

UTILITY LOCATION

One of the most important elements of the pre-job planning is the location of all utility services. The subcontractor shall ensure that all electric, gas, water, steam, sewer, and other services lines are shut off, capped, or otherwise controlled from damage before demolition work is started. In each case, any utility company, which is involved, should be notified in advance, and its approval or services, if necessary, shall be obtained. If it is necessary to maintain any power, water, or other utilities during demolition, such lines shall be temporarily relocated as necessary and/or protected. The location of all overhead power sources should also be determined, as they can prove especially hazardous during any machine demolition. All workers should be informed of the location of any existing or relocated utility service.

During demolition, the subcontractor or his or her designated representative shall make daily inspections to detect hazards and unsafe conditions. The subcontractor 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.

SAFE WORK REQUIREMENTS

- Subcontractor shall 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 inches high and located not less than 6 feet back from the projected edge of the opening above.
- Areas under demolition will be demarcated with physical barriers, signage or other means to assure that personnel do not enter into the area during these activities. If these systems do not work adequately then they will be modified do assure that this is accomplished
- Access points of construction personnel, building occupants, and/or pedestrians shall be protected by sheds, canopies or both and enclosed on the sides where they may also be exposed from materials, tools or debris that may become displaced or fall from above. This protection shall be capable of withstanding the intended impact of items that could become displaced. The protection ceiling shall be constructed of continuous and solid 2” material.
- Subcontractors will be required to wear durable gloves, eye protection, and long sleeved shirts in addition to their standard Personal Protective Equipment when performing selective demolition operations. The subcontractor is solely responsible for this and any other required personal protective equipment. Subcontractor shall ensure that an employee shall not be exposed to weather conditions during demolition work if weather conditions constitute a hazard.
- Adequate ventilation with ducting to the outside air will be provided and used during the demolition process.
- Spray misting with water will be conducted as the demolition work takes place for dust control. Alternative measures for dust control will be determined and provided where there are energized electrical services, communication panels, or other systems that would pose hazards or cause damages if impacted by water
- If air compressors are allowed to be used inside of the building they will be equipped with exhaust air scrubbers and adequate ventilation systems will be provided to assure that exhaust is removed from the area and sent to the outside air. Air compressors will be equipped with anti-blow back devices. Air hoses will have a wire or whip safety device installed at the connection joints to assure that they do not come apart.
- Subcontractor shall ensure that glazed sash and doors and other glass that might cause an injury shall be protected or removed before demolition starts.
- During demolition, an existing standpipe system shall remain in service as long as possible, and any sprinkler or standpipe system in a portion of a structure that is not subject to demolition shall remain in service.

- If an employee is required to work in a structure that has been damaged by fire, flood, or explosion, then an employer shall ensure that the affected walls and floors are shored or braced before manual demolition starts.
- Subcontractor shall ensure that manual demolition of structural components starts at the top of the structure and proceeds downward so that each level is completely dropped before the next lower wall and floor is dropped, except that if a connection portion is a different level, then that portion may be removed first.
- During manual demolition of a structure of skeleton steel construction, the steel framing may be left in place, but the subcontractor shall ensure that all structural supports are cleared of loose material as the demolition proceeds downward.
- Areas under demolition will have an adequate amount of carts, wheel barrels and personnel to remove the materials shortly after they have been demolished. If this cannot be accomplished then the demolition of additional areas must cease until the materials are removed.
- All hazards that are created by the demolition contractor shall make the area safe before, or as the work takes place to assure that no personnel are exposed to the hazard. Areas where demolition has been completed will be final cleaned using compound while sweeping.
- If scaffolding is used it will be erected under the direction and monitoring of the deemed Competent Person based on the 29 CFR 1926.450 OSHA Scaffold Standard definitions.

DEBRIS CLEARANCE & CHUTES

There will be no uncontrolled falling of debris without protection and physical barriers provided around the lower elevation to assure that personnel or others are not contacted by the materials. In addition, there will not be any uncontrolled dropping or falling of materials greater than 20' to the lower elevation without using a trash chute or other type of similar enclosure. If trash chutes are used they will be installed by a Competent Contractor and supervised by the "Competent Person" in the manner that they are designed . No materials shall be dropped to any point lying outside the exterior walls of the structure unless the area is effectively protected. No material may be dropped to a point outside the building unless that area is delineated with a protective barricade and the distance to any point does not exceed 20 feet. All chutes must be entirely enclosed except for openings at or slightly above the floor level for the insertion of materials.

A substantial gate must be installed in each chute at or near the discharge end. A competent person must be assigned to control the operation of the gate and the backing and loading of trucks. Chutes must be designed and constructed of such strength as to eliminate failure due to the impact of material and debris loaded into them. Materials, chutes, or sections at an angle of more than 45 degrees from the horizontal will be entirely enclosed, except for openings equipped with closures at or about floor level where materials are inserted. The openings will not exceed 48 inches in height as measured along the wall of the chute. At all stories below the top floor, openings not being used will be kept closed or covered. Each chute shall have a substantial gate at or near the discharge end. A Subcontractor designated Competent Person shall control the operation of the gate and the backing and loading of trucks. When operations are

not in progress, the area surrounding the discharge end of a chute shall be securely closed off. A guardrail will protect any chute opening into which debris is dumped. Any space between the chute and the openings in the floor through which the chute passes will be covered. Where material is dumped from mechanical equipment or wheelbarrows, a securely attached toeboard or bumper not less than 4 inches thick and 6 inches in height will be provided at each chute opening. There is to be no removal of materials through floor openings unless approved by the DeMaria Superintendent.

MANUAL REMOVAL OF FLOORS

- Openings cut in floors will extend the full span of the arch between supports. Before demolishing a floor arch, debris and other material will be removed from the arch and other adjacent floor area.
- Planks not less than 2 inches by 10 inches in cross section, full size undressed, will be used to stand on while breaking down floor arches between beams.
- The planks will be placed so that a safe support is provided for the workers if the arch between the beams collapses.
- The open space between planks shall not exceed 16 inches.
- Safe walkways meeting Federal OSHA standards, not less than 18 inches wide, formed of planks, not less than 2 inches thick, if wood, and of equivalent strength, if metal, will be provided so that workers can reach any point without walking on exposed beams.
- Stringers of ample strength will be installed to support the flooring planks and the ends of such stringers will be supported by floor beams or girders, and not by floor arches alone.
- Planks will be laid together over solid bearings with the ends overlapping at least 1 foot.
- Demolition of floor arches will not be started until the arches and surrounding floor area for a distance of 20 feet have been cleared of debris and any other unnecessary materials.

REMOVING MATERIAL WITH EQUIPMENT

- Mechanical equipment will not be used on floors or working surfaces unless the floor or surface is strong enough to support the imposed load.

STORAGE OF MATERIALS

No demolition materials are to be stored inside the building without the permission of DeMaria Superintendent and meeting MIOSHA/ OSHA standards.

REMOVAL OF STEEL CONSTRUCTION

- Steel construction shall be dismantled column length by column length and tier by tier.
- If cutting and burning is to be done on steel then the steel must be checked for lead based paint. If lead is found in the paint that the proper precautions must be taken to prevent worker exposure.
- A fire watch must be maintained for a minimum of 30 minutes after all cutting and burning had been completed.
- Structural members being dismembered are not to be overstressed.

DEMOLITION USING MECHANICAL EQUIPMENT

- When demolition balls and clam buckets are used for demolition, no craft personnel will be allowed to enter an area where they can be adversely affected by this operation. Only those subcontractors necessary for the performance of the operations will be permitted in this area at any other time.
- The weight of the demolition ball shall not exceed 50 percent of the crane's rated load. This is based on the length of the boom and the maximum angle of operation at which the ball will be used; or it will not exceed 25 percent of the nominal breaking strength of the line by which it is suspended, whichever is less.
- The ball will be attached to the load line with a swivel-type connection to prevent twisting of the loadline, and attached so that the weight cannot become incidentally disconnected.
- During demolition, continuing inspections by a Subcontractor assigned Competent Person shall be made as the work progresses so that hazards that could result from weakened or deteriorated floors, or walls,

or loosened material are detected. No subcontractor employee will be allowed to work where such hazards exist until these hazards are corrected by shoring, bracing, or other effective means.

TRAINING

- Subcontractors are responsible for training their employees in all applicable demolition operations and all applicable Federal, State, and Local laws, codes, and standards.

DEMOLITION PERMIT

The purpose of the permit is to ensure that all testing, identification, waste management and administrative systems have been addressed for demolition projects. Demolition is defined as removal of equipment and facilities that will not be replaced. Requirements –

- Contractors must review demolition work with DeMaria Superintendent to determine appropriate steps to take.
- Demolition work may also require the use of Lockout/Tagout, Line Entry, and other safety permits as identified in the Hazard Analysis (HA).
- Contractors must identify a competent person for each demolition project and must ensure that they are trained on the DeMaria permit.

Demolition Contractor Permit

Permit System:
Demolition Contractor shall complete front & back of permit and return to DeMaria Superintendent prior to demolition for approval. When the Demolition operation is complete demolition permits shall be turned over to the DeMaria Superintendent for file retention.

Project Name: **Date:**	**Demolition Contractor:**	**Competent Person:**
Job Description and Location (Building/Floor/Area):		
.**NOTE! Demolition permits are required to be filed by DeMaria at job site**		

BEFORE STARTING DEMOLITION

Pre-Demolition:
(To be completed by demo-contractor.)

1) An Engineering Survey has been completed to determine the possibility of unplanned collapse of any part of the structural and discussed with DeMaria Superintendent & copy in office? ☐ Yes ☐ No If no, explain

2) A Hazard Analysis Has been completed and approved by DeMaria superintendent?
☐ Yes ☐ No If no, explain:

3) A walk-thru with DeMaria Superintendent has been completed to identify items to be demolished?
☐ Yes ☐ No If no, explain:

4) Silica Hazard- engineering controls in place to eliminate or reduce the silica dust to below the MIOSHA Permissible Exposure Limit (PEL). ☐ Yes ; ☐ No, air-purifying respirators with HEPA filters will be used by employees :

5) All equipment, piping and wiring has been clearly marked. **GREEN** indicates what is to be removed and **RED** indicates what is to stay. Not Marked STOP
☐ Yes ☐ No If no, explain:

6) Lock out/ Tag out procedures have been followed "Out of Service" equipment have been completed.
☐ Yes ☐ No If no, explain:

Utilities:
informed utility companies of the planned demolition.
☐ Yes ☐ No If no, explain:

All utility services are shut off or capped

☐ Yes ☐ No If no, explain:

Abatement required for (check all that apply):

☐ Asbestos ☐ Lead ☐ Other:_____

Abatement Contractor Name:

Possess current accreditation and state of Michigan certification as an Asbestos and/or Lead Abatement Contractor. ☐ Yes ☐ No If no, explain:

What controls are in place to keep employees safe from environmental hazards?

VI. Review the following for further actions:
☐ Daily Job Huddles will be conducted with demolition crew
☐ Safe removal of material, soil and concrete has been evaluated for proper disposal;.
☐ The presence of molds or bacteria, infectious residues or environmental elements that may be present
☐ Additional Comments:
Above signatures MUST be obtained prior to starting work. Keep with copy at DeMaria jobsite trailer

_____ ____
Signature Demo Contractor Date

_____ _____
Signature DeMaria Superintendent Date

PRE-DEMOLITION INSPECTION & CHECKLIST

A pre-demolition inspection of the structure/demolition area, specifically focused on hazardous materials, shall be conducted by the subcontractor and the pre-demolition checklist completed and returned to the DeMaria Project Superintendent. In addition, the subcontractor shall provide a letter from the company or responsible for oversight of the abatement/ remediation activities confirming the removal of listed material(s) hazardous materials to the DeMaria Project Superintendent. Demolition cannot begin until this report(s) is received by the DeMaria superintendent and verified in the field

PRE-DEMOLITION INSPECTION CHECKLIST Directions: Contractor checks that all of the following items have been addressed prior to initiating demolition activities. Return to DeMaria Superintendent
[ ] **Hazard Analysis (HA) :** Hazard Analysis is required to be completed and approved by DeMaria for all demolition activities.
[ ] **Engineering survey:** Along with the Hazard Analysis, An engineering survey will be made by a qualified person designated by the Subcontractor identify areas of planned demolition on a site safety process.
[ ] **Controlled access:** The contractor shall confirm that the building is secured for controlled access by trained demolition personnel only.
[ ] **Hazardous Materials Survey:** The contractor shall confirm that the building was surveyed for regulated hazardous materials (asbestos, lead paint, etc.) and shall confirm that any necessary abatement has been performed.
[ ] **Service connections:** Verify that before a structure is demolished or removed, all utilities having service connections within the structure (such as water, electric, gas, sewer and other connections) have been notified. Demolition shall not proceed until a release is obtained from the utilities, stating that their respective service connections and appurtenant equipment, such as meters and regulators, have been removed or sealed and plugged in a safe manner. Check all utilities to ensure connections are disconnected.
[ ] **Employee Safety:** All required safety equipment is available and in proper worker order for employees. All safety precautions in place
[ ] **Portable fire extinguishers:** Verify that all buildings under demolition shall be provided with at least one portable fire extinguisher at each exit and on all floor levels where combustible materials have accumulated. A portable fire extinguisher shall also be provided in every storage and construction shed. Additionally, at least one portable fire extinguisher shall be provided where special hazards, such as flammable or combustible liquid storage, exist.
[ ] **Fire Department access:** Verify that fire department access shall be provided and maintained to all structures undergoing demolition.
[ ] **Dust Control/Mitigation:** Verify that sufficient and appropriate means and methods for dust control are available.
[ ] **Removal of debris:** Verify that all waste materials be removed in a manner which prevents injury or damage to persons, adjoining properties and public rights-of-way.
[ ] **Removal of waste material:** Verify that material shall not be dropped by gravity or thrown outside the exterior walls of a building during demolition. Wood or metal chutes shall be provided for the removal of such materials. Where the removal of any material will cause an excessive amount of dust, such material shall be wet down to prevent the creation of a nuisance.
[ ] **Lighting:** Verify that all stairways and parts of buildings under demolition shall be adequately lighted while persons are engaged at work.
[ ] **Grading of lot:** Provision shall be made to prevent the accumulation of water or damage to any foundations on the premises or the adjoining property (refer to Storm water Management requirements).
[ ] **Other laws:** The contractor must follow all Federal, State and local regulations and ordinances for demolition. The contractor shall contact each agency, as necessary, and obtain and produce all required permits and approvals.
[ ] **DeMaria Demolition Permit:** Submitted the Demolition Permit to the DeMaria Superintendent for approval prior to demolition.

STEEL ERECTION SAFETY

*HAZARD ANALYSIS (HA) & FALL PROTECTION PLAN REQUIRED

FALL PROTECTION IN STEEL ERECTION

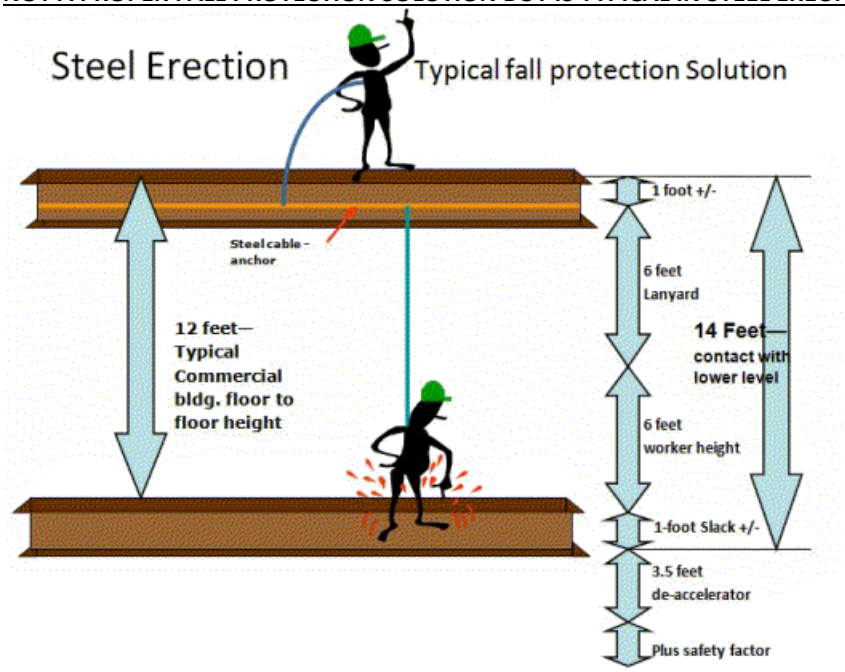
Requires fall protection for employees engaged in steel erection activity, when they are exposed to a fall of more than 6 feet above a lower level. Fall protection includes guardrail systems, safety net systems, personal fall arrest systems, positioning device systems, or fall restraint systems.

Safety Harnesses/Shock Absorbing Lanyards

- Full body harnesses and shock-absorbing lanyards **are to be worn at all times** when employees are working on the steel or decking.

- Lanyard length must be determined using the maximum fall distance calculation. Six foot lanyards are acceptable where impalement hazards do not exist and the fall distance does not exceed clearance requirements/limitations. The use of waist belt for fall protection is prohibited. Harnesses must be properly worn with shock absorbing lanyards attached to the rear "D" ring. Leg straps must be worn at any time the employee is engaged in work operations that require fall protection in the form of tying off.

NOT A PROPER FALL PROTECTION SOLUTION BUT IS TYPICAL IN STEEL ERECTION



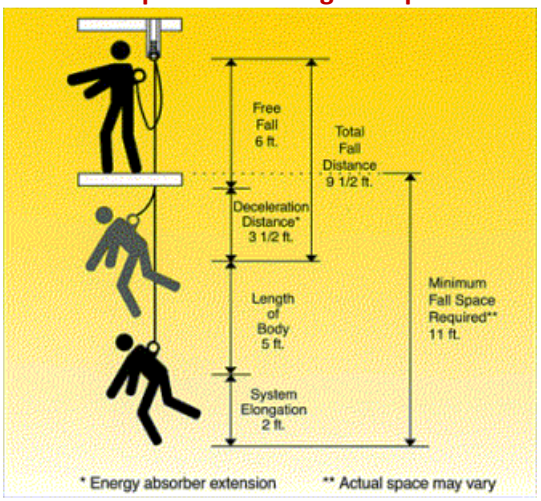
- To achieve 100% fall protection; double lanyards must be provided. This may also necessitate the use of two anchorage points such as requiring the tradesmen to carry two beam skates.

- Retractable lifelines may be an effective tool to achieve 100% fall protection. Design and Use of Retractable Lifeline Systems must address and minimize swing hazards.

- The systems implemented, whether lifelines with shock absorbing lanyards, beam skates with lanyards, retractable lifelines, overhead horizontal cable or other approved systems must limit the fall distance to not more than 6'.

- Any damaged device shall be removed from service. If a harness or lanyard is subjected to a fall, they will be removed from service immediately. The anchorage system must be carefully re-inspected by a competent person.
- All materials, equipment and tools, which are not in use while aloft, shall be secured against accidental displacement.
- Erection Subcontractor must coordinate with the Superintendent to ensure that no other construction processes take place below steel erection unless adequate overhead protection for the employees is provided.
- Piece marks identifying the weight of the structural steel must be readily identifiable for safe lifting operations.
- Employees must be trained in the recognition and identification of fall hazards in the work area, and in the use of fall protection systems, their capacities and limitations. Employees must also be trained by a qualified person whenever they are exposed to multiple lift procedures.
- The fabricator, erector, and decker must complete a Hazard Analysis and have it reviewed and approved by the DeMaria Project Superintendent prior to start of any work
- All ironworkers must be trained in the specific requirements of the prior to their starting on the project with documentation provided to the Superintendent.

The fall must be of such distance to prevent striking or impalement by the stanchions below.



Who is a Connector? A connector is an employee who, working with hoisting equipment, is placing and connecting structural members or components. The definition is very specific; connection is distinguished from other steel erection activities by the elements of the definition. For example, spreading and securing bar joists by hand would not be considered connecting, since that work is not done with hoisting equipment. Therefore, an employee is a 'connector' only when working with 'hoisting equipment'. This includes placing components as they are received from hoisting equipment, and then connecting those components while hoisting equipment is overhead.

Connectors and Detail Crews

1. Connectors cannot be exposed to a fall hazard of 30 FT. or greater at any time during the erection process. Connectors must be provided and use fall protection. Fall protection includes guardrail systems, safety net systems, personal fall arrest systems, or fall restraint systems At heights more than 15 feet and up to 30 feet,

connectors must wear fall protection equipment with the ability to be tied off, unless guardrail systems or safety net systems are in place. The equipment worn would include full body harness, lanyard with appropriate deceleration device, and suitable anchorage equipment.
2. Stanchions with horizontal lifelines designed to sustain twice the impact of a fall, beam skates, self anchorage lanyards, aerial lifts, scissors lifts, or scaffolding equipped with guard rails may be used as the primary source of fall protection. Connectors and Detailers must use double lanyards to achieve 100% fall protection, i.e. with stanchions or beam skate systems.
3. When beam skates are utilized, the ironworkers must walk the bottom flange of the beam.
4. Before crossing any iron suspended by a crane, two bolts must be installed wrench tight. The same connection must be made on the second side prior to releasing the choker.
5. Harnesses and lanyards must be utilized when float scaffolds are used.

Deckers

1. Deckers cannot be exposed to a fall hazard of 15 ft. or greater at any time during the erection process.
2. A perimeter guardrail system, consisting of a top rail and mid rail, shall be in place before the decking crew begins decking operations. Project Management must approve variations due to job conditions of this requirement.
3. A temporary platform must be established, consisting of an area of four sheets and a bundle.
4. Employees must be fall protected while establishing the work platform.
5. When spreading, laying and welding deck, all members of the deck crew shall be protected by full body harnesses and shock absorbing lanyards attached to a life line, or retractable life lines that would allow freedom of movement and still provide adequate protection in the event of a fall. A Controlled Access Zone may be created to allow the welding of deck and material movement without fall protection provided the tradesmen stay with the limits of a Control line established at least 10' from unprotected edges.
6. Sheets spanning less than three supports must be welded immediately upon installation.
7. Fall prevention measures must be implemented whenever floor opening, deck opening or roof openings are required to be cut.

Site Layout and Construction Sequence

1. Before commencement of steel erection, the erector must receive notification that:
a. The concrete in the footings, piers and walls and the mortar in the masonry piers and walls have attained 75% of the intended minimum compressive strength.
b. Anchor bolts have not been replaced or field modified without the approval of the project structural engineer of record. Project Management will provide written notification if there has been any repair, replacement or modification of the anchor bolts.

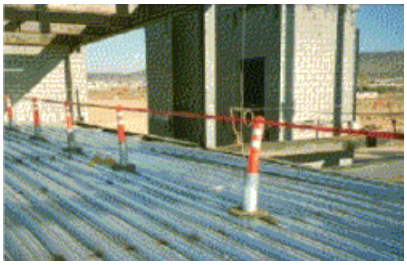
Erector/Decker Safety Coordination

1. The height of the stanchions must be considered to maintain clearance in the event of a fall above the stanchion level.
2. The integrity of the fall protection system must be maintained.
3. Each employee exposed to falls while performing steel erection and decking work must be knowledgeable of the requirements of this document. They must also be trained about fall protection systems and the limitations and protective capacities of each, which are utilized by the erection and decking contractor.
4. Employees must be trained in the recognition and identification of fall hazards in the work area, and in the use of fall protection systems, their capacities and limitations.
5. Documentation of fall protection training must be provided to the Superintendent.

Employees Working in a Controlled Decking Zone (CDZ):

CDZ Worker Fall Protection and Other Requirements: In a CDZ all of the following provisions apply:
• Employees working at the leading edge in the CDZ shall be protected from fall hazards of 2 stories or 30 feet whichever is less. Fall protection includes guardrail systems, safety net systems, personal fall arrest systems, positioning device systems, or fall restraint systems.

• Access to a CDZ shall be limited to those employees engaged in leading edge work.
• The boundaries of the CDZ shall be designated & clearly marked. The CDZ shall not be more than 90 feet wide and 90 feet deep from any leading edge. The CDZ shall be clearly marked by control lines or the equivalent.
• Each employee working in a CDZ shall have completed CDZ training
• Unsecured decking in a CDZ shall not be more than 3000 square feet.
• Safety deck attachments shall be performed in the CDZ from the leading edge back to the control line and shall have not less than 2 attachments for each metal decking panel.
• Final deck attachments and installation of shear connectors shall not be performed in the CDZ



What is a Leading Edge? A leading edge is the unprotected side and edge of a floor, roof, or formwork for a floor, or other walking/working surface, such as a deck, which changes location as additional floor, roof, decking, or formwork sections are placed, formed or constructed.

Other Steel Erection Activities: Each employee who is engaged in other steel erection work activities such as but not limited to decking, bolting, and welding shall be protected from fall hazards at more than 6 feet by the use of guardrail systems, safety net systems, personal fall arrest systems, positioning device systems, or fall restraint systems. Once a steel member is connected to the structure by the connector and the load has been released, any subsequent work attaching the member would not be considered to be connecting. For decking work, once there is no longer a leading edge or at heights greater than 30 feet or 2 stories whichever is less, the CDZ provisions no longer apply. The fall protection system implemented must be carefully pre-planned. In the event of a fall, the system must be of sufficient strength to sustain the impact force of an employee falling. It is imperative that the system implemented limit the fall distance so that impact loads are less than 1,800 lbs. and ensure adequate clearance to structures and projections underneath the employee.

Requirements for Perimeter Cable

1. The Perimeter Guardrail System shall be in place before the decking operations begin. Management must approve variations due to job conditions of this requirement.

2. Attachment and placement of cable guardrails to columns must be predetermined prior to commencement of work and discussed with the Project Manager and/or Superintendent. Generally, The Fabricator will provide columns with pre-drilled holes at 21” and 42” above finish floor elevation with holes offset to the outside of the column with engineers of record approval.

3. Columns must be designed by the Fabricator to extend a minimum of 48” above finish floors with holes or other devices to permit installation of perimeter safety cables prior to erection of next tier.

4. Cable must not deflect more than 2 in. when a 200-lb. force is applied. If a 2-in. deflection is exceeded additional intermediate supports must be provided. Maximum 2- in. deflection must be maintainable. Maximum distance between stanchions is 15 feet. Bracing/Kickers shall be provided at corner stanchions to maintain plumb when cables are pulled tight.

5. Roof levels must be protected with a Perimeter Guardrail System (top rail and mid-rail).

6. If temporary perimeters are created because of erection sequence they must be provided with a Perimeter Guardrail System (top rail and mid-rail).

Requirements for Deck Openings

1. The Erector will be required to cover **all floor openings on every floor, unless otherwise approved by the Project Manager because of constructability issues.** Elevator shafts and stair openings must be covered every other floor.

2. Covering of openings to be coordinated by project management. One or both of the following may be utilized:

A. Openings may be covered by Decking Contractor concurrent with deck installations. Additional support shall be added if necessary to maintain a safety factor of 2x the maximum load

B. The erector will provide 4 X wood material cut to lengths for installation on bottom flanges at openings. Erector to provide dimensions and install. Fabricator to supply suitable decking material for erector to install on top of 4 X wood members. Attachment of decking material is to be coordinated with slab edges to allow for removal by others when necessary. I.E. do not bury screws under slab edges.

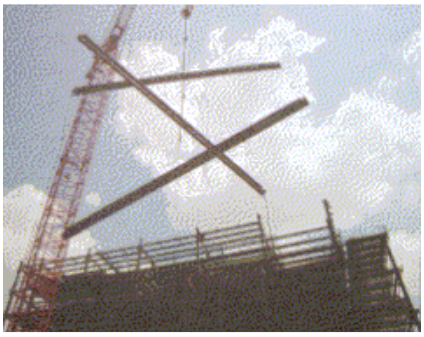
3. Working floors to be considered “controlled access” areas for ironworkers and deckers only until the floor has achieved 100% fall protection unless personal fall protection systems are utilized. All openings to be covered and cabled prior to access by other trades.

All openings shall have cable guardrail systems installed in addition to being covered. Stanchion Supports locations should be coordinated to facilitate installation of interior shaft walls. If necessitated by fall protection distance requirements, stanchion installations should occur after decking on the floor above has been completed.

Multiple lift rigging procedure. (“Christmas Treeing”)

A multiple lift shall only be performed with DeMaria superintendent approval and if all of 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 contrary to the manufacturer's specifications and limitations.
(f) Must have a qualified rigger and competent person as part of work crew



(2) 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 qualified rigger, shall be based on the manufacturer's specifications with a 5 to 1 safety factor for all components.

(3) The total load shall not exceed either 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.

(4) The multiple lift rigging assembly shall be rigged with members attached at their center of gravity and maintained reasonably level, rigged from top down, and rigged not less than 7 feet (2.1 m) apart.

(5) The members on the multiple lift rigging assembly shall be set from the bottom up.

PERSONNEL HOISTING IN STEEL ERECTION/ "RIDING THE HEADACHE BALL"

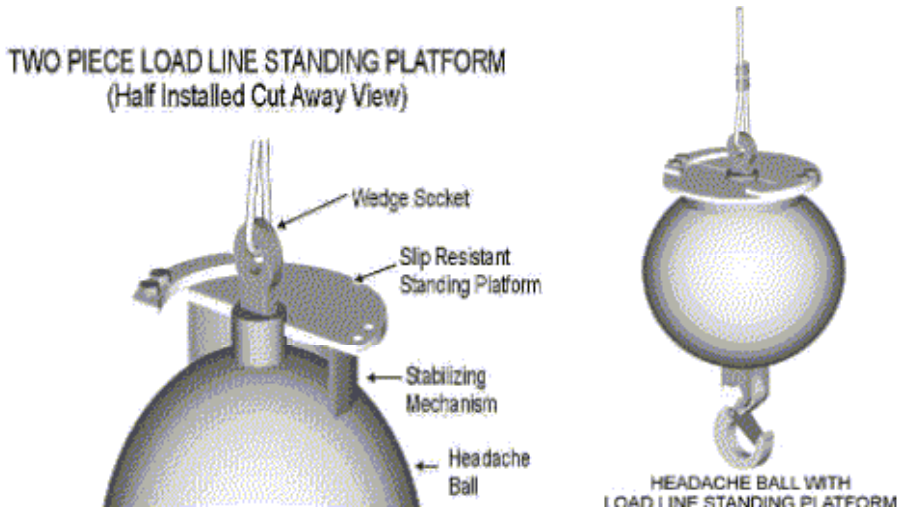
Personnel hoisting.

Riding the headache ball **is prohibited** except when the work area is inaccessible or hazardous to reach by other means, with the **prior** knowledge and approval of DeMaria Project Superintendent a maximum of 2 connectors may ride the headache ball to and from the workstation. If approved the connector or connectors may be lifted to the workstation only when all of the following conditions exist:

(a) Connectors riding a load line standing platform shall be protected from falling by a positioning device system or a personal fall arrest system as prescribed in construction safety standard

(b) The connector or connectors and his or her immediate supervisor, who shall be a competent person, and the operator who will perform the lift shall verbally agree and certify in writing that using the load line standing platform is the safest alternative. They shall plan the lift together to minimize the transport distance .A minimum distance of 20 feet shall be maintained between the load line standing platform and the top sheave.

(c) A load line standing platform shall be a minimum of 3/8 of an inch thick steel plate not less than 12 inches or more than 18 inches in diameter and shall provide means for slip resistant footing. The platform shall be secured in such a manner to prevent tipping and shall be placed between the headache ball and the wedge socket.(See figure 1.) As an alternative, a shackle rated not less than 25 tons may be used.(See figure 2.) The maximum rate of travel for the connector or connectors riding the load line standing platform shall be 100 feet per minute



(d) If an employee who is being transported on a headache ball is not in constant view of the operator (operating in the blind), a signalperson shall be assigned to give required signals to the operator. The signalperson shall not be assigned any other duties while the employee on a headache ball is in a suspended position and shall remain in a position so that both the employee on the headache ball and the operator of the crane or derrick can be seen at all times

NOTE: ***Persons observed riding the headache ball without DeMaria permission shall be removed from the site immediately. The responsible Subcontractor may also be subject to consequences.***

CRANES & LIFT SAFETY

***HAZARD ANALYSIS (HA) & CRANE LIFT PLAN REQUIRED**

There are many different types of cranes, hoists and rigging devices used for lifting and moving material. The following section is established to provide safe-work procedures related to the proper selection, inspection, and usage, of cranes, hoists and rigging devices.

Crane Operator must complete a Crane Lift Plan and return to DeMaria Project Superintendent for approval prior to lift. Crane Lift Plan must be posted at the lift site until lift is complete. Crane Lift Plan must be re-done if conditions (equipment, weather, and/or ground) or scope of work has changed. A copy of the Crane Lift Plan & Pre-Lift Safety Checklist including all supporting documents must be submitted and approved prior to any of the following types of lifts (not all-inclusive)

Two or more cranes are used to lift
Lifts =/> 24,000 pounds
Crane will Lift Personnel or Over Occupied Building
Crane will "Walk" with Load
Load will be upended and weighs >10,000 lbs.
Loads =/> 75% of Rated Load Capacity

- DeMaria Project management may classify any lift that involves sensitive, costly, or schedule-critical equipment as critical lifts. Subcontractor shall develop a written Crane Lift Plan and submit to DeMaria for approval.
- Controlling contractor will provide notification to the assembly/disassembly director (A/D director= competent & qualified person) of hazards located beneath the set up area.
- Controlling contractor will ensure that the ground conditions are firm, drained, and graded to a sufficient extent so that, in conjunction (if necessary) with the use of supporting materials, the equipment manufacturer's specifications for adequate support and degree of level of the equipment are met.
- Crane assembly/disassembly will be directed by a person who meets the criteria for both a competent person and a qualified person, or by a competent person who is assisted by one or more qualified persons, i.e. A/D director.
- Three options for power line safety, (1) ensure 20 ft. clearance, (2) de-energize and ground lines, and (3) determine the voltage, follow clearance table, 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 either 20 ft. or the minimum approach distance in the clearance table.
- A pre-planning meeting to discuss the lift will be held in the field with the crew and DeMaria superintendent to discuss, at a minimum, the following: calculation of gross weight load, load chart calculations, radius measurements anticipated during the lift, weather and soil conditions and overhead high voltage power line clearances. Calculations for the lift are to be reviewed during this meeting.

CERTIFIED CRANE OPERATOR

DeMaria requires that all crane operators be certified by an independent testing agency approved by the National Commission for the Certification of Crane Operators. (NCCO). Copies of their certifications must be submitted to DeMaria supervision prior to operation.

OPERATOR QUALIFICATION / CERTIFICATION

	Portable	Valid
Accredited testing organization	**YES ***	**5 years**
Audited Employer Program	**NO**	**5 years**
U.S. Military license	**NO ***	**Set by issuing entity**
State/local license	**NO * Valid only in jurisdiction**	**Set by issuing entity, not > 5 years**

Subject to State & Local requirements and whether or not the military/state training

Certification for Crane Operators

The minimum qualifications for an employee selected to operate a crane are as follows:

- Crane operators must be certified by an accredited crane operator testing organization, such as the National Commission for the Certification of Crane Operators (NCCCO
- Have corrected vision that meets the same requirements as vision for a valid Michigan driver's license.
- Have effective use of all 4 limbs.
- Be of sufficient height to operate the controls and to have an unobstructed view over the controls into the work area.
- Have coordination between eyes, hands, and feet.
- Be free of known convulsive disorders and episodes of unconsciousness.
- The employee must also have the ability to understand signs, labels, and instructions. The employee must be examined for these qualifications at least once every 3 years
- meets accredited requirements

Riggers and signal persons must meet the requirements of a qualified person that has been trained, tested and identified by the employer. Employers may accept training records or certificates for previous training and testing by a third-party qualified evaluator, provided the employer verifies that any training meets all the requirements of this standard.

QUALIFIED RIGGER

requires that employers must use a qualified rigger for rigging operations during assembly/disassembly and other activities when workers must be in the fall zone to handle a load, must inspect the rigging prior to each shift. Proof of qualification must be given to DeMaria superintendent prior to lift.

- **When is a qualified rigger required?**
  Employers must use qualified riggers during hoisting activities for assembly and disassembly work (1926.1404(r)(1)). Additionally, qualified riggers are required whenever workers are within the fall zone and hooking, unhooking, or guiding a load, or doing the initial connection of a load to a component or structure (1926.1425(c)).

- **Who can be a qualified rigger?**
  A qualified rigger is a rigger who meets the criteria for a qualified person. Employers must determine whether a person is qualified to perform specific rigging tasks. Each qualified rigger may have different credentials or experience. A qualified rigger is a person that:
    - possesses a recognized degree, certificate, or professional standing, or
    - has extensive knowledge, training, and experience, and
    - can successfully demonstrate the ability to solve problems related to rigging loads.

- The person designated as the qualified rigger must have the ability to properly rig the load for a particular job. It does not mean that a rigger must be qualified to do every type of rigging job. Each load that requires rigging has unique properties that can range from the simple to the complex. For example, a rigger may have extensive experience in rigging structural components and other equipment to support specific construction activities. Such experience may have been gained over many years. However, this experience does not automatically qualify the rigger to rig unstable, unusually heavy, or eccentric loads that may require a tandem lift, multiple-lifts, or use of custom rigging equipment. In essence, employers must make sure the person can do the rigging work needed for the exact types of loads and lifts for a particular job with the equipment and rigging that will be used for that job.

- **Do qualified riggers have to be trained or certified by an accredited organization or assessed by a third party?**
  No. Riggers do not have to be certified by an accredited organization or assessed by a third party. Employers may choose to use a third party entity to assess the qualifications of the rigger candidate, but they are not required to do so. Does a certified operator also meet the requirements of a qualified rigger? A certified operator does not necessarily meet the requirements of a qualified rigger. Determining whether a person is a qualified rigger is based on the nature of the load, lift, and equipment used to hoist that load plus that person's knowledge and experience. A certified/qualified operator may meet the requirements of a qualified rigger, depending on the operator's knowledge and experience with rigging.

QUALIFIED SIGNAL PERSON

Must know and understands the type of signals used at the worksite and is competent in using these signals. Proof of qualification must be given to DeMaria superintendent prior to lift.

Qualified how	Documentation	Portable
Third party qualified evaluator	**Yes**	**Yes**
Employer qualified evaluator	**Yes**	**No**

- **When is a signal person required?**
  A signal person is required when:
  - The point of operation is not in full view of the operator (1926.1419(a)).
  - The operator's view is obstructed in the direction the equipment is traveling.
  - Either the operator or the person handling the load determines that a signal person is needed because of site-specific safety concerns.

- **What does a signal person need to know?**
  The signal person is considered qualified if he or she:
  - Knows and understands the type of signals used at the worksite.
  - Is competent in using these signals.
  - Understands the operations and limitations of the equipment, including the crane dynamics involved in swinging, raising, lowering and stopping loads and in boom deflection from hoisting loads.

- Knows and understands the relevant signal person qualification requirements
  • Passes an oral or written test and a practical test.

- **How does a signal person become qualified?** Contractors must use one of the following options to ensure that a signal person is qualified (see 1926.1428).

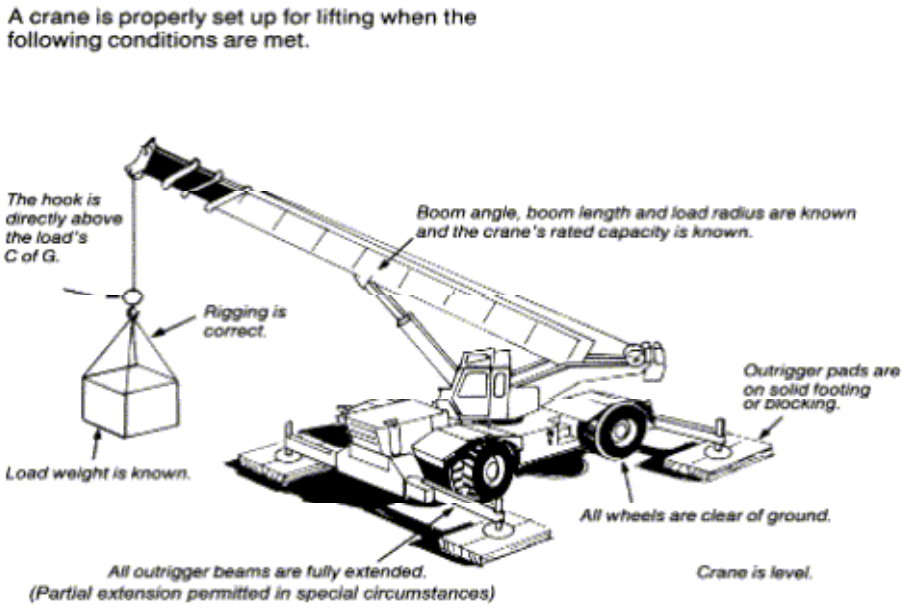
    - **Third party qualified evaluator**. The signal person has documentation from a third party qualified evaluator showing that he or she meets the qualification requirements.
    - **Employer's qualified evaluator (not a third party)**. The employer's qualified evaluator assesses the individual, determines the individual meets the qualification requirements, and provides documentation of that determination. This assessment may not be relied on by other employers. Refer to 1926.1401 for definitions of qualified evaluators.

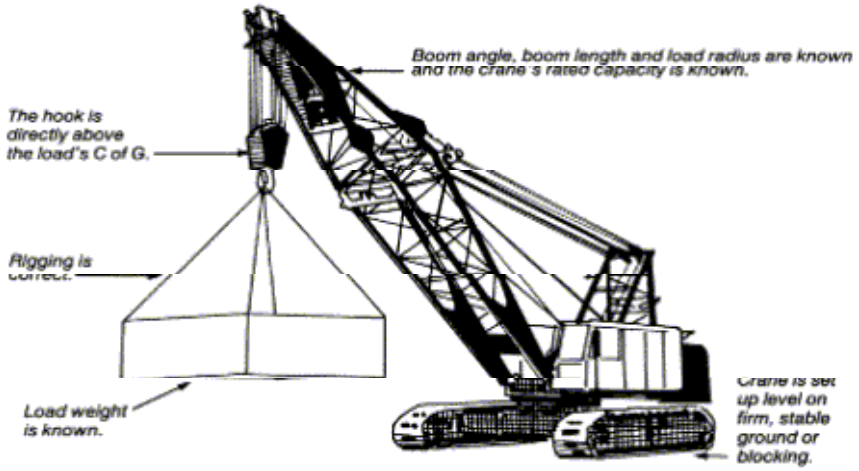
- **How will a contractor show that a signal person is appropriately qualified?**
  Contractors must make the documentation of the signal person's qualifications available at the worksite, either in paper form or electronically. The documentation must specify each type of signaling (e.g., hand signals, radio signals, etc.) for which the signal person is qualified under the requirements of the standard.
  When are signal persons required to be
  qualified?

GENERAL CRANE SAFETY REQUIREMENTS

CRANE INSPECTION

A competent person will inspect all machinery and equipment prior to each use, and during each use, to make sure it is in safe operating condition. Any deficiencies must be repaired, or defective parts replaced, before continuing use. The operator of the equipment is the most likely candidate to perform the inspection in that this person will be most knowledgeable of the equipment. The inspection must be documented and a file of the inspections must be maintained on the job site.





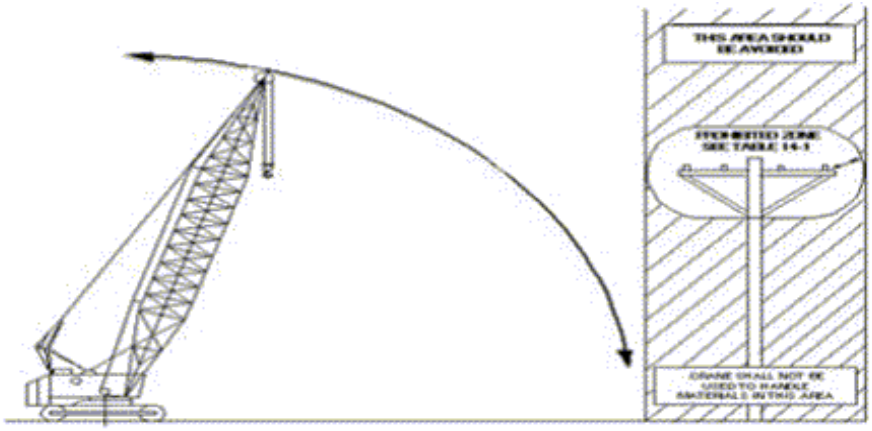
POWERLINES

- The "10-foot rule" has changed and now mandates a minimum distance of 20' **unless** the voltage is verified or special precautions are taken. Three options for power line safety,
  (1) Ensure 20 ft. clearance,
  (2) De-energize and ground lines, or
  (3) Have utility company determine the voltage and then follow clearance table below,

  Contractors must clearly mark the work area to prevent crane operators from accidentally coming into contact with power lines. If the work area is **within 20 feet of a power line**, the contractor must follow specific requirements to either ensure that the power to the line is cut off or provide warning devices to prevent contact with the line. Current can flow outward through the soil in a ripple pattern from the equipment in contact with a power line

Clearance Table

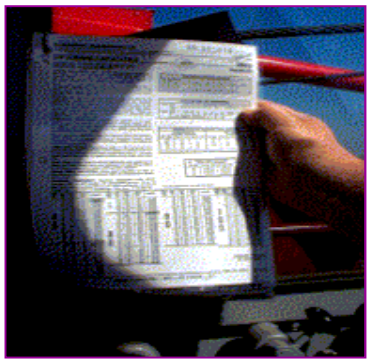
Minimum Clearance Distances	
Voltage (nominal, kV, alternating current)	**Minimum clearance distance (feet)**
up to 50	10
over 50 to 200	15
over 200 to 350	20
over 350 to 500	25
over 500 to 750	35
over 750 to 1000	45
over 1000	(as established by the power line owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution)

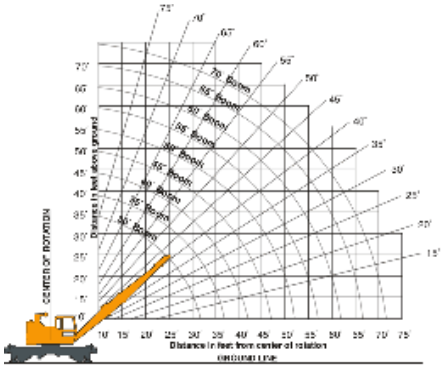


- In compliance with these requirements a person must be designated to observe the clearances of the equipment, load lines, and boom. This person is to be in a position to give a timely warning to the operator if it is believed to be close to the allowable distance

- Any crane that is altered, “jumped”, or modified in a similar manner onsite must be re-inspected by an independent third party inspection company to ensure proper calibration and function.

- **LOAD RATING CHARTS**
  All cranes must be equipped with load rating charts in the cab for the operator to reference. The charts must have clearly legible letters and figures. The operator must have a full understanding of how to reference the chart and apply the information to the equipment and/or material to be hoisted. Rated load capacities, including wind load ratings, and recommended operating speeds, special hazard warnings or instructions shall be conspicuously posted on all equipment. Instructions or warnings shall be visible to the operator





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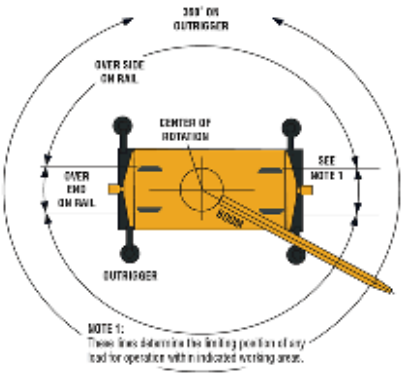
- **SWING RADIUS**
  Prior to the use of any crane, the swing radius must be evaluated for clearance from structures and other equipment. Once a safe swing radius has been established, the area must be barricaded in a manner that will prevent employees and/or vehicles from entering the area and being crushed.



OTHER CRANE SAFETY REQUIREMENTS

- It is required that all Subcontractor Superintendents/foreman have a current copy of the Mobile Crane Operator's Manual and the Rigging Manual.

- At no time is an operator to be allowed or expected to hoist a load over the head of workers. Hoisting areas must be barricaded to prevent employees from walking under loads. In congested areas, which may have many accesses and prove to be difficult to barricade, employees must be stationed in strategic areas to warn employees of the overhead hazards and prevent them from gaining access to the area. A warning device, such as the horn of the crane, should be used and sounded during the swinging of a load as an added safeguard to protect employees.

- Any lift exceeding 75% of the cranes rated capacity or lifts involving two or more cranes shall be considered a critical lift. A critical lift plan must be submitted to the DeMaria Safety Director or other supervision for review three days prior to the lift. Any crane on site shall not exceed 75% of its rated lifting capacity. For multiple crane lifts the rated capacity for each lift must be reduced by 25%.

- Mobile crane movement on site must be in accordance with manufacturer's recommendations.

- Wire rope, its attachments, fittings, sheaves and safety devices must be inspected weekly according to the manufacturer's recommendations & shall include a maintenance lubrication check. A subcontractor designated Competent Person other than the person who installed, reaved and attached the wire rope shall make the inspection. Copies of the inspections must be submitted to DeMaria.

- Wedge sockets and fittings must be the proper size to match the wire rope and must move to hold the wire rope under load. The dead end must be terminated according to ANSI B30.5 and must not be attached, in any manner, to the live side of the load line.

- An anti two-block or warning device is required on all cranes as specified in ANSI B30.5 for each load hoisting line.

- All windows in the cab must be made of safety glass, or equivalent, and there must be no visible distortion of any kind. (i.e. cracks, dirt, grease, etc.) that will interfere with the safe operation of the machine.

- Cranes, hoists, boom trucks and derricks shall not be installed or operated within 20' of overhead power lines unless they have been de-energized.

- All replacement parts shall be as specified by the manufacturer.

- When two cranes are working in the same area, a procedure shall be submitted explaining method of coordination to be used between cranes to ensure the possibility of a collision is prevented.

- Mobile cranes are only to be used with outriggers fully extended and tire off the ground unless manufacturer's recommendations allow otherwise. If supporting ground for crane is soft, the lift shall not be made until firm bearing is provided including crane mats if necessary. No lift shall be made if the crane is not on level ground.

- If the full range of motion of the lift is not visible to the operator, signalmen or a radio communicator must be provided.

- All cranes must be equipped with exhaust systems in order to reduce excessive noise, preventing the ability to observe the sound of the crane. Exhaust pipes must be guarded or insulated in areas where employees could possibly contact the pipes in the performance of normal duties.

- Guardrails, handholds and steps must be provided on cranes to allow for easy access to the cab.
- Must be equipped with a non-skid surface, such as non-skid tape, in areas where operators are expected to walk to access the cab or for general inspection purposes.

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

CRITICAL LIFT

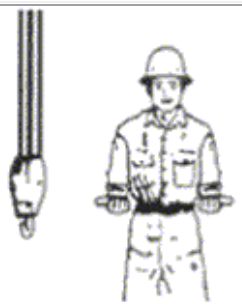
The following lifts that may meet the classification of "critical lifts."

• Critical lift categories may include the following scenarios:

- Any lift where the payload weight is 24,000 pds or greater.
- A lift over an occupied area (i.e., occupied buildings, sidewalks, roadways, etc.).
- All crane suspended personnel basket lifts (i.e., manbaskets).
- Lifts requiring the crane to be set up over underground building structures or transportation tunnels.
- Where any part of the crane or load encroaches onto or over highway, roadway or railroad rights of way, unless the corridor is shut down to traffic.
- Lifts exceeding 75% of the crane capacity.
- Lifts requiring two or more cranes.
- Lifts with helicopters
- Lifts where the crane boom or payload swings directly above or directly under energized power lines. Lifts adjacent to power lines are not considered critical if the clearance provisions of are followed.

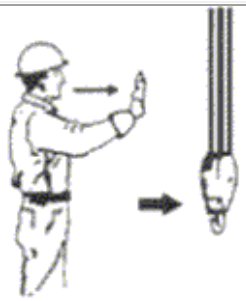
STANDARD HAND SIGNALS For CRANE OPERATION

Signaling and General Rules for the Safe Operation of Cranes

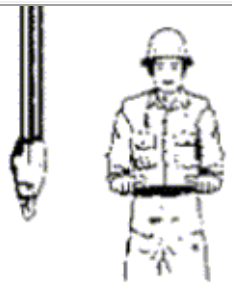


EXTEND BOOM

DOG EVERYTHING



TRAVEL

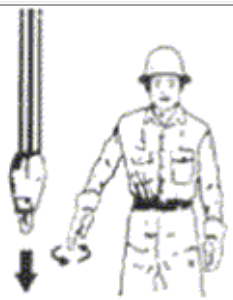


RETRACT BOOM

EXTEND BOOM (ONE HAND)

RETRACT BOOM (ONE HAND)

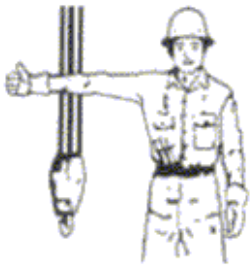
HOIST



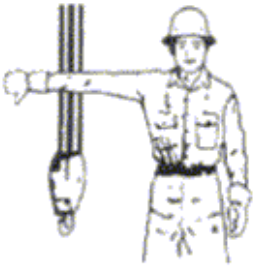
LOWER

USE MAIN HOIST

USE WHIP LINE

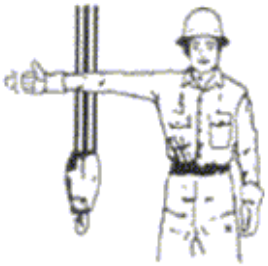


RAISE BOOM

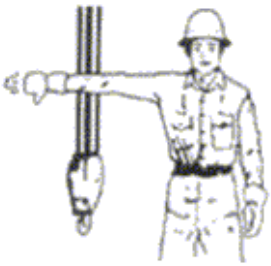


LOWER BOOM

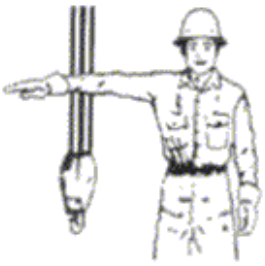
MOVE SLOWLY



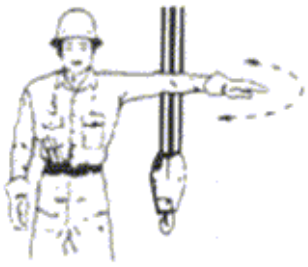
RAISE THE BOOM & LOWER THE LOAD



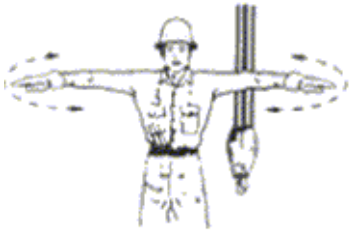
LOWER THE BOOM & RAISE THE LOAD



SWING



STOP



EMERGENCY STOP

MATERIAL & PERSONAL HOISTS

1. General

a. All hoists must comply with the manufacturers' specifications and limitations applicable to their operation. Where manufacturers' specifications are not applicable, the limitations assigned to the equipment will be based on the determination of a professional engineer competent in the field. Rated load capacities, recommended operating speeds, and special hazard warnings or instructions shall be posted on cars and platforms.
b. Following assembly or erection of hoists, and before being put into service, an inspection and test of all functions and safety devices shall be made. A similar inspection and test is required following any major alterations.
c. All hoists shall be inspected by the Subcontractor. Records shall be maintained.
d. When hoist platform/cage is on upper level, first floor level shall be guarded to prevent entry of personnel or storage of material.

2. **Material Hoists**

a. All entrances to hoists must be protected by substantial gates or bars, which guard the full width of the landing entrance.
b. Operating rules must be posted at the operator's station along with the "No Riders Allowed".

3. Personnel Hoists

a. Hoist way doors or gates shall be at least 6'6" high and shall have a mechanical lock, which cannot be operated from the landing side. All entrances to hoists must be protected by substantial gates or bars, which guard the full width of the landing entrance. Hoists shall be inspected and tested on a daily basis. Hoists shall also be inspected after exposure to winds exceeding 35mph. All hoist shall have a "No Smoking" sign posted in the car and a fully charge fire extinguisher available for use.

RIGGING SLING SELECTION

Slings are used in combination with a lifting device. The most common lifting devices are overhead cranes, hoists, and forklifts. To select the correct sling, two questions must be answered: what type of sling and what size (diameter or thickness)? The four main types of slings and their applications are:
1**. Chain Combines-** superior strength, ease of handling and durability. The combination of heavy loads, elevated working temperatures and severe lift conditions usually dictate that an alloy chain sling be used. Typically used in steel mills, foundries, and heavy machining operations that requires repetitive lifts.
2. **Wire Rope**- The most commonly used sling. It also has the lowest cost per ton of lift. Used in the construction industry and other industries where heavy loads and rugged conditions exist.
3. **Mesh Wire and Chain**. Excellent in lifting objects that are hot or have sharp edges, such as bar stock or plate steel. Mesh slings usually have wide load bearing surfaces that greatly enhance load balancing. Machine shops and steel warehouses typically have applications requiring mesh slings.
4. **Synthetic-** Both web and roundslings are used where loads must be protected from damage. The light weight and flexibility reduce fatigue and strain on the rigger. The size of the sling is determined by the weight, shape, and size of the load. When determining the stress that will be applied to a sling, the length of the sling is divided by the vertical distance from the top of the load to the lifting device. The resulting quotient is multiplied by the shared weight of the load.

DEMARIA CRANE LIFT PLAN

Crane Operator must complete Crane Lift Plan and return to DeMaria Superintendent for approval prior to lift. Crane Lift Plan must be posted at the lift site until lift is complete. Crane Lift Plan must be re-done if conditions (equipment, weather, and/or ground) or scope of work has changed. A copy of the Crane Lift Plan & Pre-Lift Safety Checklist including all supporting documents must be submitted and approved prior to any of the following types of lifts.

- ☐ **Two or more cranes are used to lift**
- ☐ **Lifts =/> 24,000 pounds**
- ☐ **Crane will Lift Personnel or Over Occupied Building**
- ☐ **Crane will "Walk" with Load**
- ☐ **Load will be upended and weighs >10,000 lbs.**
- ☐ **Loads =/> 75% of Rated Load Capacity**

GENERAL

Certified Crane Operator:	**DeMaria Project Manager:**	**Start Date/Time:**	**Finish Date/Time:**
_____	_____	_____	_____
Crane Owner:	**Emergency Phone Number:**	**Crane lift location (area/building):**	
_____	_____	_____	
Qualified Rigger:	**Qualified Signal Person:**	**Competent Person:**	
_____	_____	_____	
Phone:	**Phone:**	**Phone:**	
_____	_____	_____	

LIFT DATA

1. Load Weight:	1. Describe Load and Enter Total Weight: _____ Estimated Weight: _____Lbs. Actual Weight: _____Lbs.
2. Rigging weight (net load):	2a. Main Hoist Block, Auxiliary Boom Head / Headache Ball: _____ Total Block Weight: _____Lbs.
	2b. Slings, Shackles, Hardware (list all used): _____ Total Rigging Weight: _____Lbs.
	2c. Jib Weight Allowance: _____Lbs. Check One: Erected (not used):___ Erected (in use):___ Jib Stowed (on boom): ___
3. Total Lift Weight:	3a. On Sling: 1 + 2b = 3b. On Crane: 1 + 2a + 2b + 2c = _____Lbs. _____Lbs.
4. Lifting Height:	Height of Load to be not greater than _____ Feet ☐ Elevation drawing showing load height relation to crane and any obstructions is attached ☐ Maximum Height of Crane Boom tip
5. Operating Radius:	Maximum Radius of Load to be not greater than _____ Feet ☐ Plan view of load location and crane orientation attached

CRANE DATA

1. Crane Manufacturer:	Crane Manufacturer: _____ Size: _____ Model Number: _____	
☐ Verify manufacturer's load chart indicates lifting capacity at stipulated load radius and boom lengths. Note: If boom length and/or radius is between the stipulated or posted value on the load chart select the **next lesser rating capacity. The next lesser rating capacity may be the next longer or shorter boom length.**		
3. Attachments:	☐ **Confirm Crane has an Anti Two Blocking Device Installed and is operational**	
4.Counterweight:	☐ Yes Total Weight _____lbs.	
5. Boom Length:	Not greater than: _____ft.	Maximum Height of Crane Boom/Extension: _____ft.
6. Jib / Extension: Jib Length (as extension): _____ Jib Offset: _____		
7. Main Load Block:	Capacity Size: _____ton # Sheaves: _____	
8. Auxiliary Boom Head/Ball:	Capacity Size: _____ton # Sheaves: _____	
11. Outriggers, Pads, and Tires :	☐ Outriggers Fully Extended and Set Check One: _____ Track _____Tires ☐ Soil Type is Determined to be Acceptable for Imposed Load ☐ Has been determined underground utilities and structures are not at risk for damage.	

RIGGING DATA

1. Sling(s) and/or Shackles:	Diameter: _____ Length: _____ Capacity (per leg): _____ Indicate how slings are to be used: Basket ___ Straight Pick ___ Choker ___ Size: _____ Capacity (ea.) _____

LIFT COMPUTATION

Maximum Boom Angle:	**Maximum Boom Length:**	**Maximum Lift Radius:**

Note: Cranes equipped with computers indicating boom length, angle, and radius are *safety devices only* and should not be used in place of the operator's responsibility to actually determine the measurements required to calculate a safe lift.
Note: Accessories, Crane Capacity, Parts of Line and Rope Capacity, and the working quadrant of the crane should be considered when calculating Net Crane Capacities.

1. Net Crane Capacity: (Rated Lift Capacity - Block, Rigging, and Accessory Weights) = _____Tons

2. Load orientation prior to lift: ☐ Front ☐ Side ☐ Rear

3. Swing orientation relative to crane: ☐ Front ☐ Side ☐ Rear

4. Total Lift Weight: Item 3b of LIFT DATA: _____Lbs.

5. Total weight on slings and shackles: Item 3a of LIFT DATA: _____Lbs.

6. Wind Speed: Lifts are not allowed with wind speed in excess of: _____MPH
Wind Speed at time of lift: _____MPH

APPROVALS- **The Contractor, Rigger, and Crane Operator are the competent persons solely responsible for the safe execution of the lift(s). Execution of the lift will be in complete accordance with MIOSHA regulations.**

COMPLETE CHECKLIST BELOW TO ENSURE A SAFE LIFT IS PLANNED

- ☐ The load weight is confirmed known
- ☐ The load hook is directly over the load center of gravity
- ☐ Boom angle, boom length, lift radius, and the crane capacity are known
- ☐ Outrigger pads are fully extended and blocking is sufficient for the load
- ☐ Tires are clear of the ground and the crane is level
- ☐ Ground, soil, and/or pavement is confirmed to have capacity for the imposed load
- ☐ Rigging equipment has been inspected and in safe working condition
- ☐ All obstacles and obstructions have been identified
- ☐ Lifts in close proximity to power transmission lines shall meet OSHA 29 CFR 1926.550, MIOSHA R 408.11936, and applicable ANSI B30.5 safety standards
- ☐ A final check will determine the wind speed is within approved limits for this lift
- ☐ A signal method is has been determined between the crane operator and the signalman
- ☐ An individual has been designated to observe for obstructions and unauthorized personnel
- ☐ The crane operator meets MIOSHA qualifications requirements to operate the crane
- ☐ Verify a "competent person" is to inspect prior to use and during use, all slings, fastenings, and attachments for damage or defects. Damaged or defective equipment shall be immediately removed from service.
- ☐ Verify a "competent person" is to inspect all crane equipment and machinery prior to use and during use to ensure it is in safe operating condition. Any deficiencies shall be repaired prior to continued use.
- ☐ Verify the crane is in compliance with Federal and State regulations requiring frequent, periodic, and annual inspections. A thorough annual inspection has been made by a competent person, government, or private party recognized by the U.S. Department of Labor.

Date of Last Annual Inspection: _____ Inspected by: _____

DeMaria Project Manager or Superintendent :

Name: _____ Signature: _____ Date: _____

DeMaria Safety Director:

Name: _____ Signature: _____ Date: _____

Certified Crane Operator:

Name: _____ Signature: _____ Date: _____

Qualified Rigger:

Name: _____ Signature: _____ Date: _____

Qualified Signal Person:

Name: _____ Signature: _____ Date: _____

PRE-LIFT SAFETY CHECKLIST

COMPLETED BY CONTRACTOR AND REVIEWED AND SIGNED BY LIFT CREW PRIOR TO LIFT . COPY TO DEMARIA SUPERINTENDENT

PROJECT NAME & NUMBER:	**INSPECTION/LIFT DATE:**
PAYLOAD NAME:	**CRANE LIFT:** ☐ **HOIST LIFT:** ☐
PAYLOAD NUMBER:	**RIGGING DRAWING NUMBER:**
VERIFIED WEIGHT OF PAYLOAD:	**DIMENSIONS OF LIFT:** x x
MAKE & MODEL OF CRANE(S) or HOIST(S):	**EQUIPMENT NUMBER OF CRANE(S) OR HOIST(S):**
WEATHER CONDITIONS:	

PRE-LIFT VERIFICATIONS: (Critical Lifts - Required)

1. **DID THE CREW USE THE APPROVED RIGGING PLAN TO SET UP THIS LIFT?** ☐ Yes ☐ No

2. Operator(s) and Flagman:

☐ Operator(s) Name:
☐ Operator(s) Certified by:
☐ Signalperson Name:
☐ Signalperson Qualification:

3. Safety measures and communications assurance:

☐ JSA completed
☐ Crane has GOVERNMENT Annual Inspection, or if Hoist, ASME Annual Inspection.
☐ Crane(s) Daily Report with Operator, or if Hoist, ASME Daily Inspection.
☐ Personnel Safety barricades up
☐ Proper PPE with Lift Personnel
☐ Crane's or alternate air horn available
☐ Tail swing barricades installed
☐ Lift, Travel & Swing Area clear
☐ Radio communication required?

4. Final Check of machinery:

☐ Crane(s) or Hoists(s) set-up & located per the Rigging Drawings
☐ Crane(s) set-up on mats if required (verify size & quantity)
☐ Radius from crane(s) Center of Rotation to Payload checked
☐ Crane(s) on even terrain and level, or if Hoist is it securely anchored.
☐ Boom length & number of line parts in Block is correct
☐ Safe working distance from power lines verified
☐ Underground utilities verified & protection installed as required
☐ Crane travel paths (where applicable) leveled & compacted and matted where specified

5. Final Check of Below the Hook lift devices:

☐ Sling eyes are seated properly in the block hook(s)
☐ Correct size shackles are installed
☐ Hook block latches fitted and working properly
☐ Softeners provided at rigging bearing points (where req'd)
☐ Correctly rated Slings selected per rigging arrangement
☐ Recorded inspections and test certificates, as required by GOVERNMENT and this procedure, current for all Rigging used. Paperwork on file and available at site.
☐ Correct Spreader Bar or Beam is installed (if required)
☐ Tag Lines attached to control payload

6. Does the actual rigging scheme differ from the approved rigging diagrams?

☐ Yes ☐ No If yes, explain why:

7. A brief and final description of the planned sequence of the lifting operation was discussed with ALL individuals involved in lift?

☐ **Yes** ☐ **No** **If no, explain why, or if yes and there were any comments from the discussion that should be noted :**

Contractor Crane Operator/Foreman (return to DeMaria Superintendent : _____

Signature & Date

PRE-LIFT SAFETY CHECKLIST

I HAVE BEEN EXPLAINED THE LIFT PLAN AND HAVE REVIEWED THE HAZARD ANALYSIS/ CRANE LIFT PLAN AND UNDERSTAND MY ROLE ON THIS TASK

EMPLOYEE NAME (PRINT)	SIGNATURE	CRAFT/TRADE	DATE
	PROJECT RIGGING ENGINEER		
	RIGGING SUPERVISOR		

AERIAL LIFT PLATFORM SAFETY

*HAZARD ANALYSIS (HA) REQUIRED

Aerial devices include boom-supported aerial platforms, such as cherry pickers or bucket trucks, aerial ladders and vertical towers, scissor lift and mobile scaffolds.

FIGURE 1
VEHICLE-MOUNTED ELEVATING WORK PLATFORM

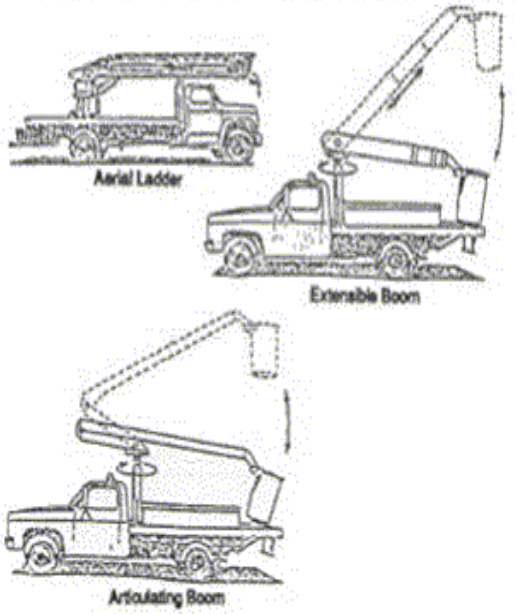


FIGURE 2
MANUALLY PROPELLED ELEVATING WORK PLATFORMS

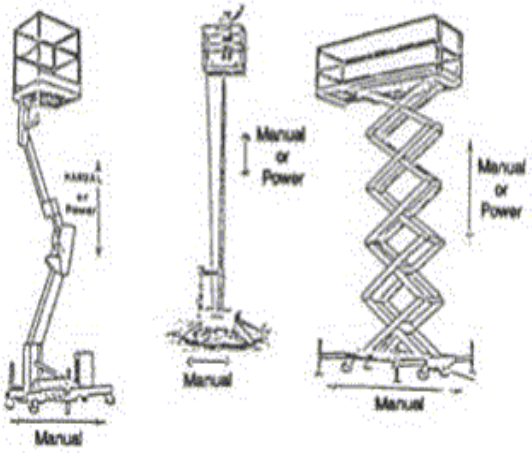


FIGURE 3
BOOM-SUPPORTED ELEVATING WORK PLATFORMS

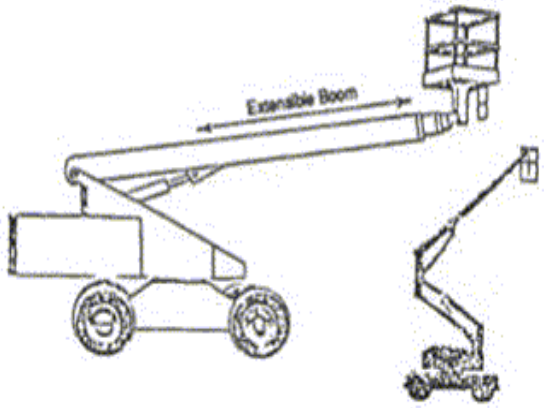
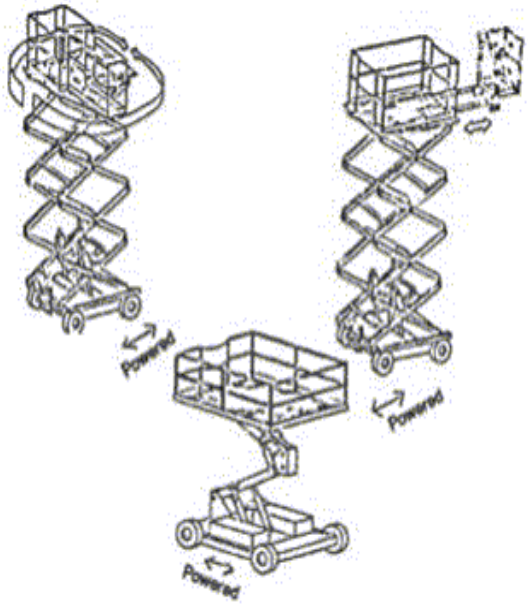


FIGURE 4
SELF-PROPELLED ELEVATING WORK PLATFORMS



SAFE WORK PRACTICES:

- Ensure that workers who operate aerial lifts are properly trained and tested in the safe use of the equipment and issued a permit. Perform the required inspection of the equipment prior to use and repair any damage or defects affecting the safe operation before use. Conduct a job site or workplace survey of the area it will be operated in.

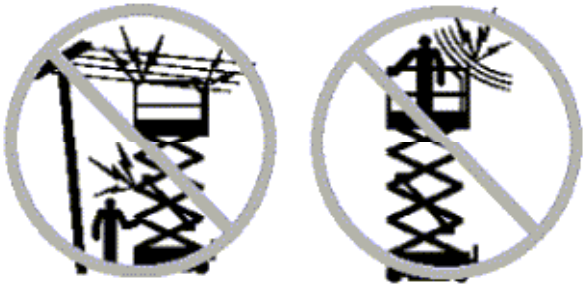
- Maintain and operate aerial lift according to the manufacturer's instructions and keep a copy with the lift. Always stand firmly on the basket floor. Do not sit or climb on the edge or rails of the basket. Never use planks, boxes or other items inside the basket to extend your reach.

- Ensure that all wheels of an elevated lift are on a solid base. Use outriggers, if provided. Set the brakes and use wheel chocks when on an incline. Do not exceed the load limits of the equipment. Allow for the combined weight of the worker(s), tools and materials.

- De-energize and lockout/tagout aerial lifts before performing any maintenance or repairs.

Working near Power Lines

Maintain a minimum clearance of at least 20 feet away from the nearest overhead line; this includes any conductive objects such as tools or other equipment. Always treat overhead lines as energized, even if they are down or appear to be insulated. Never lose awareness of the overhead hazard.



Caught-in Hazards

Establish and clearly mark a danger zone around the aerial lift. Never move the equipment with workers in the elevated platform unless the equipment has been specifically designed for that operation. When positioning, be aware of fixed overhead hazards, such as structural members to prevent being caught between object and the aerial lift.

Fall Protection

Provide the proper type of fall protection based on the type of aerial lift being used and the working conditions. Do not allow workers to belt off to an adjacent pole, structure or equipment while working from an aerial lift. Scissor lift does not require the use of PFAS if guardrails are in place and properly used. Stepping on railings or using any object to increase height in the platform is strictly prohibited

SAFE USE OF AERIAL LIFT DEVICES

General Requirements and Training

Subcontractor employees who operate aerial lifts (JLG, scissor lifts, articulating boom platforms, etc.) shall be trained (including demonstrated proficiency) and authorized by their employer prior to operating the equipment. Training documentation shall be maintained by Subcontractor and made available upon request.

In addition, Subcontractor shall:

- Utilize the *Aerial Lift Equipment Checklist* whenever use of a lift is anticipated.
- Ensure all warning placards on the machines are legible and all personnel are familiar with the operator's manual.
- Ensure malfunctioning lift is tagged "OUT OF SERVICE" and the supervisor promptly notified. The equipment shall not be operated until repaired in accordance with manufacturer specifications.
- Ensure the controls are plainly marked.
- Use equipment only on level ground.

- Not load platforms/baskets in excess of the designed working load (the weight of personnel in the basket is counted as part of the load).

- Utilize aerial lifts for lifting personnel and small hand tools.
- Ensure there is sufficient clearance before moving under any overhead obstruction or when working near electrical lines.

Subcontractor personnel shall:

- Not walk under a boom to gain access to the platform.
- Not tie the platform off to any structure for any reason.
- Stand on the platform floor. Standing or sitting on the railing is prohibited.
- Always look in the direction the machine is moving.
- Not rest the boom or basket on a steel structure of any kind.
- Wear safety harnesses and tie-off to the manufacturer's provided anchorage point within the platform. This includes all aerial lifts (scissor lift, etc).
- Perform work from within the basket at all times. Any deviation from this requirement requires DeMaria management approval.
- Ensure that a fire extinguisher of appropriate class and size is in the basket.
- Erect barricading or use a flag person when operating in high-traffic areas.
- Keep hands off the external portion of the basket when raising or lowering the basket.
- Not raise baskets with cords, leads, or hoses tied to the handrail. A tagline must be used to raise these items when the basket is in position to work.

SAFE USE OF SUSPENDED PERSONNEL PLATFORMS

Personnel Lift Plan

Prior to any use of a crane suspended personnel platform (manbasket), a Hazard Analysis *(*HA) shall be completed. A separate plan must be completed each time the conditions of the lift change (e.g., each set-up location of the crane, change in lift points, intended lift locations, etc).

NOTE: *Hoisting employees in a personnel platform is prohibited except when the use of conventional means of reaching the worksite, such as personal hoist, ladder, stairway, aerial lift, elevated work platform, or scaffold, would be more hazardous or would not be feasible because of the structural design of tower or other worksite conditions.*

AERIAL LIFT INSPECTION CHECKLIST

Operator must complete report daily and return to project superintendent prior to work start. Operators must maintain and operate aerial lift according to the manufacturer's instructions. Operator must be certified to operate

Operator Name _____Date _____Job:_____

	Y	N	N/A	Comment
Pre-Task Meeting- Completed by DeMaria Superintendent				
• Verify Operator is Certified & Properly Trained?- Copy for file				
• Operator understands task?				
• Conducted a job site survey of the area of work with operator. • Discussed set-up location & Vehicle Position & Ground Conditions				
• Discussed Emergency Plan in case of equipment failure or accident?				
OPERATOR COMPLETES REST OF FORM-SIGN & RETURN TO DeMARIA SUPERINTENDENT DAILY				
Pre-task Equipment inspection				
• Checked Fluid Levels & Checked for air and fluid leaks?				
• Completed Visual Walk around of Equipment?				
• Checked Frame – Handrail?				
• Fire extinguisher?				
• All lights work?				
• Back-up Alarm works?				
• Gauges working?				
• Checked brakes including parking brake?				
Check Boom & Basket Ground level				
• Checked movement in all direction?				
• Checked Control Switch/Toggle				
• Checked for welds/cracks/breakage/hoses(boom and basket)				
• Checked Outriggers?				
• Check foot pedal/deadman				
• Checked boom movement?				
• Wheels of lift are on a solid base				
• Wheel Chocks?				
Safety & Personal Protective Equipment				
• Proper fall protection, either full body harness with lanyard or body belt with 2-foot lanyard as restraint device?				
• Has a manufacturer approved tie-off point?				
• Tested radio communication with ground person?				
• Kill Switch Works?				
• Discussed emergency safety with ground person and Superintendent?				
• Maintain a minimum clearance of at least 10 feet away from the nearest overhead line				
• Establish and clearly mark a danger zone around the aerial lift				
• Aware of fixed overhead hazards to prevent being caught between				
• Does the combined weight of the worker(s), tools and materials exceed manufacturer rated load capacity limits? (If Yes- See Superintendent)				

Operator Signature _____ Date _____

ROOF WORK SAFETY GUIDLINES

*HAZARD ANALYSIS (HA) or FALL PROTECTION PLAN REQUIRED

Falls from roofs are responsible for approximately 120 deaths each year in the construction industry. Roofing Siding and sheet metal contractors have the highest incident rate of nonfatal occupational injuries resulting from a fall to a lower level and involving days away from work. Subcontractor supervisors are responsible for monitoring work on rooftops to ensure appropriate conditions are maintained during work operations and that necessary precautions are taken to prevent incidents involving the public Tenants and employees performing the work

ROOF SAFETY OPERATIONS

- Contractor must complete a Fall Protection Work Plan and get approval from DeMaria Superintendent prior to going onto or working on roof.
- Hoist mechanisms will be equipped with ratchet gears. All parts of the hoist must be in good shape and constructed to safely lift the imposed loads.
- The hoist must be securely braced, anchored and equipped with a swing type boom.
- Hoist operators must work on level, guarded platforms with appropriate fall protection installed and adequate overhead protection if necessary.
- Toe boards will be installed on roof edges where falling materials could cause a hazard to workers below. Materials will not be stored within 6 feet of the roof edge.
- Heating devices, melting kettles, compressed gas cylinders will be located on a level, firm foundation, protected against traffic and securely supported to prevent tipping and falling. This area shall be located at least 25-feet from buildings, storage areas, vehicles, etc.
- Compressed gas cylinders will be located at least 10-feet away from melting kettles, with hoses protected and properly secured.
- Cylinders will be equipped with pressure reduction valve, excess flow valves, and the hose line will be equipped with a thermal safety valve. Melting kettle lids must be in-place and fit properly to insure correct thermo readings.
- Kettle operators must wear protective eyewear/goggles, gloves and rubber Boots/aprons.
- Melting kettles will not be used inside or on the top of buildings and must never be left unattended when in use.
- Hot tar or substances will not be carried-up and/or down ladders. Passageways for hot substances must be kept free of any obstructions.
- Hot tar kettles will not be used when raining.
- Hot tar kettles will only have the lids open when the tender is placing material inside, otherwise the top or lid will remain closed at all times. All the necessary PPE for the tender needs to be worn when he is placing materials into the kettle and when he is tending the equipment.
- Vessels for transporting hot substances must be constructed for that purpose.
- Paper, trash and other debris must be kept a minimum of twenty-five feet from heating devices or kettles and must be removed from the job on a daily basis.
- A 20 lb ABC fire extinguisher will be available in the area where any hot work is being performed.

- Fall protection will be established in the contractors fall protection plan and will meet or exceed all the noted OSHA requirements. Roofing contractors will submit a copy of their area specific fall protection plan for review to the DeMaria Project Superintendent and Safety Director prior to the commencement of such work.

- Skylights, roof openings, and holes will be properly barricaded, protected, guarded or covered and signage installed before and during work activities.

- Existing roofing material will be tested for asbestos prior to starting the related work. If the test results are positive for asbestos, the removal and disposal of such material will be performed according to the established requirements.
- Proper overhead protection will be provided in areas below where others may be injured from items falling or hot roof fluids leaking onto them.
- Roofing materials and equipment will be maintained at a minimum of 6’ away from the edge of the building at all times unless it is being installed.
- Personnel working within 6’ from the edge of the building and at elevations above 6’ will need to use personal fall arrest systems or guardrails will need to be installed to prevent workers from falling over the side. During decking operations, all individuals exposed to a six foot or greater fall hazard shall use a full body harness and double locking shock absorbing lanyards and to maintain a 100% continuous tie-off to the static line system installed

- The “Safety Monitor System” will not be authorized for worker fall protection safety on DeMaria projects. Anybody working within 6’ of the edge of the building at elevations above 6’ will need to have and use personal fall arrest systems that are secured to an acceptable attachment point before work takes place unless the roofing contractor establishes a written and site specific plan that details their plans in accordance with the 29 CFR 1926.500 OSHA Fall Protection Standards.

- All roofing fall protection systems will need to be an engineer designed system that is installed properly and capable of handing the anticipated load(s).
- A "Competent Person" shall be at the actual area of work monitoring the safety of the work and supervising the work taking place.
- Roofs that have a wall or parapet wall of 39" or higher do not need any additional perimeter protection**.**

TAR KETTLES

Tar kettle

A tar kettle vat for molten material shall be of welded construction and all other materials of the tar kettle, except tires, used in its construction shall be noncombustible. A tanker for molten material shall be braced and baffled to contain the load. A cover for a tar kettle vessel shall be hinged, close fitting and capable of smothering a fire inside the vessel, when in a closed position. A discharge valve from a tar kettle vessel shall be a quick closing type with standard pipe thread. A tar kettle and tanker shall be equipped with a working temperature gauge

A tar kettle or tanker shall have a qualified experienced operator in attendance at all times that the kettle or tanker is being fired. The operator shall not leave the ground area or be at a distance from the kettle or tanker that would prevent the operator's immediate attention.

Fire precautions.

- One or more portable fire extinguishers of the dry powder type having a total capacity of not less than 40 pounds shall be located not less than 10 feet or more than 25 feet from a tar kettle being fired. An extinguisher less than 10 pounds shall not be provided.
- A tar kettle shall not be placed less than 20 feet from combustible materials unless separated by a fire-resistant blanket.
- A tar kettle shall not be placed less than 10 feet from a structure that extends above the highest part of a kettle, piping excluded.
- A tar kettle shall not be placed in or upon a building except by permission of an authorized representative of the department.
- A tar kettle shall not be moved while being fired.
- If a fuel tank is located less than 10 feet from a tar kettle or tanker, the fuel tank shall be shielded from the tar kettle or tanker by a barrier of rigid noncombustible material

Material handling.

A supply bucket used for handling hot material shall be of metal construction with all seams liquid tight. The pail handle shall be made of not less than 1/4 inch steel with the handle hooked to hook ears riveted to the bucket. The handle ears shall be located above the center of balance. A supply bucket shall not be filled closer than 2 inches from the top.

When working on a roof deck or tending a tar kettle, tanker or yard storage unit, an employee shall wear a closed shirt covering the upper body including the arms and wrists, trousers that extend over the tops of the shoes and leather shoes not less than ankle high. During roofing work, materials and equipment shall not be stored within 6 feet (1.8 m) of a roof edge, unless guardrails are erected at the roof edge. Materials that are piled, grouped, or stacked near a roof edge shall be stable and self-supporting.

EXCAVATION & TRENCHING SAFETY

*HAZARD ANALYSIS (HA) & EXCAVATION PERMIT REQUIRED

Purpose and Scope

DeMaria requires all employees and contractors performing work on behalf of DeMaria to follow these procedures. These safety procedures are considered as a minimum requirement and are mandatory. Additional safety measures may be required by government regulations, owners or job specific requirements. Below is a summary of DeMaria's safety requirements for performing trenching and excavations.

What is the difference between an excavation and a trench? OSHA defines an:

- **Excavation** as any man-made cut, cavity, trench, or depression in the earth's surface formed by earth removal. This can include excavations for anything from cellars to highways.
- **A trench** is defined as a narrow underground excavation that is deeper than it is wide, and no wider than 15 feet.

REQUIRED SAFETY PRACTICES

Pre-job planning is vital to accident-free trenching; safety cannot be improvised as work progresses. Though not all-inclusive, the following list includes some very important excavation requirements.

- No employees allowed under loads.
- A qualified person must perform an ongoing inspection of an excavation or trench (rule 932(5)).
- Excavated material must be retained not less than **two** feet back from excavation's edge (rule 933(2)).
- Contact Miss Dig **three** days prior to excavating. Use only hand digging to locate utilities when in close proximity (rule931(1)).
- Ladders must extend not less than **three** feet above the top of the trench (rule 933(5)).
- Ramps, runways, bridges, etc to be used by employees for trenches shall be capable of supporting not less than **three** times the imposed load (rule 951(6)).
- An excavation more than **four** feet in depth and occupied by employees shall have a ladder or ramp.
    - Sloping or sloping and benching the sides of the excavation;
    - Use of trench shields/boxes; or Hydraulic shoring, trench jacks, shields, or tiebacks;
- Trenches **five** feet in depth and over must be shored or sloped as shown in Table 1 (rule 941(1)).
- Trenches less than **five** feet in depth are subject to sloping and shoring if hazardous earth movement may be expected.
- When benching a side of a trench, the height of the lower bench shall not be more than the lesser of **five** feet or width of the trench measured at the bottom (rule 944(3)).
- Fall protection must be provided when employees are exposed to falls of **six** feet or more (Part 45 fall protection).

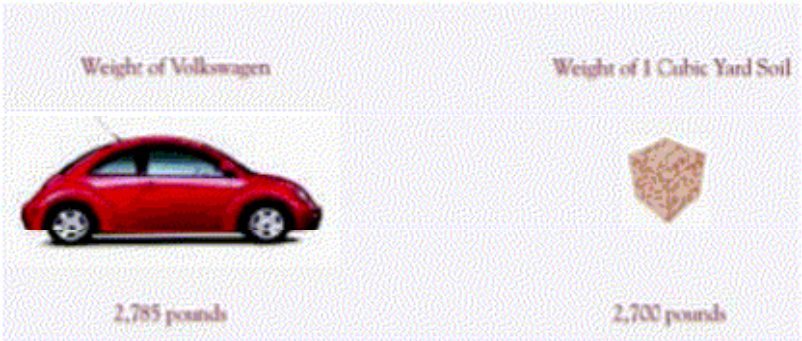
- **Ten** feet in clearance shall be maintained from energized overhead electrical lines (including excavators, dump trucks, materials, personnel, and ladders).
- Tie rods for tiebacks used to restrain top of sheeting shall be anchored a minimum of **ten** feet
- Trench boxes must extend **eighteen** inches above the top of the trench if the trench is to be sloped above the box (rule 945(1)).
- A minimum of **19.5** percent oxygen must be present before employees enter a confined space (all other confined space regulations must also be followed per rule 934).
- An open cut into a roadway shall be provided with a barricade on all sides as prescribed by rule 2223 of Part **22**, Signals, Signs, and Barricades.
- Trench boxes must be not more than **twenty-four** inches from the trench floor (rule 945(2)).
- Ladders must be placed in trenches so that no employee is more than **twenty-five** feet from a ladder at any time (rule 933(5)).
- The vertical height between the floor of the trench and the toe of a ramp used for trench access shall not exceed **thirty** inches (rule 933(6)(d)).
- Barricades must be a minimum of **thirty-six** inches in height.
- Guardrails must be **forty-two** inches plus or minus three inches at the top.
- The degree of angle of a ramp used for trench access may not be more than **45 degrees** (rule 933(6)(c

PRE PLANNING EXCAVATION/TRENCHING PERMIT

Excavation and trenching operations require pre-planning to determine whether sloping or shoring systems are required, and to develop appropriate designs for such systems **.**

- **A DeMaria Excavation Permit to Work form and Hazard Analysis (HA) must be completed prior to beginning excavation** and trenches that are 5 feet deep or greater or whenever conditions change that may affect the excavation.
- Hazard Analysis must be completed by the contractor and reviewed in depth with the DeMaria Superintendent and then discussed with contractor employees prior to beginning work. It is the responsibility of the contractor conducting the work to understand and follow all required safety regulations and practices.
- An excavation permit shall be completed by contractor prior to the commencement of any excavation or trenching activities. The permit must identify a competent person who has the authority to take prompt, corrective measures to eliminate problems. The responsible crew supervisor shall ensure that a copy of the excavation permit is provided to the DeMaria Superintendent and kept at the site of the excavation until the work has been completed.
- In addition, all excavations shall have an engineered drawing for reference showing the location of underground utilities.

REMEMBER: A CUBIC METRE OF EARTH WEIGHS OVER 1.5 TON.
Think of it as a Volkswagen falling on you!



EXCAVATION PERMIT

(For excavations 5 Feet or greater)

Completed by the Subcontractor Foreman/ Approved by DeMaria Superintendent

(1) JOB INFORMATION	
JOB NAME:	DATE:
LOCATION OF EXCAVATION:	EXCAVATION COMPETENT PERSON:
NAME OF SUBCONTRACTOR:	SUPERVISOR/CREW LEAD:

(2) EXCAVATION DETAILS (ALL SECTIONS MUST BE COMPLETED AND AUTHORIZATIONS GIVEN PRIOR TO THE COMMENCEMENT OF ANY TRENCHING OR EXCAVATION ACTIVITIES.)

A. Reason for the excavation?

B. Location of the excavation?

C. Approximate size of the excavation? (feet)

Length: Width: *Depth: (over 20ft, see below)

*Excavations or trenches 20 feet deep or greater must have a protective system designed & stamped by a registered professional engineer

In excavation deeper than 4ft., What means of egress will be used by employees?

D. Soil compaction/Characterization? (determined by competent person)Type A; Type B; Type C; Other_____

E. What is the equipment and method for **Shoring** and/or **Benching** and/or **Trench Box** deemed necessary by the Competent Person?

F. Excavations and trenches are appropriately identified with signs, warnings, and barricades Yes ☐ No ☐	SPOILS AT LEAST 2FT FROM EDGE? ☐ YES ☐ No EQUIPMENT AT LEAST 2FT FROM EDEGE? ☐ YES ☐ No
Request soil reuse as backfill? Yes ☐ No ☐ Estimated volume of excavated material, cubic yards (yd^3)_____	HAZARD ANALYSIS (HA) COMPLETED? ☐ YES ☐ No EMPLOYEES TRAINED ON HA? ☐ YES ☐ No

(3) POTENTIAL UTILITY INTERFERENCE

A. Have Underground Utilities been located? ☐ YES ☐ No, (if No excavation **will not** begin)

Locations and type?

A "Tolerance Zone" must be established when the "approximate location" of utility identified

A " Hand dig zone" must be established for any unexposed facility

Special precautions taken for each utility type identified? ☐ YES ☐ No, explain	Miss Dig Contacted? ☐ YES ☐ No Miss Dig marked all known utilities? ☐ YES ☐ No

(4) AUTHORIZATIONS

Subcontractor competentent person/ foreman Signature & Date:	DeMaria Supt. Signature & Date:

SOIL CLASSIFICATION & ANGLE OF SLOPE - COMPETENT PERSON

A competent person shall be placed in charge of all excavations. An important responsibility for the "Competent Person" is "Soil Classification." It is the first step in choosing a protective system, and the law requires it. Even if a soils engineering service has been identified for a project, the "Competent Person" is still required to classify the soil. The competent person shall be responsible for not only the classification the soil type but also daily inspections of excavations and protective systems, monitoring water removal and equipment, hazardous atmospheres, or other hazardous conditions prior personnel to work in it.

A "Competent Person" must take all of these factors into consideration and re-evaluate the jobsite periodically

SOIL TYPE

Because most excavations on jobsites will be conducted in areas where soil has been previously disturbed, **excavations shall be made to meet the requirements for Type B or Type C soils** as covered below:

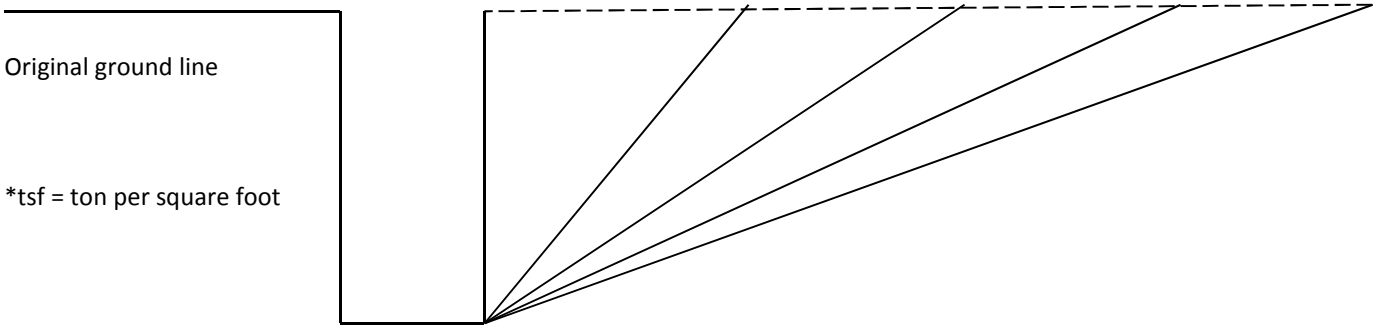
Type B - Medium stability: silt, sandy loam, medium clay and unstable dry rock; previously disturbed soils unless otherwise classified as Type C; soils that meet the requirements of Type A soil but are fissure or subject to vibration. **(Bench/slope to a 1:1 or 45° angle)**

Type C - Least stable: gravel, loamy sand, soft clay, submerged soil or dense, heavy unstable rock, and soil from which water is freely seeping **(Bench/slope to a 1 1/2:1 or 34° *or* 2:1 or 26° angle** The determination of the angle of slope and design of the supporting system shall be based on careful evaluation of pertinent factors, such as:

a. Depth and/or cut/soils classification
b. Possible variation in water content of the material while excavation is open
c. Anticipated changes in materials from exposure to air, sun, water, or freezing
d. Loading imposed by structures, equipment, or overlaying or stored material
e. Vibration from equipment, blasting, traffic, or other sources

Approximate Angle of Slope for Sloping of Sides of Excavations

		Type A Cohesive and cemented soils. Unconfined compressive strength of 1.5 tsf* or greater.	Type B Non-cohesive Granular soils. Unconfined compressive strength >0.5 tsf but <1.5 tsf*.	Type C Compacted sharp sand. Unconfined compressive strength of 0.5 tsf* or less.	
The presence of ground water requires special treatment	**Solid rock and compact shale (90°)**	**¾:1 (63°26')**	**1:1 (45°)**	**1 ½:1 (33°41')**	**Well rounded loose sand 2:1 (26°34')**



*tsf = ton per square foot

TESTING METHODS

The competent person in charge of the excavation shall be responsible for determining the soil is

1. Visual test

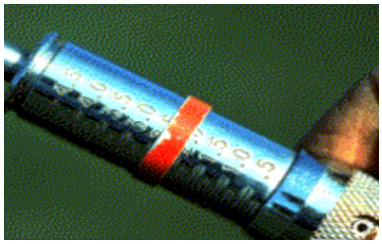
The competent person should perform a visual test to evaluate the conditions around the site. In a visual test, the entire excavation site is observed, including the area adjacent to the excavation and the soil being excavated.

2. Manual Tests

Thumb Penetration Test - Attempt to press the thumb firmly into the soil in question.

- If the thumb penetrates no further than the length of the nail, it is probably Type B soil.
- If the thumb penetrates the full length of the thumb, it is Type C. It should be noted that the thumb penetration test is the least accurate testing

- Pocket Penetrometer. Penetrometers are direct-reading, spring-operated instruments used to determine the unconfined compressive strength of saturated cohesive soils. Once pushed into the soil, an indicator sleeve displays the reading. The instrument is calibrated in either tons per square foot (tsf) or kilograms per square centimeter (kPa). However, Penetrometers have error rates in the range of ± 20-40%



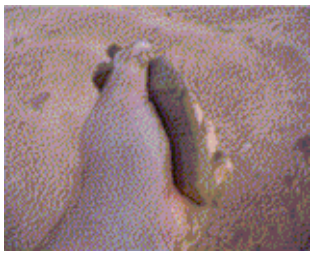
3. Dry Strength Test

Take a sample of dry soil.

- If it crumbles freely or with moderate method. pressure into individual grains it is considered granular (Type C).
- Dry soil that falls into clumps that subsequently break into smaller clumps (and the smaller clumps can only be broken with difficulty) it is probably clay in combination with gravel, sand, or silt (Type B).

4. Plasticity or Wet Thread Test

Take a moist sample of the soil. Mold it into a ball and then attempt to roll it into a thin thread approximately 1/8 inch in diameter by two inches in length. If the soil sample does not break when held by one end, it might be considered Type B.



EXCAVATION HAZARDS

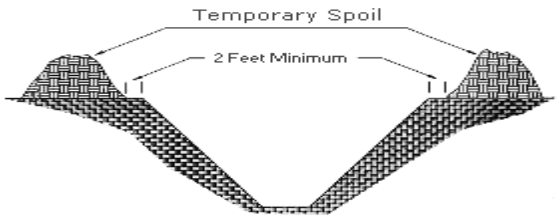
Excavating Soil

- Underground utilities must be located and marked before excavation begins
- Employees are not allowed in the excavation while heavy equipment is digging

Spoil

Temporary spoil shall be placed so that:

- It is no closer than 2 feet from the surface edge of the excavation (permanent spoil should be placed a much greater distance from the excavation)
- Loose rock or soil from the temporary spoil will not fall on employees in the trench
- It channels rainwater and other run-off water away from the excavation
- It cannot accidentally run, slide, or fall back into the excavation



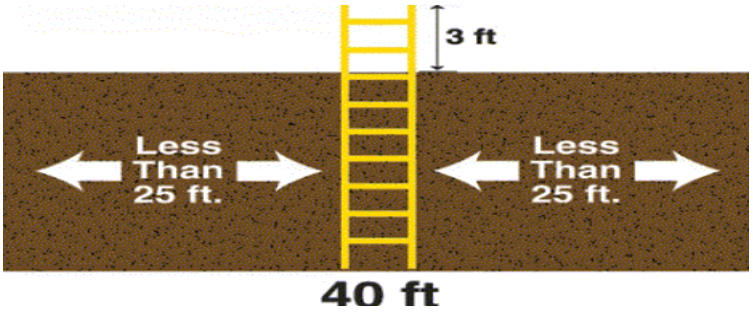
Surface Crossing of Trenches

Surface crossing of trenches should not be made unless absolutely necessary. When necessary, they are only permitted under the following conditions:

- Vehicle crossings must be designed by & installed under the supervision of a Registered Professional Engineer
- Walkways or bridges must: 1) have a minimum clear width of 20 inches 2) be fitted with standard rails

Ingress and egress

- Trenches four feet or more in depth shall be provided with a fixed means of egress
- Spacing between ladders or other means of egress must be such that worker will not have to travel more than 25 feet laterally to the nearest means of egress
- Ladders must be secured and extend a minimum of 36 inches above the landing
- Metal ladders should not be used



Hazardous Atmosphere/Confined Space

- Personnel shall not be permitted to work in hazardous and / or toxic atmospheres
- Testing must be conducted before personnel enter a trench or excavation and then periodically to ensure the excavation remains safe
- The frequency of testing should be increased if equipment or processes used in trench may alter the atmosphere
- Operations involving hazardous atmospheres must be conducted in accordance with MIOSHA requirements
- Excavations may qualify as permit required confined spaces

Standing Water/ Water Accumulation

The following requirements for controlling water accumulation must be provided if personnel must work in the excavation:

- Personnel must not work in excavations where standing water has accumulated
- Water removal or de-watering equipment, such as pumps, are installed and monitored by a competent person
- Personnel must exit from the excavations during rainstorms
- Trenches must be inspected by a competent person after a rainstorm & before personnel are permitted to enter

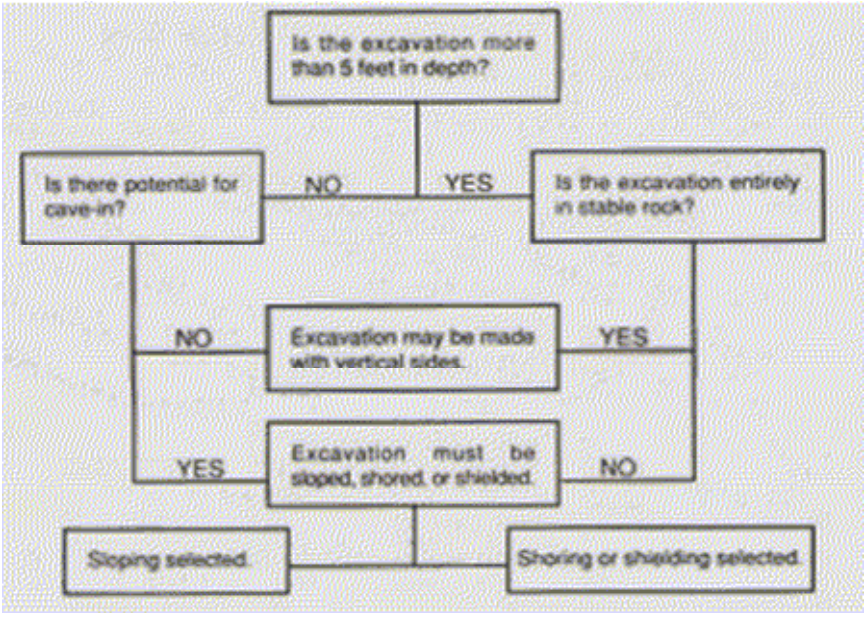
Blasting Safety

NO blasting material or explosives are to be brought on a DeMaria project-site without prior DeMaria approval, a written procedure submitted by the blaster for review and written approval by the DeMaria Project Manager, Director of Safety and the site blasting expert. All blasting activities must conform fully to: 1) all applicable state and federal regulations; 2) site-specific procedures and protocols; and 3) blasting device/material manufacturer recommendations. Only qualified personnel shall transport, handle or use explosives.

BENCHING, SLOPING, SHORING and SHIELDING REQUIREMENTS

All excavations or trenches 5 feet or greater in depth shall be appropriately benched, shored, or sloped according to the procedures and requirements set forth in OSHA's Excavation standard, 29 CFR 1926.650, .651, and .652. Excavations or trenches 20 feet deep or greater must have a protective system designed by a registered professional engineer. Excavations under the base of footing of a foundation or wall require a support system designed by a registered professional engineer. Sidewalks and pavement shall not be undermined unless a support system or another method of protection is provided to protect employees from their possible collapse.

EXCAVATION SAFETY DETERMINATION



1. SLOPING

Maximum allowable slopes for excavations less than 20' based on soil type and angle to the horizontal are as follows:

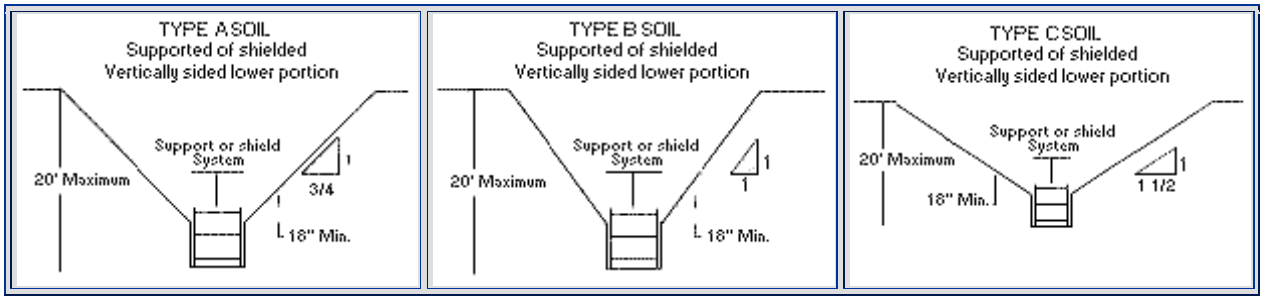
Option		Type A	Type B	Type C
	Simple Slope	Yes	Yes	Yes
	Short-term Slope	Yes	No	No
	Simple Bench	Yes	Yes	No
	Multiple Bench	Yes	Yes/No*	No
	Slope with Shoring/Shielding	Yes	Yes	Yes

*Multiple bench allowed only in cohesive Type B soil

TRENCH SLOPES VS. SOIL TYPE

The determination of the angle of slope and design of the supporting system shall be based on careful evaluation of pertinent factors, such as: Depth and/or cut/soils classification, Possible variation in water content of the material while excavation is open, Anticipated changes in materials from exposure to air, sun, water, or freezing, Loading imposed by structures, equipment, or overlaying or stored material, Vibration from equipment, blasting, traffic, or other sources

SLOPE AND SHIELD CONFIGURATIONS.

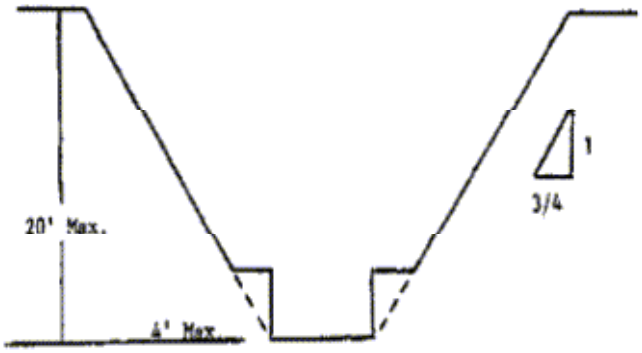


2. BENCHING

There are two basic types of benching, single and multiple, which can be used in conjunction with sloping. In Type B soil, the vertical height of the benches must not exceed 4 feet. Benches must be below the maximum allowable slope for that soil type. In other words, a 10-foot deep trench in Type B soil must be benched back 10 feet in each direction, with the maximum of a 45-degree angle. Benching is not allowed in Type C soil.

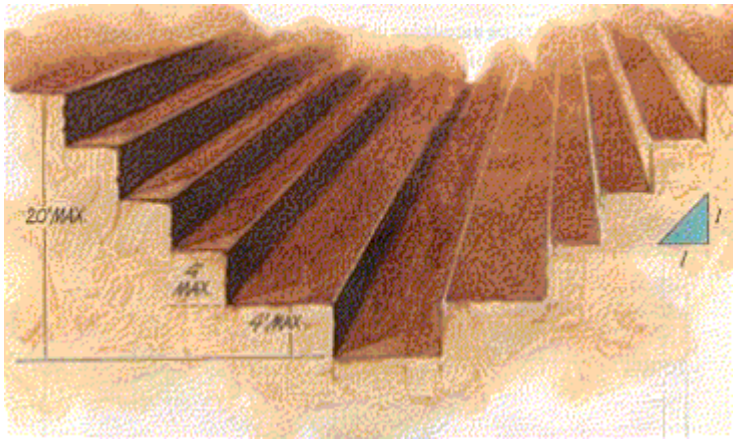
All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 3/4 to 1 and maximum bench dimensions as follows:

SIMPLE BENCH



MULTIPLE BENCH

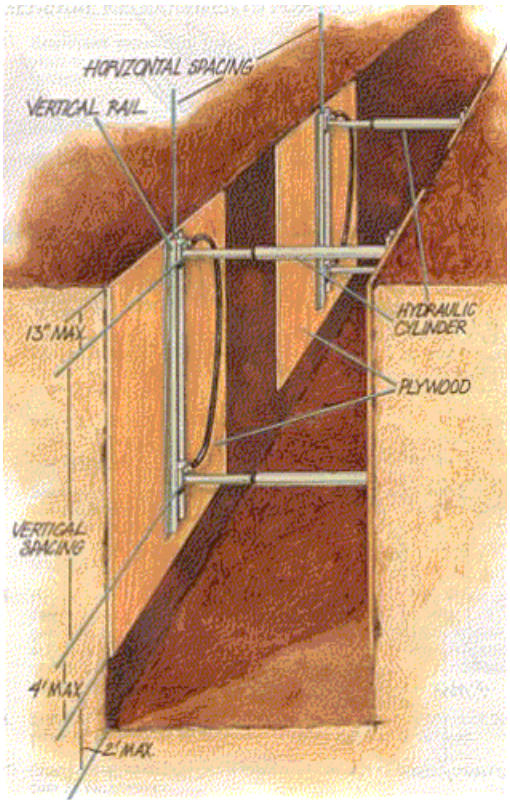
Benched excavation in Type A soil with a maximum slope of 3/4H: 1 V



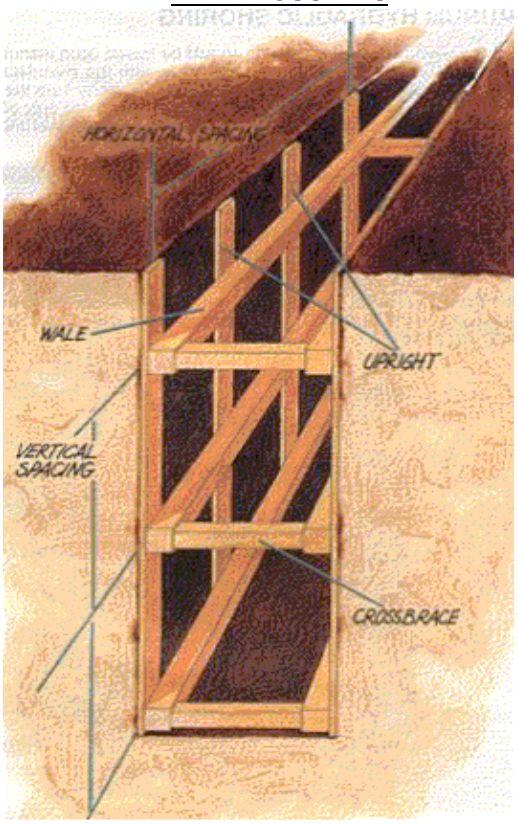
3. SHORING

- Shoring or shielding is used when the location or depth of the cut makes sloping back to the maximum allowable slope impractical.
- There are two basic types of shoring, timber and aluminum hydraulic. Hydraulic shoring provides a critical safety advantage over timber shoring because workers do not have to enter the trench to install it. It is light enough to be installed by one worker; they are gauge-regulated to ensure even distribution of pressure along the trench line; and they can be adapted easily to various trench depths and widths.
- However, if timber shoring is used, it must meet the requirements of 29 CFR 1926.650, .651, and .652. All shoring shall be installed from the top down and removed from the bottom up.
- Hydraulic shoring shall be checked at least once per shift for leaking hoses and/or cylinders, broken connections, cracked nipples, bent bases, and any other damaged or defective parts.
- The top cylinder of hydraulic shoring shall be no more than 18 inches below the top of the excavation. The bottom of the cylinder shall be no higher than four feet from the bottom of the excavation. (Two feet of trench wall may be exposed beneath the bottom of the rail or plywood sheeting, if used.)
- Three vertical shores, evenly spaced, must be used to form a system. Wales are installed no more than two feet from the top, no more than four feet from the bottom, and no more than four feet apart, vertically. Hydraulic shores must be installed in accordance with OSHA Standards in soil Type B. Hydraulic shores must be installed with sheeting in accordance with OSHA Standards in Type C soil.

HYDRALIC SHORING



TIMBER SGORING



4. SHIELDING

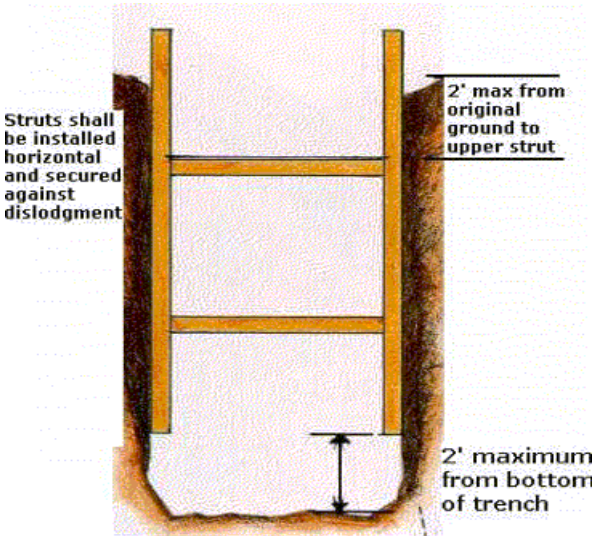
Trench boxes are different from shoring because, instead of shoring up or otherwise supporting the trench face, they are intended primarily to protect workers from cave-ins and similar incidents. The excavated area between the outside of the trench box and the face of the trench should be as small as possible. The space between the trench box and the excavation side must be backfilled to prevent lateral movement of the box. Shields may not be subjected to loads exceeding those which the system was designed to withstand. Trench boxes are generally used in open areas, but they also may be used in combination with sloping and benching. The box must extend at least 18 inches above the surrounding area if there is sloping toward the excavation. This can be accomplished by providing a benched area adjacent to the box. The manufacturer must approve any modifications to the shields. Shields may ride two feet above the bottom of an excavation, provided they are calculated to support the full depth of the excavation and there is no caving under or behind the shield. Workers must enter and leave the shield in a protected manner, such as by a ladder or ramp. Workers may not remain in the shield while it is being moved.

All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1½:1.

Shields That Don't Go All The Way To The Bottom

Excavation of material to a level no deeper than 2 feet below the bottom of the members of a support system is permitted only if:

- the system is designed to resist the forces calculated for the full depth of the trench,
- there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the support system.



UNDERGROUND UTILITIES

The mission of MISS DIG System, Inc. is to safeguard the public, environment, property and utility infrastructures and promote utility damage prevention through a quality, cost effective process for customers. Homeowners, excavators or other employers can call **MISS DIG at (800)482-7171,** 24 hours a day, and seven days a week. **MISS DIG can also be reached by simply dialing 811.** More information on the MISS DIG System is available on their website at www.missdig.org. You must give written or telephone notice to MISS DIG on intent to excavate, tunnel, discharge explosives or demolish **at least three full working days,** excluding Saturdays, Sundays and holidays, but not more than 21 calendar days, before commencing the activity.

It is the employer's responsibility to identify all underground utilities before beginning an excavation. Upon notice from the contractor, MISS DIG will notify the utility companies they have on their member list that an excavation site needs to be staked. Upon receiving the information from the public utility, an employer shall exercise reasonable care when working in close proximity to the underground facilities of any public utility. If the facilities are to be exposed, or are likely to be exposed, *only hand 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. In addition, employees must be protected by de-energizing the circuit and locking out and tagging it, unless the employee is guarded by insulation, insulated tools, or insulating matting or blankets sufficient to protect against the voltage involved.

UTILITY COLOR CODE

RED	Electric power lines, cables or conduits, and lighting cables.
YELLOW	Gas, oil, steam, petroleum or other hazardous liquid or gaseous materials.
ORANGE	Communications, cable TV, alarm or signal lines, cables, or conduits.
BLUE	Water, irrigation, and slurry lines.
GREEN	Sewers, storm sewer facilities, or other drain lines.
WHITE	Proposed excavation
PINK	Temporary survey markings.
PURPLE	Reclaimed water, irrigation and slurry lines.

Notifying MISS DIG is only the first step for the caller in fulfilling his or her responsibilities in the locating process. Locating underground facilities is not an exact science, therefore the actual location of the facility could vary from the position of the marks. To avoid damaging underground utility facilities and ensure public and employee safety, excavators must comply with all sections of Public Act 53 and MIOSHA

LOCATING UNDERGROUND UTILITIES

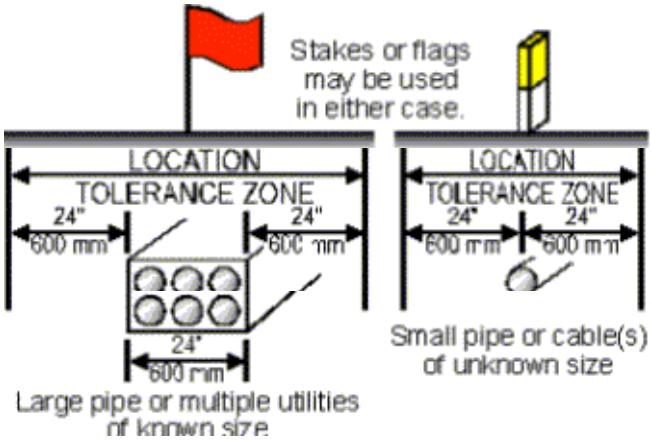
To avoid damaging underground utilities the project superintendent and excavator operator shall determine the precise location of underground utilities which have been marked prior to starting work

DEPTH OF FACILITIES

MISS DIG does not have information on the specific location or depth of buried facilities. In addition to human intervention, the effects of weather (i.e. erosion, changes in the frost line, etc.) can affect the depth of underground utility facilities. Staking equipment depth readout information is not accurate enough to rely on. Therefore, the utility owner will not provide depth information. Don't make assumptions about the depth and location of utility lines

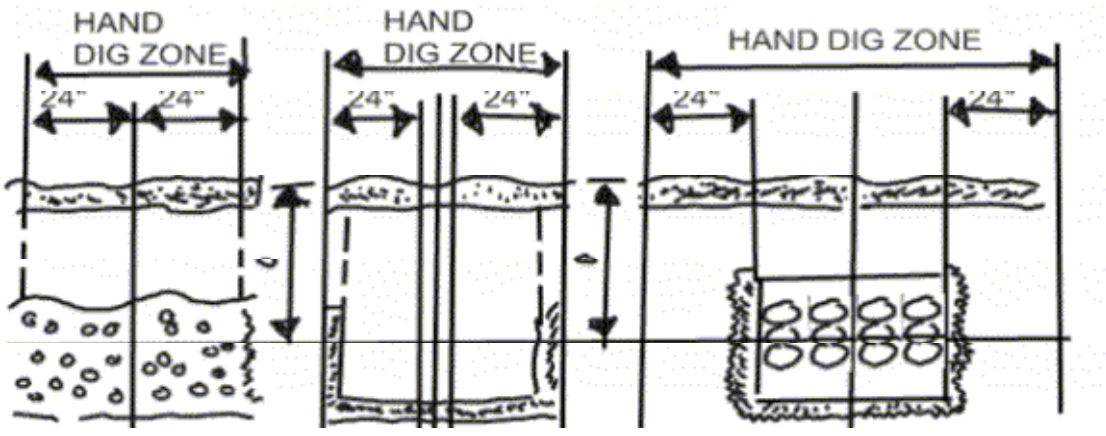
TOLERANCE ZONE

The tolerance zone (also known as the "approximate location") is typically a strip of land equal to the width of the underground utility plus two feet on either side. Excavation **must not** take place within the specified tolerance zone; the excavator must exercise reasonable care necessary for the protection of any underground utility in or near the excavation area. Hand digging will be required.



"HAND-DIG ZONE"

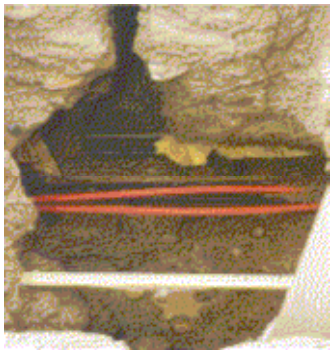
When it is necessary locate an underground utility in the tolerance zone, the location of the underground pipe shall be precisely located by hand-digging or potholing. Hand digging is the method of excavating by manual means with hand-held, non- mechanical equipment such as a shovel. A "hand dig zone" will be established for any unexposed facility. **For example: if the markings indicate a 6" pipe is buried, the hand dig zone is 54" inches (24" + 6" + 24") in any direction (vertical or horizontal) of known or believed to exist underground obstructions**. At no time shall picks, round pointed shovels, or any other type of sharp tool be used for locating utilities. Only square blunt non-sharp tools may be used for hand digging. Exposing buried utilities via any mechanized method (e.g., backhoe, grader, jack hammer, etc.) **is not acceptable**.



POTHOLING

Potholing is the practice of digging a test hole to expose underground utilities to determine the horizontal and vertical location of the facility. At no time shall picks, round pointed shovels, or any other type of sharp tool be used for locating utilities. Only square blunt non-sharp tools may be used for hand digging

POTHOLING



HOW TO RECOGNIZE A GAS LEAK

During construction, when working in or near an area containing underground gas facilities, be alert to the following signs of a potential hazard:

- Natural gas odor in or near your excavation site. To make it easier to recognize natural gas, a rotten egg odor is added. However, some natural gas pipelines in Michigan do not carry odorized gas.
- Apparent or non-apparent damage to pipes that have been broken, pulled, dislodged, or gouged.
- Brown patches in vegetation on or near a right-of-way.
- Dry spots in moist earth.
- Evidence of blowing (gas) noise, blowing dirt or bubbling mud or water.
- Fire coming from the ground or burning above the ground

WHAT TO DO IF YOU DAMAGE A PIPELINE

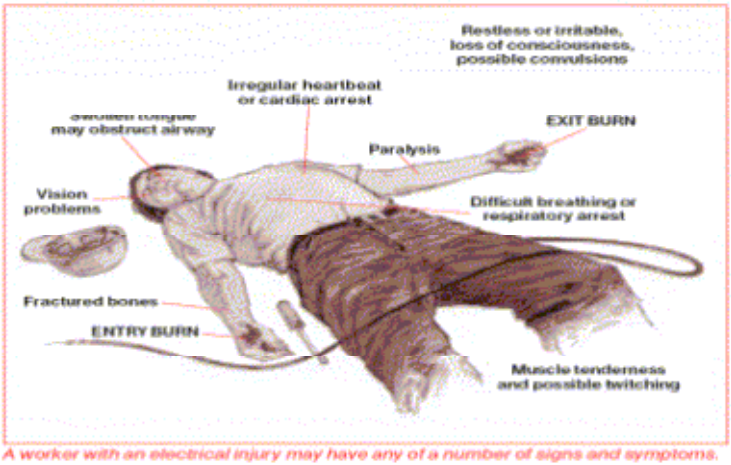
In the event an underground gas facility is damaged, the excavator (machine operator) should take immediate action to minimize the hazard:

- If you can do so safely, without risking the ignition of any leaking gas, move your machine away from the damage.
- If the motor stalls, DO NOT attempt to restart it. If you can do so safely, turn off the motor to prevent possible ignition of any gas and abandon the equipment.
- DO NOT cover the damaged pipe with dirt as a means of stopping the leak. DO NOT crimp plastic gas facilities. DO
- NOT attempt to plug damaged pipes. Allow the gas to vent into the atmosphere.
- Evacuate all workers or occupants immediately
- If natural gas ignites, let it burn. DO NOT put out the flame—burning gas will NOT explode.
- Notify the owner of the gas pipeline. Keep people away from the leak area.
- Prohibit any type of flame or ignition source in the area
- Call 9-1-1 to seek the aid of local law enforcement officers and fire departments.

UNDERGROUND POWERLINE SAFETY

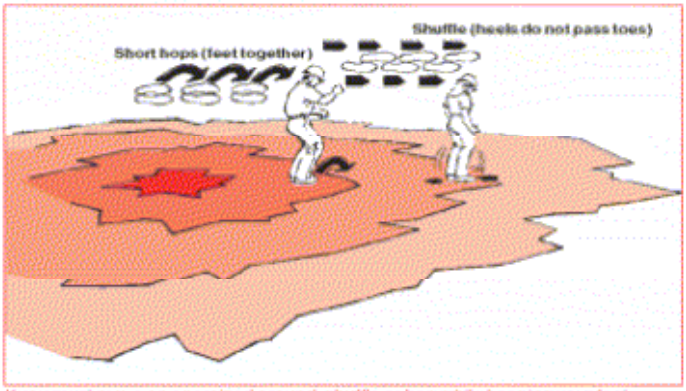
There are a number of basic steps to follow in case of an electrical accident:

- Do not touch the injured or any equipment in contact with the injured person.



A worker with an electrical injury may have any of a number of signs and symptoms.

- Even if it appears that the accident caused the electricity to be de-energized, use caution. Always assume the power lines are hot or energized. Modern electric lines usually relay back into service and become energized several times within a matter of seconds following an accident, or may not shut-down at all.
- Prevent others from approaching the victim and any electrically energized vehicles, objects, or structures.
- Call the utility so the electricity can be turned off. A serious electrical injury will cause muscles to contract, making it difficult or impossible for a victim to pull free from an electric source that is still energized. Cutting off the power will usually free the victim.
- DO NOT ATTEMPT TO DE-ENERGIZE HIGH-VOLTAGE POWER LINES. CALL THE LOCAL ELECTRIC UTILITY IMMEDIATELY! Call 911 to notify both the Police and the Fire Department.
- Also Once the victim is separated from the live electrical source, provide first aid until help arrives.
- If excavation equipment is involved and lines are touching it, anyone who touches it while standing on the ground may be shocked or electrocuted. If employee is in equipment sit quietly inside and wait for help to arrive unless equipment is on fire. If bystanders should stand at least 30 feet clear of the excavator so that they are not shocked or electrocuted. You are safe inside the vehicle, (like a bird on a wire) as long as you do not step out and touch the equipment and ground at the same time. Remember, the electricity is not only traveling through the equipment, but is also traveling in the ground around the area.
- If the equipment is on fire and it is necessary to leave it, keep both feet together, while you jump clear of the equipment, avoiding any wires that might be on the ground. Stay calm and jump carefully so that you don't fall back against the equipment or touch the ground and the equipment at the same time. Then shuffle, with both feet together clear of the area, keeping both feet on the ground and touching at all times. Continue shuffling for at least 30 feet from the accident site.



If you must move on energized ground, shuffle or hop while keeping your feet together and touching each other. Do not take steps.

ELECTRICAL SAFETY

*HAZARD ANALYSIS (HA) & ELECTRICAL WORK PERMIT REQUIRED

LIGHTING AND ELECTRICAL SAFETY

All lighting and electrical work of any kind, whether permanent or temporary, must conform to the requirements of the National Electric Code, NFPA 70E and other applicable federal, state, and local codes.

1. ELECTRICAL OPERATIONS

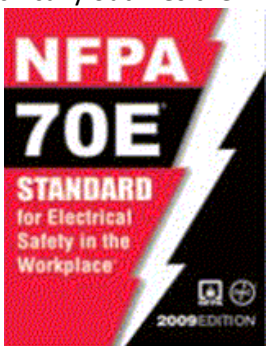
When working close to energized power circuits, the circuit must be de-energized and grounded or guarded through insulation in order to prevent a potential electric shock. Each disconnecting means for a piece of equipment and any service meter or branch circuit (at its point of origination) will be legibly marked to indicate its purpose. Circuits in excess of 120 volts will be marked with "Danger -- High Voltage" signs whenever unauthorized personnel may come in contact with live parts. All DC circuits in excess of 50 volts will be indentified with volt and amperage, and marked with “Danger” signs. In work areas where the exact location of under-ground electrical power lines is unknown, employees using jack hammers, bars, or other hand tools that may contact the lines must be protected by insulating gloves, aprons, or other protective clothing that will provide equivalent electrical protection

2. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

A work standard published by the National Fire Protection Association (NFPA) that covers aspects of electrical safety in the workplace. It includes the recommendation that those who work with, on or around energized equipment use adequate protection, including FR clothing.

NFPA 70E SAFETY STANDARDS

DeMaria requires all Electrical subcontractors to comply with the most current NFPA 70E safety standards. NFPA 70E specifically outlines the minimum requirements for any work on “energized” electrical circuits.



Only electricians trained and qualified with NFPA 70E requirements will be allowed to perform energized electrical work. Unqualified persons (non-electricians) are not to work on or near exposed energized conductors. OSHA defines a "Qualified person as one who has received training in and has demonstrated skills and knowledge in the construction and operation of electric equipment and installations and the hazards involved."

It is DeMaria’s general policy to avoid “energized” work.

In the event that energized electrical work is requested or required by the client a detailed Energized Electrical Work Permit and Hazard Analysis (HA) must be completed. Energized electrical work must be approved by the Owner, DeMaria Project Superintendent and the DeMaria Safety Director.

When working with electrified materials, special protection per NFPA 70E standards must be taken to ensure the electrician is not shocked. Electricians must be certified to work near or with energized equipment. If any part of an electrician's body is in danger of contacting exposed electrified material, then they must be provided insulated and protective equipment for that area capable of withstanding whatever voltage the device or equipment emits. Working in confined spaces may require full body protection. Insulated gloves must be worn underneath

protective gloves**.** Blue jeans no longer are acceptable for use when Category 1 risks are involved. Workers must wear long pants that have a rating of 4 calories or more, and that are verified by ANSI as FR pants and labeled accordingly. When opening up a panel, a worker must be wearing a hard hat, safety glasses and also must wear a face shield rated for 4 cal/cm2 or higher, which attaches to the hard hat and covers the face down to the chin, or an arc-rated flash suit hood. Hearing protection and leather gloves are required for all hazard risk categories. For certain tasks — going into a 277/480 V panel to open it up and just test for voltage, is a Hazard Risk Category 2*.

All equipment used in completing the job must be properly labeled to indicate what class insulator it is, its ozone resistance and its size. Blankets, gloves and sleeves must be manufactured seamlessly from rubber and subjected to periodic tests and daily inspections. If a material other than rubber is used, it must have demonstrably certified greater insulation capability than rubber.

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

NFPA 70E - Basic Terms & Definitions

Arc Flash: An explosive release of energy caused by an electrical arc. An arc flash results from either a phase to ground or a phase to phase fault caused by such occurrences as accidental contact with electrical systems, build up of conductive dust, corrosion, dropped tools, and improper work procedures. During an arc flash, the temperature can reach 35,000° Fahrenheit, and exposure to an arc flash can result in serious burn injury and death. Every year, more than 2,000 people are admitted to burn centers with severe arc-flash burns.

Arc Rating: A value of the energy necessary to pass through any given fabric to cause with 50% probability a second or third degree burn. This value is measured in calories/cm². The necessary Arc Rating for an article of clothing is determined by a Hazard/Risk Assessment and the resulting HRC. Usually measured in terms of ATPV or EBT.

Calorie: The energy required to raise one gram of water one degree Celsius at one atmosphere pressure. Second-degree burns occur at 1.2 calories per centimeter squared per second (cal/cm²).

1.2 calories/cm² = Holding your finger in the blue part of the flame for one second

Flash Hazard: A dangerous condition caused by the release of energy from an electric arc.

Flash Hazard Analysis: A study investigating the potential exposure to arc-flash energy that a worker faces while performing a specific job task. The data collected in a Flash Hazard Analysis is used for the purpose of injury prevention and the determination of safe work practices and the appropriated levels of FR clothing and PPE.

Flash Protection Boundary: The distance from an exposed live part within which a person could receive a second-degree burn if an electrical arc were to occur.

FR (Flame Resistant): FR refers to the ability of a material to self-extinguish upon the removal of an ignition source.

HRC (Hazard/Risk Category): The five Hazard/Risk categories are specified by the chart listed in NFPA 70E. The chart, based on specific job tasks, ranges from HRC 1 (which is low risk and allows for 100% treated cotton), up to HRC 4 (which is high risk and requires FR clothing with a minimum arc rating of 40). The HRC is used to determine the necessary arc rating of a garment worn during a given job task.

3. RESPONSIBILITY

The electrical subcontractor is responsible for the installation, maintenance and inspection of the temporary lighting and electrical systems. All employees and workers are responsible for identifying defective tools, cords and equipment and removing them from service until repaired and tested.

a. No work will be performed on an energized electrical circuit by anyone regardless of experience unless in compliance with NFPA70E, DeMaria safety policies and approved by Owner, DeMaria Project Superintendent and Safety Director.
b. No one shall be permitted to work on or close to unprotected electrical power circuit unless the employee is protected against electrical shock by de-energizing the circuit (lock out and tagging) and grounding it, protecting the individual by effective insulation.
c. All switches shall be enclosed and grounded. Panel boards shall have provisions for closing and locking the main switch and fuse box compartment.
d. Suitable means shall be provided for identifying all electrical equipment and circuits, especially when two or more voltages are used on the same job. All circuits shall be marked for the voltage and the area of service they provide.
e. The electrical subcontractor will conduct a weekly inspection of all temporary electrical power distribution units (spider boxes, receptacle panels) and receptacles.
f. The electrical subcontractor is responsible for properly securing all electrical equipment and circuits.

4. DAILY VISUAL INSPECTIONS

This program applies to all cords and receptacles not part of the building or structures permanent power. Prior to each day's use everyone using extension cords and power tools must perform a visual inspection to determine if any external defects exists (deformed or missing pins, insulation damage) or indications of internal damage exists on the following: Equipment found damaged or defective shall be immediately removed from service, destroyed or tagged “out of service” and shall not be used until repaired.

5. LIGHTING

The electrical subcontractor will provide temporary lighting for all areas of construction activity.
All temporary task lighting not installed by the electrical subcontractor must be UL approved.

a. Temporary lighting systems will be maintained at all times by the electrical subcontractor to ensure they are operative and in good repair.
b. All temporary lighting systems shall be inspected weekly by the electrical subcontractor and they will maintain a log of weekly inspections and all repairs.
c. Attention should be given to the selection and placement of lights so that minimum glare and shadows will be created, in addition to ensuring provision of adequate illumination.
d. Exposed empty light sockets and broken bulbs must be replaced immediately.
e. Temporary lighting shall provide a minimum of five (5) foot-candles in all areas.
f. Adequate lighting shall be provided throughout passageways and stairways.
g. All light bulbs shall be protected from accidental contact or breakage (bulb protectors).
h. Temporary lighting shall not be connected through a GFCI Circuit.
i. All temporary light stringers must be of the molded type sockets and should be new corded (SO, SJO) and each socket suspended individually by the molded socket with non-conductive material.
j. Additional lights stringer will be installed to increase the lighting in areas that area considered high traffic areas or access areas.

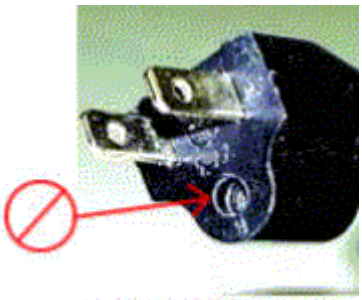
k. Temporary light strings must be configured so tools or other devices cannot be plugged into them.
l. If HID, Fluorescent, or sport lighters are used Lamps and bulbs must be protected by sealed lenses.

6. TEMPORARY ELECTRICAL SUPPLY

a. All 120-volt, single-phase, 15- and 20-ampere outlets shall have approved (GFCI) ground fault circuit interrupters for personnel protection.
b. GFCI USE IS MANDATORY. Although OSHA allows the use of an Assured Grounding Program, DeMaria requires everyone to follow and use GFCI protection.
c. Specialized outlets (welder's plugs, compressor plugs, fireproofing spray rigs, etc) must be UL assembled outlets that will not be mounted to floors, unless the assembly is compliant for wet locations.
d. Any tools or equipment connected to permanent wiring of the building with an extension cord shall use individual (GFCI) protection installed between the receptacle and the extension cord.

7. EXTENSION CORDS

a. All extension cords shall be heavy duty type - U.L. listed for outdoors, marked SJ, SJO, SJT, SJTO, S, SO, ST, or STO. Extension cords must be a minimum of 12 gauge. Extension cords shall be used in continuous lengths without splices. All electrical cords and equipment must be UL approved.
b. All extension cords must be marked with company or personal identification.
c. All electrical cords must be inspected daily prior to use.
d. Any cord found defective must be taken out of service and removed from the site immediately. Defective cords should be cut (after ensuring they are not plugged in) to prevent their reuse on projects.
e. Only qualified electricians are authorized to repair extension cords. Splices or repairs between the ends of an extension cord are prohibited.



Never use a three-prong grounding plug with the third prong broken off.

8. HIGH VOLTAGE

a. All transformers - panels and circuit breaker boxes in excess of 120 volts must be marked with a "HIGH VOLTAGE" decal. All outside main circuit panels and transformers must be protected against damage with a barricade and protected against weather, locked and marked.

b. All electrical work must comply with current NFPA and NEC requirements. No liquid of any type will be allowed in any electrical, mechanical room or critical room. Electrical and mechanical rooms are not to be used for storage except for equipment intended for that area.
c. Only authorized personnel are allowed to enter electrical rooms. All electrical rooms must remain locked except when occupied. The electrical subcontractor is responsible for securing.

9. CLEAN UP OPERATIONS

Where live parts present an electrical contact hazard, non-qualified employees may not perform housekeeping duties at such close distances to the parts that there is a possibility of contact, unless adequate safeguards (such as insulating equipment or barriers) are provided. Electrically conductive cleaning materials (including conductive solids such as steel wool, metalized cloth and silicon carbide, as well as conductive liquid solutions) may not be used in proximity to energized parts unless appropriate procedures are followed to prevent electrical contact

OSHA mandates that all services to electrical equipment be done in a de-energized state. "Working live" can only be done under special circumstances. NFPA 70E defines those special circumstances and sets rigid safety limits on voltage exposures, work zone boundary requirements and PPE necessary

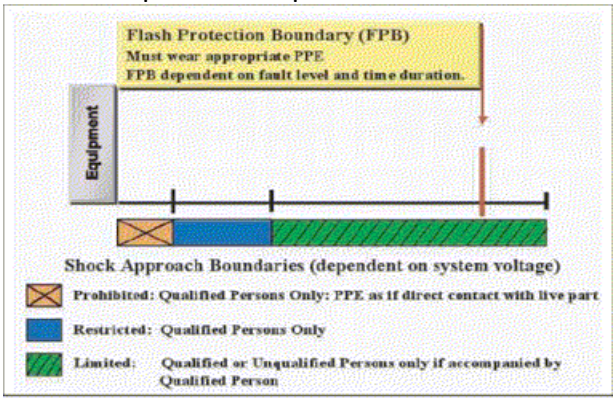
WORKING ON ELECTRICAL CONDUCTORS OR CIRCUIT PARTS

Perform a hazard analysis if live parts (50 volts or more) can not be placed in an electrically safe work condition

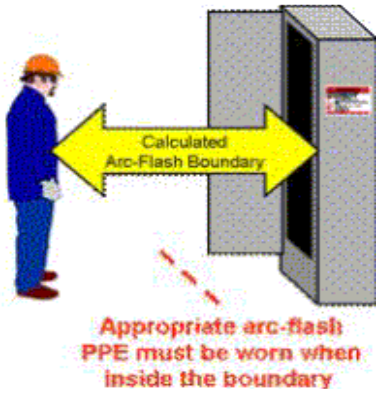
- Shock Hazard Analysis (Determine limited, restricted and prohibited approach boundaries and shock PPE)
- Flash Hazard Analysis (Determine arc flash boundary and PPE for personnel within this boundary)
- Use Energized Electrical Work Permit

Flash Hazard Analysis

- An arc flash hazard analysis shall be done to protect personnel from injury by arc flash exposure This analysis determines the flash protection boundary and potential thermal exposure to personnel working on or near exposure live parts within the boundary



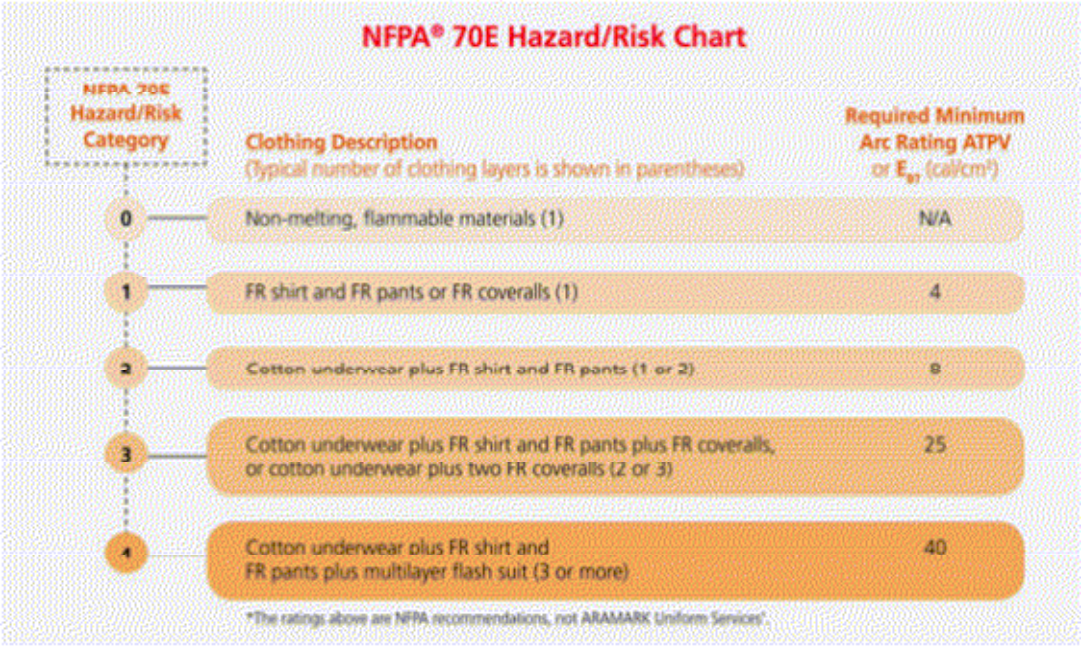
- Personal protective clothing and protective equipment for workers inside the flash protection boundary are then selected to mitigate potential thermal exposure



- Equipment shall be labeled with the results of the arc flash hazard analysis and shock protection analysis

HAZARDOUS RISK CATAGORY

The NFPA has identified four FR hazardous risk category levels, which are numbered by severity from 1 to 4. Hazard Risk Category is the level of arc flash protection clothing you must wear to protect against a minimum level of incident energy measured in calories per centimeter squared. Meaning, electrical equipment, depending upon the energy delivering capability, under fault conditions can cause an explosion, or arc fault of a certain level, again measured in calories per centimeter squared. That explosion can deliver a certain amount of heat to a certain distance. Each level, 0-4, is rated at a certain amount of flame resistance, and again measured in cal/cm2. The PPE requirements of NFPA 70E, 130.7(C)(9)(a) shall be permitted in lieu of the detailed flash hazard analysis.



To help workers select clothing and other PPE for arc flash protection, the NFPA has established Hazard Risk Categories. Each Hazard Risk Category requires a specific level of arc flash protection, measured in calories/cm2, as well as other protective equipment.

HAZARD RISK CATEGORY ZERO (0) PPE

A common example of a Category Zero job task is operating a circuit breaker or fused switch with the door closed. Category Zero is the only Hazard Risk Category where non-melting natural-fiber clothing such as 100 percent cotton or wool is allowed. This clothing includes long sleeves and long pants. Other PPE required includes safety glasses, hearing protection and leather gloves. When performing a switch of a circuit breaker or fuse, don't become complacent; remember the left-hand rule. Stand to the side, take a deep breath and hold it, then operate the switch with your left hand.

HAZARD RISK CATEGORY ONE (1) PPE

Some common Category One job tasks include operating a 480-volt fused switch with the door open and testing 120-volt control circuits. Hazard Risk Category One requires arc-rated clothing of four calories/cm2, a dielectric hardhat and an arc-rated face shield or flash hood. Also required are safety glasses, hearing protection and leather gloves or rubber-insulated gloves with leather protectors. The arc-rated face shield requirement is a

standard change for 2009. Be sure to select an arc-rated face shield; a standard face shield will not withstand an arc blast. It can burn and melt, causing additional injury.

HAZARD RISK CATEGORY TWO (2) PPE

Hazard Risk Category 2

An example of a Hazard Category Two job is operating a 13.8 kilovolt switch with the door closed or performing non-contact inspections of 600-volt equipment without crossing the Restricted Approach Boundary. Job tasks rated as Hazard Risk Category Two require eight calories/cm2 of arc flash protection with a dielectric hardhat and an arc-rated face shield or flash hood. The most common dielectric hardhat is Class E and is rated for 20,000 volts and is designed for electrical work; flash suit hoods must contain a rated dielectric E hardhat. Also required are safety glasses, hearing protection and leather gloves or rubber-insulated gloves with leather protectors. Certain jobs are assigned a Hazard Risk Category 2* (asterisk). This Hazard Risk Category requires the same protection as Category 2 with additional face protection in the form of an eight calories/cm2 “sock hood” or an arc rated flash hood. An example of a Hazard Risk Category 2* job is voltage testing equipment rated between 240 volts and 600 volts.

HAZARD RISK CATEGORY THREE (3) & FOUR (4) PPE

Hazard Risk Category 3

Hazard Risk Category 4

Hazard Risk Category Three requires a minimum of 25 calories/cm2 arc-rated protection and Hazard Risk Category Four requires a minimum of 40 calories/cm2 arc-rated protection. These categories also require an arc-rated flash hood over a properly-rated dielectric hardhat, safety glasses, hearing protection, leather work shoes and arc-rated gloves or rubber-insulated gloves with leather protectors. An example of a Hazard Category Three job task is opening hinged covers to expose bare energized parts on equipment rated between one kilovolt and 38 kilovolts. An example of a Hazard Category Four job task is inserting or removing circuit breakers on equipment rated between one kilovolt to 38 kilovolts.

DEMARIA ENERGIZED ELECTRICAL WORK PERMIT

Work Request (To be completed by the **person requesting the review.)**			
Work site location: (building & room number)		Work order/project no.:	
Planned **start** date/time:		Planned **end** date/time:	
Description of the work to be performed:			
Equipment requested to be shut down: (specify how long)			
	☐ Until work is complete ☐ Temporarily, while barriers are being placed		
Requested by:	Signature:	Title:	Date:

Hazard Analysis (To be completed by the **electrically qualified persons doing the work**.)		
Shock Analysis/Approach Boundaries: Limited approach boundary- Restricted approach boundary- Prohibited approach boundary-	 _____ft _____in _____ft _____in ☐ Work will be conducted within this boundary. _____ft _____in ☐ Work will be conducted within this boundary.	
Results of the flash hazard analysis -	☐ The flash protection boundary is **4 ft 0 in** for systems that are 600 volts or less based on the product of clearing times of 6 cycles (0.1 second) and the available bolted fault current of 50 kA or any combination not exceeding 300 kA cycles (500 ampere seconds). ☐ Calculation results: _____ft _____in	
Hazard/risk category for the task: ATPV rating (in cal/cm^2) for FR clothing:	☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 (from Table 130.7(C)(9)(A) & (11)) ☐ N/A (Cat 0) ☐ 4 (Cat 1) ☐ 8 (Cat 2) ☐ 25 (Cat 3) ☐ 40 (Cat 4)	
☐ Voltage-rated tools ☐ Voltage-rated gloves ☐ Safety glasses ☐ Hearing protection ☐ Leather gloves ☐ Leather work shoes ☐ Hard hat ☐ Hard hat FR liner (ATPV)	☐ Short-sleeve shirt (nat fiber) ☐ Long-sleeve shirt (nat fiber) ☐ Long pants (natural fiber) ☐ Long-sleeve FR shirt (ATPV) ☐ Long FR pants (ATPV) ☐ FR coveralls (ATPV) ☐ FR jacket/rainwear (ATPV)	☐ Multi-layer FR flash suit jacket (ATPV) ☐ Multi-layer FR flash suit pants (ATPV) ☐ Arc-rated face shield (ATPV) ☐ Flash suit hood (ATPV) (from Table 130.7(C)(10)
Means employed to restrict the access of unqualified persons from the work area:	☐ Signs/tags ☐ Barricades ☐ Attendants	
Has a documented job briefing with detailed procedures been conducted?	☐ Yes, see attached ☐ No	
Do you agree that the work described above can be done safely?	Electrically Qualified Person(s)	Date
Justification for the live work request:	☐ Shut down creates an increased/additional hazard (specify): _____ ☐ Shut down is infeasible due to design or operational limitations (specify): _____	
The next available date for shutdown is:		
Request for energized electrical work:	Electrical qualified person:	Date:

Proposed Energized Electrical Work Review (To be completed by **DeMaria Management**.)		
Proposed energized electrical work has been reviewed & approved by:	DeMaria Superintendent:	Date:
	Safety Director:	Date:

POWER LOCKOUT/ TAGOUT SAFETY

*HAZARD ANALYSIS (HA) REQUIRED

It is the responsibility of the project superintendent to administer the lockout/tagout program and insure that all employees (including the employees of subcontractors) are properly trained in the lockout/tagout procedures set forth by MIOSHA and DeMaria. The project superintendent shall have available on the project and develop a system of checking in/out lockout/tagout equipment. A log shall be posted in the jobsite trailer and shall be filled out each time a lockout/tagout must take place on a project. The project superintendent shall also ensure that a hazard analysis (HA) is filled out prior to the start of any lockout/tagout work task. No locks/tags shall be installed or removed for any reason without prior notification to the project superintendent.

WHAT IS LOCKOUT AND TAGOUT?

Lockout and tagout ensures that hazardous energy sources are under the control of each worker. Serious or fatal accidents can occur when people assume that machinery is turned off or made harmless—but it isn't.

- **Lockout** is a procedure that prevents the release of hazardous energy. It often involves workers using a padlock to keep a switch in the "off" position, or to isolate the energy of moving parts. This prevents electric shock, sudden movement of components, chemical combustion, falling counterweights, and other actions that can endanger lives. Lockout is a physical way to ensure that the energy source is de-energized, deactivated, or otherwise inoperable.

- **Tagout** tells others that the device is locked out, who has locked it out, and why. Tagged devices and systems must not be re-energized without the authority of those named on the tag.

LOCKOUT/TAGOUT STEPS

LOCATE WORK AREA AND IDENTIFY EQUIPMENT, MACHINERY, OR OTHER SYSTEM COMPONENTS TO BE WORKED ON

Identify the area with references such as floor, room name, elevation, or column number. Identify the equipment that is the subject of the work.

STEP 1: IDENTIFY ALL ENERGY SOURCES

Identify all energy sources affecting the equipment or machinery. Identify the various energy forms to be locked out such as electrical, momentum, pneumatic, hydraulic, steam, and gravity.

STEP 2: NOTIFY ALL PERSONNEL AFFECTED

Shutting down equipment may affect operations in other locations, incoming shifts, or other trades who may be planning to operate the locked-out system. Before proceeding with the lockout, inform all personnel who will be affected. At construction sites with a large workforce or at relatively large factories, you may need to have special communication methods and permits or approvals

STEP 3: SHUT DOWN EQUIPMENT AND MACHINERY

Qualified personnel must shut down the equipment, machinery, or other system components, placing them in a zero-energy state.

STEP 4: TRACE ALL SYSTEMS TO LOCATE ALL ENERGRY SOURCES

Trace all systems to locate and lock out energy sources. The main source may be electrical, for instance, but pneumatic and other forms of energy may also be present. Always look for other possible energy sources. All equipment capable of being energized or activated electrically, pneumatically, or hydraulically must be de-energized or de-activated by physically disconnecting or otherwise making the apparatus inoperable. Always ensure that the client and operators are aware of the plan to shut down and lock out equipment, machinery, or other system components. In some cases, operations personnel or equipment operators may be required to shut down components because of their special qualifications or knowledge of the system. In determining what needs to be shut down and locked out, consider the different energy sources that may be found in the system.

STEP 5: IDENTIFY THE PARTS TO BE LOCKED OUT OR ISOLATED

Identify systems that affect, or are affected by, the work being performed. These may include primary, secondary, backup, or emergency systems and interlocked remote equipment. Review the current system drawings for remote energy sources and, where required, identify and confirm with the client or owner the existence and location of any switches, power sources, controls, interlocks, or other devices necessary to isolate the system. Remember that equipment may also be affected time restrictions for completing the work and time-activated devices.

STEP 6: INSTALL LOCKOUT DEVICES

After the circuit has been de-energized and locked out by the person in charge, each worker involved in the lockout must be protected by placing his or her personal lock on the isolating device.

Remember—even though the disconnect is already locked out, you are not protected until you attach your own personal safety lock. Each worker must retain his or her key while the lock is in place. Only the worker in charge of the lock should have a key.

Remember . . .

1. Merely removing a fuse doesn't constitute lockout. The fuse could be easily replaced. The fuse should be removed and the box locked out.
2, The lockout devices attached to one system should not prevent access to the controls and energy-isolating devices of another system.

- **Locks**

  Locks should be high-quality pin-type, key-operated, and numbered to identify users.

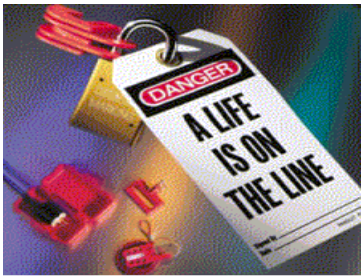
- **Multiple locks and lockout bars**

When several workers or trades are working on a machine, you can add additional locks by using a lockout bar. You can add any number of locks by inserting another lockout bar into the last hole of the previous bar.

- Confirm that the lockout of all energy sources is possible. Some equipment may have to be kept operational to maintain service to other equipment that cannot be shut down. Take appropriate steps to provide protection for workers while working near operating equipment. Equipment that can be locked out should be locked out by the methods most appropriate to the hazards.

STEP 7: TAGOUT

Requires each worker involved in a lockout operation to attach a durable tag to his or her personal lock. The tag must identify the worker's name, the worker's employer, the date and time of lockout, the work area involved, and the reason for the lockout. A tag in itself offers no guarantee that a machine or system is locked out. It simply provides information. Signs must be placed on the system indicating that it must not be energized or operated and guards, locks, temporary ground cables, chains, tags, and other safeguards must not be tampered with or removed until a) the work is complete, and b) each worker has removed his or her personal lock. A record must be kept of all equipment locked out or otherwise rendered inoperable so that all of these devices can be reactivated once the work is complete.



STEP 8: VERIFY ZERO-ENERGY STATE

After any power or product remaining in the equipment has been discharged or disconnected by qualified personnel, verify that all personnel are clear of the equipment. Then try, with extreme caution, to start the equipment manually. Look for any movement or functions. If none are observed, confirm that all energy sources are at a zero-energy state. Test the system to ensure that all electrical components are de-energized and de-activated, including interlocking and dependent systems that could feed into the system, either mechanically or electrically.

STEP 9: PERFORM THE TASK

Carry out and complete the work assignment.

STEP 10: COMMUNICATE THAT WORK IS COMPLETE AND THAT ALL PERSONNEL ARE CLEAR

1. Ensure that personnel are clear of the locked-out equipment, machinery, or system.
2. Remove only your tags and locks.
3.Tell personnel that were originally informed of the lockout that the equipment, machinery, or system is no longer locked out.

STEP 11: RESTORE POWER

Return systems to operational status and the switches to power ON. Have qualified personnel restart machinery or equipment.

STEP 12: RETURN CONTROL TO OPERATING PERSONNEL

When all work is completed, the person in charge of the lockout operation should formally return control of the equipment or system to plant personnel.

STEP 13: RECORD DATE/TIME LOCKOUT REMOVED AND SYSTEM RESTORED

This last step is important. It saves valuable information that may be lost if not recorded. Staff involved in the shutdown may not remain at the same jobsite. Owners or operators may require this information to help plan future shutdowns.

MANAGEMENT RESPONSIBILITIES

- Each supervisor shall train new employees and periodically instruct all of their employees regarding provisions and requirements of this lockout procedure.
- Each supervisor shall effectively enforce compliance of this lockout procedure including the use of corrective disciplinary action where necessary.
- Each supervisor shall assure that the locks and devices required for compliance with the lockout procedure are provided to their employees.
- Prior to setting up, adjusting, repairing, servicing, installing, or performing maintenance work on equipment, machinery, tools, or processes, the supervisor shall determine and instruct the employees of the steps to be taken to assure they are not exposed to injury due to unintended machine motion or release of energy.

EMPLOYEES RESPONSIBILITY

- Employees shall comply with the lockout procedure.
- Employees shall consult with their supervisor or other appropriate knowledgeable management personnel whenever there are any questions regarding their protection.
- Employees shall obtain and care for the locks and other devices required complying with the lockout procedure.

LOCKOUT/TAGOUT LOG

Company Name	Authorized Person	Date	Time	Location	Lockout (yes/no)	Date	Time	Lock removed (yes/no)

CONFINED SPACE SAFETY

*HAZARD ANALYSIS (HA) & CONFINED SP ACE PERMIT REQUIRED

Before an employee enters a manhole, well, shaft, tunnel, or other confined space , the sub-contractor or DeMaria personnel must notify the Project Superintendent who in turn notifies the Safety Director. The confined space will be evaluated by DeMaria Safety Director prior to entering to determine the safety practices needed to be followed**.** In general, confined spaces are considered to be open topped enclosures with depths that restrict the natural movement of air; or enclosures with limited openings for entry and exit. Examples of confined spaces include: storage tanks, process vessels, bins, silos, boilers, ventilation or exhaust ducts, sewers, pipe chassis, underground utility vaults, tunnels, trenches, pits, and pipelines.

PERMIT SPACE EVALUATION AND CLASSIFICATION

DeMaria Safety Director must evaluate the workplace to identify PRCS and whether workers will enter them. Once determined that workers will enter a permit space the Safety Director must set up procedures to ensure safe entry. Because of the different types of permit spaces found in the work environment. Proper evaluation by the Safety Director will determine which procedures can be used. No one must enter a potential confined space until the Safety Director has carefully evaluated the hazards inside to determine what type of entry procedure may be used for each confined space present

Confined Space Hazard Assessment

Space _____

Non-permit required confined space (NPRCS) means a confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm. **Non- Permit Confined Space (NPRCS)** - must meet **al**l the below criteria		**Permit Required Confined Space (PRCS)** must be a Non-Permit Required Confined Space (NPRCS) **AND** meet any one of the below criteria	
	Is large enough or so configured that an employee can bodily enter and perform work... AND		Contains or has a potential to contain a hazardous atmosphere... OR
	Has limited or restricted means for entry or exit AND		Contains a material that has the potential for engulfing an entrant... OR
	Is not designed for continuous employee occupancy.		Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly covering walls or by a floor that slopes downward and tapers to a smaller cross-section... OR
			Contains any other recognized serious safety or health hazard

Permit spaces can be entered using alternate procedures when:

The employer can demonstrate that the only hazard posed by the permit space is an actual or potential hazardous atmosphere; and The employer can demonstrate that continuous forced air ventilation alone is sufficient to maintain that permit space safe for entry; and The employer develops monitoring and inspection data that supports the demonstrations required.

A confined space permit, if needed must be obtained from the Project Superintendent, filled out and posted prior to entering the confined space. Any equipment needed by DeMaria employees will be provided for by the Yard Superintendent. A confined space gang box has been assembled as well as air monitors purchased to aid in the safe entry of all confined spaces. The Project Superintendent must ensure that this equipment is onsite prior to entering any confined spaces

CONFINED SPACE ENTRY

Required Components Determined by: Who is Going to Enter

Item	Description	Required Components/Rules
1	**NO ENTRY BY EMPLOYEES** Employer Responsible to Employees	(c)(1)- Evaluate Workplace for Presence of PRCS (2)- Signs or Training of Location & Danger (3)- Take Steps to Prevent Entry
2	**ENTRY BY CONTRACTOR(s) ONLY:**	
2a	Employer (Host) Responsible to Employees-	(c)(1)- Evaluate Workplace for Presence of PRCS (2)- Signs or Training of Location & Danger (3)- Take Steps to Prevent Entry
2b	Host Responsible to Contractor(s) -	(c)(8)(i)- Inform Contractor of PRCS and Need to Comply (ii)- Apprise Contractor of Hazards and Experience (iii)- Apprise Contractor of Precautions Taken (v)- Debrief Contractor at Conclusion of Entry
2c	Contractor Responsible to Its Own Employees -	In addition to complying with permit space requirements that apply to all employers, each contractor who is retained to perform permit space entry operations shall:
2d	Contractor Responsible to Host -	(c)(9)(i)- Obtain Information from Host
2e	Contractor Responsible to Contractor	(d)(11)- Procedures to Coordinate Multiple Employers
3	**ENTRY BY EMPLOYER'S EMPLOYEES:**	(c)(1)- Evaluate Workplace for Presence of PRCS (2)- Signs or Training of Location & Danger (4)- Establish Written Permit Space Program to include:
	C5- Alternate Entry	(c)(5)- Alternate Entry (g) - Training, and/or
	C7- Reclassification	(c)(7)-Reclassification (g) - Training, and/or
	Full Permit Entry	(d) - Permit Space Program (e) - Permit System (f) - Entry Permit (g) - Training (h) - Authorized Entrants (i) - Attendants (j) - Entry Supervisor (k) - Training
4	**ENTRY BY EMPLOYER & CONTRACTOR:** Employer Responsible to Employees Employer Responsible to Contractor	Combine **Item 3 and (c)(8)(iv)-** Coordinate entry operations with the contractor as required by (d)(11) Combine **Item 2b and (c)(8)(iv)-** Coordinate entry operations with the contractor as required by (d)(11)

*This chart is a guideline, it does not take place of reading and understanding the Confined Space Entry Standard

Before entry into any confined space suspected of having mixtures or concentrations of flammable and/or toxic air contaminants or oxygen deficiencies, appropriate tests of the atmosphere shall be made by a qualified person. A confined space found to have or suspected of having oxygen deficiency or exceeding flammable or toxic limits shall be reported promptly to the superintendent.

1.	**When a hazardous atmosphere is potentially present, before entering any confined space, test for (in this order):** • Oxygen deficiency; • Flammable gases; • Toxins (such as carbon monoxide (CO) and hydrogen sulfide (H2S); • Other anticipated hazardous atmosphere (e.g., sulfur dioxide and ammonia); • Additional tests such as noise or radiation.
2.	**Continuously monitor confined space if atmospheric hazards may exist.**
3.	**Testing to be done by an atmosphere tester.**
4.	**Perform instrument** • a pre-operational check once per day before the instrument is released for field use (i.e., bump test). • The sensors for hazards present in the space must be challenged with the appropriate gas to determine its functionality. • Instruments must be field-checked before each entry.
5.	**Maintain instruments** calibrated according to the manufacturers' recommendation and at the frequency recommended by the manufacturer.

Atmospheric conditions that must be met for	
Oxygen	The percentage of oxygen • Greater than or equal to 19.5% and • Not greater than 23.5%.
Flammable and combustible	Flammable and combustible gases and vapors: • Not greater than 10% of the Lower Exposure Limit (LEL). Spaces that have a combustible gas indicator reading above10% LEL must not be entered, regardless of respiratory equipment, until they have been reduced below this level with purging or ventilation.
Toxic Atmospheres	Each potential toxic substance below the OSHA PEL and ACGIH TLV® (whichever is lower).

SAMPLING DEVICES

a) A direct readout sampling device which can simultaneously test for oxygen, hydrogen sulfide and/or carbon monoxide and combustible gas without manual switching shall be used to sample the atmosphere of the confined space.

b) The sampling device shall be equipped with an audible and visible warning device that warns the entrant and/or attendant of the hazardous atmosphere in the permit space. Personal sampling device shall be place within 10" inches of workers nose.

c) Sampling devices shall be calibrated relative to the oxygen content of the ambient air at the time of sampling. Calibration of the sampling device relative to the oxygen content shall be performed where the 20.9% natural content of oxygen in the air is most likely to occur. Note: Oxygen calibration should not be performed near a confined space opening.

d) A sampling device, which has a zero set, shall be zeroed in a clean atmosphere before each sampling. Calibration of a sampling device shall be conducted as often as recommended by the manufacturer.

e) Non-sparking Equipment: When sampling the atmosphere of a CS, the sampling device shall have an attached non sparking probe.

f) Manhole Sampling: When a CSE is by means of a manhole, a probe shall be inserted through the pick hole of the manhole cover, or the manhole cover shall be preyed open (using a non sparking pick) on the downwind side to allow just enough room for insertion of the probe or other sampling device.

Intrinsically Safe: When the CS to be entered is expected to have combustible vapors present, employees shall be required to use an approved explosion proof or intrinsically safe sampling device.

EQUIPMENT FOR SAFE ENRTY (these are not all inclusive)

Notify the Yard Superintendent to have the Confined Space gangbox delivered to the project. Inside the gangbox are the tripod, (you may need the davit arm if the tripod cannot be set up properly), the blower, retrieval systems and air monitor**:**

- Properly calibrated testing and monitoring equipment;
- Ventilating equipment needed to obtain/maintain acceptable entry conditions;
- Communications equipment, if necessary;
- Personal protective equipment insofar as feasible engineering and work practice controls (i.e., lockout/tagout) do not adequately protect employees;
- Lighting equipment needed to enable employees to see well enough to work safely and to exit the space quickly in an emergency;
- Barriers and shields;
- Equipment, such as ladders, needed for safe ingress and egress by authorized entrants;
- Rescue and emergency equipment, except to the extent that the equipment is provided by rescue services; and
- Any other equipment necessary for safe entry into and rescue from permit spaces.

LOCKOUT PROCEDURES

All lines, pipes or other conveyances of flammable and/or toxic materials into a confined space shall be positively locked out and tagged in accordance with the lockout/tagging procedures

VENTILATION/EXHAUST

If the atmosphere is found to lack oxygen or contain unsafe levels of toxic gases and vapors, the space must be mechanically ventilated before entry. An air-powered ventilator placed at the top of the opening can blow breathable air into the space. Ventilation must continue until safe levels exist. Just taking the top off a manhole for a period of time so that it can "air out" may not provide enough natural ventilation to make the space safe.

Ventilating a space before entry to clear out all contaminants is usually referred to as purging the space. Purging should take at least 10 to 15 minutes depending on the size of the confined space. The larger the space, the more time this process will require. The forced air ventilation should ventilate the immediate areas where an employee is or will be working within the space. Ventilation should be continuous where possible, because in many confined spaces the hazardous atmosphere will form again when the flow of air is stopped. Periodic sampling for flammable and toxic materials and oxygen deficiencies shall be performed before, during and after employee work assignments in the confined space to ensure toxic limits are not exceeded and a safe environment is and has been maintained. The assessments of the air quality in a confined space and the advice to the supervisor, or precautions, which must be taken, shall be performed by a qualified person.

Note: Forced ventilation may not be used in lieu of monitoring. Consideration must also be given to the possibility of static discharge that could be a source of ignition

The equipment needed to properly ventilate a confined space consists of a blower (electrical or gas powered) and a long hose. Electrical blowers are safer than gas-powered blower and they are quieter if night work is required. A blower that has the capability to provide 600 cubic feet per minute of fresh air should be used. The hose should be 6 to 10 inches wide and long enough to reach the bottom of the confined space.

LIGHTING AND ELECTRICAL

Lighting will be provided where sufficient natural light does not meet the work requirements and in areas where moisture exists, portable lighting equipment shall be operated at a maximum 12 volts.
Explosion proof fixtures and switches will be used in confined spaces where explosive limits of flammable materials may occur. Emergency lighting will be provided at all entrances and exits of the confined spaces or explosion proof flashlights will be issued to all employees required to enter the confined space if the area is subject to blackout.

COMMUNICATIONS

Communication shall be maintained at all times with the employees in the confined space by the persons assigned to stand by at the entrance. This can be accomplished by visual or voice, horn or whistle contact or with explosion proof telephone or two-way radio .

FIRE PROTECTION

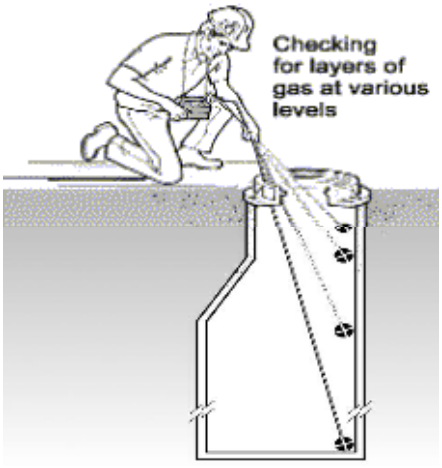
Access and egress will be maintained at all times while work is being performed in a confined space.
Flammable liquids must be stored in approved containers or dispensers. The amount of flammable liquid in the confined space shall not exceed the amount required for the work for the day.
Properly rated fire extinguishing equipment shall be readily available at all times for immediate use.

ISOLATING THE PERMIT SPACE

- The space shall be barricaded off either to prevent unauthorized entrants or fall protection issues; should the entrant be required to stand next to an open confined space that is 6 feet or greater in depth, a means of fall protection, consistent with MIOSHA Part 45. will be required.

VERIFYING ACCEPTABLE ENTRY CONDITIONS;

- The Entry Supervisor, Attendant and Entrant will use a 4-gas air monitor to confirm all air quality meets the acceptable entry conditions listed above. Should the monitor detect a hazardous condition during entry, employees must immediately leave the space. the Permit shall be cancelled until acceptable entry conditions can be met.



INFORMING CONTRACTOR EMPLOYEES

Employers must inform any contractors whom they hire to enter permit spaces about:

- The permit spaces and permit space entry requirements;
- Any identified hazards;
- The employer's experience with the space, such as knowledge of hazardous conditions;
- Precautions or procedures to be followed when in or near permit spaces.

When employees of more than one employer are conducting entry operations, the affected employers must coordinate entry operations to ensure that affected employees are appropriately protected from permit space hazards.

PERSONAL PROTECTIVE EQUIPMENT

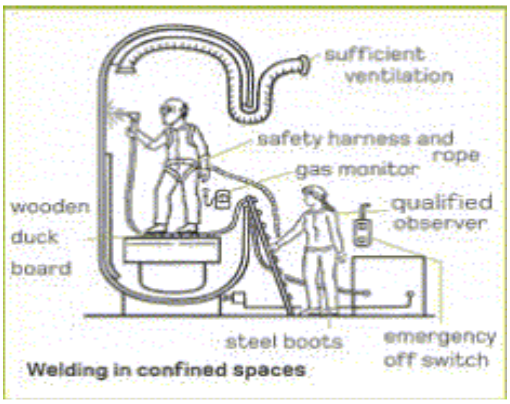
Work and/or rescue equipment shall be immediately available at all times and shall be selected with the potential hazards or possible contingencies determining the equipment which may be required during the work operations. Appropriate eye, face, and ear protection and the designated protective clothing shall be worn by employees exposed to physical hazards. Employees entering a confined space where a harmful or potentially harmful atmosphere exists, shall wear an approved safety harness attached to a life line which is attended at all times by another worker stationed outside the confined space entrance. The outside

worker shall be equipped to be capable of immediately rescuing the worker in the confined space. A mechanical device shall be used to retrieve personnel from vertical spaces more than 5 feet deep.

When an employee enters a confined space from the top, the employee shall wear a safety harness, which will keep the individual in a vertical position if a rescue is required. Where the work being performed requires more than one worker to enter the confined space, provisions shall be made to prevent safety lines or air hoses from becoming entangled. Where air sampling has determined flammable or toxic limits have been exceeded or an oxygen deficiency exists, and acceptable engineering controls such as general or local ventilation is not feasible, appropriate respiratory protection for the identified hazards shall be worn.

HOT WORK PERMIT

A Hot Work Permit and Hazard Analysis must be completed and approved by DeMaria superintendent before any welding in a confined space. During inert gas welding, portable and/or fixed oxygen analyzers with visual/audible, alarms shall be provided in areas where oxygen deficient atmospheric conditions may develop. Continuous oxygen monitors, equipped with alarms shall be provided in areas designated by the superintendent. All monitoring and testing equipment will be maintained in accordance with the manufacturer's specifications



PERMIT REQUIRED CONFINED SPACE (PRCS)

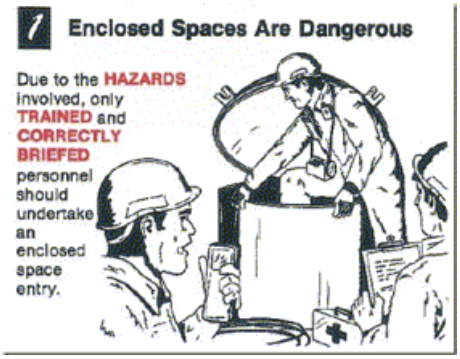
A PRCS will be completed and signed by the entry supervisor, must be posted at all entrances or otherwise made available to entrants before they enter a permit space. The permit must verify that pre-entry preparations outlined in the standard have been completed. The duration of entry permits must not exceed the time required to complete an assignment. **Entry permits must include:**

- Name of permit space to be entered, authorized entrant(s), eligible attendants and individuals authorized to be entry supervisors;
- Test results; Tester's initials or signature;
- Name and signature of supervisor who authorizes entry;
- Purpose of entry and known space hazards;
- Measures to be taken to isolate permit spaces and to eliminate or control space hazards;
- Name and telephone numbers of rescue and emergency services and means to be used to contact them;
- Date and authorized duration of entry;
- Acceptable entry conditions;
- Communication procedures and equipment to maintain contact during entry;
- Additional permits, such as for hot work, that have been issued authorizing work in the permit space;
- Special equipment and procedures, including personal protective equipment and alarm systems; and
- Any other information needed to ensure employee safety.
- Cancelled entry permits

The entry supervisor must cancel entry permits when an assignment is completed or when new conditions exist. New conditions must be noted on the canceled permit and used in revising the permit space program. All PRCS permits must be approved by DeMaria Superintendent and a copy for job file.

TRAINING

The Director of Safety and Project Superintendent are responsible for ensuring that all affected personnel are properly trained and that refresher training is given. Personnel who may be included are any Authorized Entrants, Attendants, Entry Supervisors, on-site rescue team members, and employees who may potentially enter the space under. . The amount and type of training needed will depend on the individual's job responsibilities. The overall intent of this training is to give employees the understanding, knowledge, and skills necessary for the safe performance of their assigned duties in relation to the entry of PRCSs.



Awareness Training - Awareness training for employees potentially exposed to permit spaces. This training provides knowledge regarding:

- the existence, location and danger posed by PRCS in the company,
- the design, content and purpose of any warning sign posted or other means of warning
- the prohibition of entry into PRCS unless expressly authorized by a permit or certification.

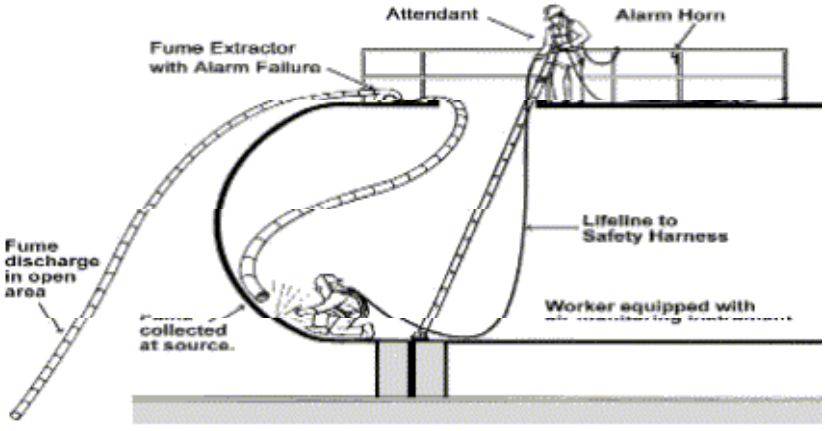
Additional training is required when:

- The job duties change. A change occurs in the permit space program or the permit space operation presents any new hazard; and An employee's job performance shows deficiencies.

After completion of training, the employer must keep a record of employee training and make it available for inspection by employees and their authorized representatives. The record must include the employee's name, the trainer's signature or initials and dates of the training.

CONFINED SPACE ROLES & RESPONSIBILITIES

Permit Required Confined space (PRCS) team shall consist of the following:



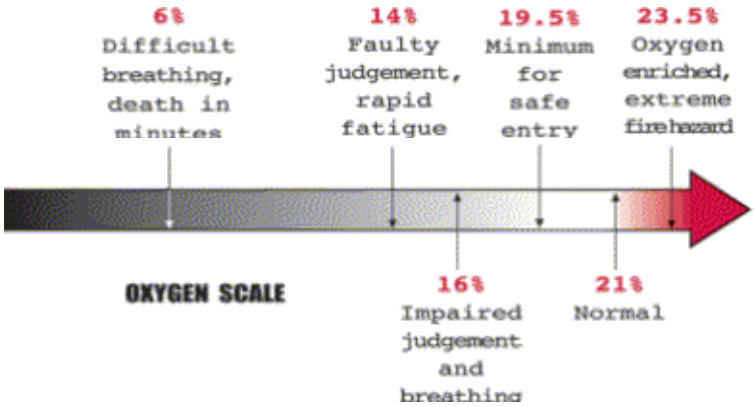
***NOTE:** The attendant shall **NEVER** enter the confined space even during an emergency. If necessary summon help and stand by the entry hatch or opening to render assistance.*

AUTHORIZED ENTRANT is required to:

- Know space hazards, including information on the means of exposure such as inhalation or dermal absorption, signs of symptoms and consequences of the exposure;
- Use appropriate personal protective equipment properly;
- Maintain communication with attendants as necessary to enable them to monitor the entrant's status and alert the entrant to evacuate when necessary;
- Exit from the permit space as soon as possible when:
    - Ordered by the authorized person;
    - He or she recognizes the warning signs or symptoms of exposure;
    - A prohibited condition exists; or
    - An automatic alarm is activated.
    - Alert the attendant when a prohibited condition exists or when warning signs or symptoms of exposure exist.

ATTENDANT is required to:

- Remain outside the permit space during entry operations unless relieved by another authorized attendant;
- Perform non-entry rescues when specified by the employer's rescue procedure;
- Know existing and potential hazards, including information on the mode of exposure, signs or symptoms, consequences and physiological effects;



- Maintain communication with and keep an accurate account of those workers entering the permit space; Order evacuation of the permit space when:
    - A prohibited condition exists;
    - A worker shows signs of physiological effects of hazard exposure;
    - An emergency outside the confined space exists; and
    - The attendant cannot effectively and safely perform required duties.
    - Summon rescue and other services during an emergency;

Ensure that unauthorized people stay away from permit spaces or exit immediately if they have entered the permit space;

- Inform authorized entrants and the entry supervisor if any unauthorized person enters the permit space; and
- Perform no other duties that interfere with the attendant's primary duties.

ENTRY SUPERVISOR is required to:

- Know space hazards including information on the mode of exposure, signs or symptoms and consequences;
- Verify emergency plans and specified entry conditions such as permits, tests, procedures and equipment before allowing entry;
- Terminate entry and cancel permits when entry operations are completed or if a new condition exists;
- Verify that rescue services are available and that the means for summoning them are operable;
- Take appropriate measures to remove unauthorized entrants; and
- Ensure that entry operations remain consistent with the entry permit and that acceptable entry conditions are maintained.

CONTRACTOR RESPONSIBILITY

When a contractor is hired to perform work in a PRCS, the contractor will:

• Obtain from DeMaria superintendent any information on the hazards (chemicals, equipment, tasks) the contractor's employees will introduce into the permit space.

• Determine whether DeMaria employees will be working in or near a PRCS where they may be exposed to the contractor's hazards. Coordinate entry operations with a designated contractor representative.

• Obtain from DeMaria superintendent the PRCS entry program/procedures they will be utilizing.

• Hold a debriefing conference with the contractor before entry and at the completion of the entry operation or during the entry operation (if needed) to exchange information on any hazards confronted or created.

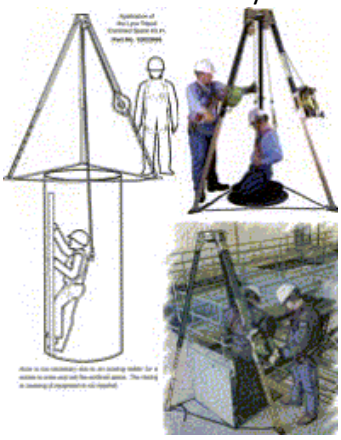
EMERGENCY RESCUE

Rescue service personnel

The standard requires employers to ensure that responders are capable of responding to an emergency in a timely manner. Employers must provide rescue service personnel with personal protective and rescue equipment, including respirators, and training in how to use it. Rescue service personnel also must receive the authorized entrants training and be trained to perform assigned rescue duties.

Harnesses and retrieval lines

Authorized entrants who enter a permit space must wear a chest or full body harness with a retrieval line attached to the center of their backs near shoulder level or above their heads. Wristlets may be used if the employer can demonstrate that the use of a chest or full body harness is not feasible or creates a greater hazard.



Also, the employer must ensure that the other end of the retrieval line is attached to a mechanical device or a fixed point outside the permit space. A mechanical device must be available to retrieve someone from vertical type permit spaces more than five feet deep.

MSDS- If an injured entrant is exposed to a substance for which a Material Safety Data Sheet (MSDS) or other similar written information is required to be kept at the worksite, that MSDS or other written information must be made available to the medical facility personnel treating the exposed entrant.

DeMARIA CONFINED SPACE ENTRY PERMIT

PERMIT VALID FOR 8 HOURS ONLY. ALL PERMIT COPIES MUST REMAIN AT THE SITE UNTIL JOB IS COMPLETED

Applicability: This permit establishes that all hazards have been identified and controlled and it lists the confined space (CS) entry supervisor and authorized entrants and attendants.
Instructions: This form must be signed by the CS entry supervisor (Section 6) before entry and it must be kept work site during the entry. Once the work is completed, the CS entry supervisor must close the permit by signing Section 7 and sending it to the DeMaria Safety Director.

1. Permit Conditions

Reason for entry:	Entry date: Permit expiration *(date and time)*:
Entrant:	Acceptable entry conditions:
Entrant:	
Entrant:	
Attendant:	
Attendant:	
Tracking number: Description: Location:	
Known and potential hazards:	
Additional required permits *(for example hot work, radiological work permit, penetration permit)*:	

2. Requirements Checklist *(check all that apply)*

Equipment	**Personal protective equipment and personal monitors**
Non-entry rescue equipment ☐ Full body harness ☐ Tripod / hoist ☐ Lifeline	Gloves: ☐ Leather ☐ Impervious ☐ Chemical resistant ☐ Other:
Area security: ☐ Warning signs ☐ Barricades	Face / eye protection: ☐ Face shield ☐ Goggles ☐ Other:
☐ Ladder	☐ Footwear
☐ Fall protection equipment	☐ Coveralls
☐ Ventilation fan or blower	☐ Head protection
☐ Fire extinguisher	☐ Radiation dosimeter(s)
☐ Self-contained breathing apparatus (SCBA)	☐ Pocket ion chamber (PIC)
☐ Air purifying respirator: specify cartridge type:	☐ Fall Protection:
☐ Other:	☐ Other:

3. Pre-entry Checklist

☐ Verify adequate confined space training ☐ Pre-entry briefing on specific hazards and control methods ☐ Notify subcontractors of permit and hazard conditions ☐ Non-entry rescue and procedure in place ☐ Notify affected departments and persons of service interruption ☐ Lines blocked or broken ☐ Drain space ☐ Other:	**Control of hazardous energy**: ☐ Lockout / tagout (LOTO) ☐ Zero-voltage verification (ZVV) ☐ Other: Communication: ☐ Radio ☐ Rope signals ☐ Hand signals ☐ Verbal ☐ Whistle Lighting: ☐ Hazardous location rated ☐ Standard Air flush: ☐ Preliminary ☐ Continuous ☐ Other:

4. Personnel Entry and Exit Record *(to be completed as needed before and during work)*

	Entrant name:	Attendant name:	Entrant name:	Attendant name:	Entrant name:	Attendant name:
Time in						
Time out						
Time in						
Time out						
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Time out						
Notes:						

5. Air Monitoring Results ***(to be completed as needed before and during work)***

Attendant will sample air ☐ Continuously	☐ Every _____ minutes	☐ No sampling required because:		
Device	Sequence or serial number	Calibration due date	Pre-use check performed by	Notes

Date:							
Time	Sampled by	☐ O_2 (19.5–23.5%)	☐ LEL/LFL <10%	☐ CO (<25 ppm)	☐ H_2S (<10 ppm)	☐ Stratification	☐ Other:

6. Pre-entry Certification ***(must be signed by the confined space entry supervisor before entry)***

I hereby certify that all required hazard controls are in place, that air monitoring is being conducted as required and results show that the atmosphere is acceptable for entry, and that all required information is documented on this permit.

Confined space entry supervisor for this entry:

Signature: Date:

7. Permit Closure ***(must be signed by the confined space entry supervisor after work is completed)***

The work was done in accordance with this permit. A copy of this permit will be forwarded to the confined space program manager (Mailstop 84).

Name:

Signature: Date:

HOT WORK SAFETY

***HAZARD ANALYSIS (HA) & WORK PERMIT REQUIRED**

Hot work includes any work involving operations capable of

- Initiating fires or explosions, including
- Cutting,
- Welding,
- Brazing,
- Soldering,
- Grinding,
- Thermal spraying,
- Thawing pipe,
- Torch applied roofing, or
- any other similar activity.

The use of hot work equipment shall be used in accordance with the following requirements, including a pre-site inspection, fire watch and post inspection procedures.

No hot work during maintenance and/or construction work on a DeMaria project shall be carried out without a Hot Work Permit issued by the DeMaria Project Superintendent

WELDING & CUTTING

Proper precautions (isolating welding and cutting, removing fire hazards from the vicinity, providing a fire watch) for fire prevention must be taken in areas where welding or other "hot work" is being done. No welding, cutting, or heating must be done where the application of flammable paints, or the presence of other flammable compounds or heavy dust concentrations creates a fire hazard. Arc welding and cutting operations must be shielded by noncombustible or flameproof screens to protect employees and other persons in the vicinity from direct arc rays. When electrode holders are to be left unattended, the electrodes must be removed and the holder must be placed or protected so that they cannot make electrical contact with employees or conducting objects.

1) Face and eye protection shall be worn by a welder when performing welding operations and by other employees exposed to a risk of injury from spatter or flash, or both.

(2) Welding gloves shall be worn to protect the hands and wrists

(3) When necessary, such as when performing overhead arc welding, sleeves shall be worn to protect the arms when arc welding.

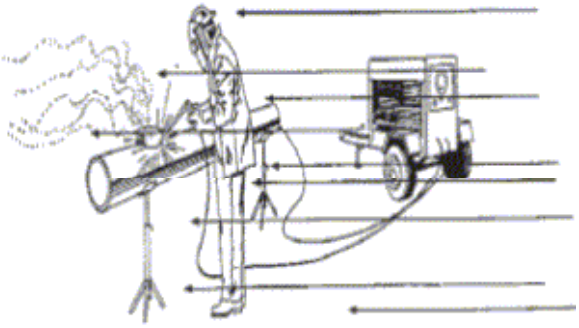
(4) Leather shoes or other appropriate apparel that cover the ankle shall be worn

(5) Other protective devices, such as, but not limited to, body protection, chaps, and curtains shall be used when an employee is exposed to a risk of injury by flash burn, sparks, and foreign bodies.

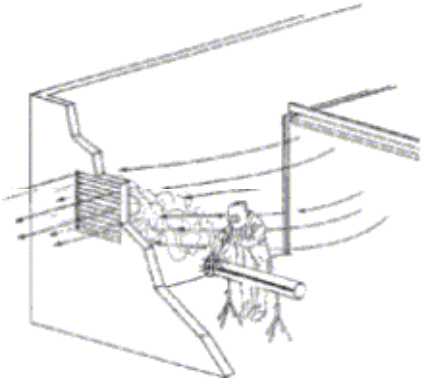
BASIC WLEDER'S DRESS

General mechanical ventilation, local exhaust ventilation, airline respirators, and other protection must be provided, when welding, cutting or heating: Zinc-, lead-, cadmium-, chromium-, mercury-, or materials bearing, based, or coated with beryllium in enclosed spaces; Stainless steel with inert-gas equipment; or natural ventilation, welding outside in light breeze **or** welding inside with doors, windows open

Natural ventilation
NOTE: Welder must stay to one side of plume.



Mechanical dilution ventilation
Air forced into and out of work area, Roof exhaust fans, Wall fans



WELDING IN A CONFINED SPACE

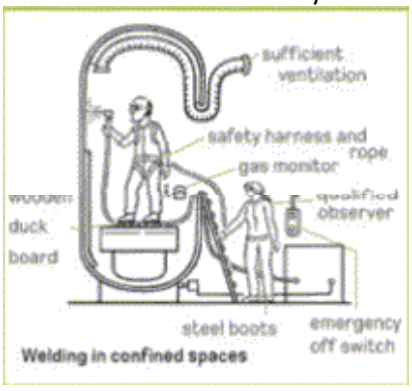
In confined spaces; and where an unusual condition can cause an unsafe accumulation of contaminants. Serious fires can occur during maintenance and construction operations. Before the start of a welding operation in a confined space, the atmosphere shall be tested and recorded. Ventilation shall be provided and maintained in accordance with the requirements and **t**he records shall be maintained at the jobsite

(2) When working in a confined space, the torch valves and 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 hose shall be removed from the confined space. Open-end fuel gas and oxygen hoses shall be immediately removed from enclosed spaces when they are disconnected from the torch or other gas-consuming device.

(3) 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 holders shall be placed or protected so that they cannot make electrical contact with employees or conducting objects.

(4) 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

(5) 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 attached to the welder's body so that his or her body cannot be jammed in a small exit opening



HOT WORK PERMIT PROCEDURE

This procedure applies to hot work carried out by any contractor.

1. **Pre-Site Inspection:** Unless otherwise controlled by an owner, whenever hot work is to occur, a designated employee from the contractor must obtain a Daily Hot Work Notice from the DeMaria Project Superintendent. The Project Superintendent will then walk the area (including all areas below where sparks may fall) with the hot work team to fill out the daily hot work notice. Items to be checked:

   - Fire suppression sprinklers, fire hoses, or fire extinguishers are available and operable.
   - Flammable and ignitable materials and debris have been moved at least 35 feet from the hot work area or covered and protected with fire resistant material or else fire watch provided.
   - Smoke/fire detectors/alarms in the immediate area of the hot work have been temporarily disabled until the hot work is completed.
   - Adequate ventilation is being used (especially when welding/cutting materials with painted or metal coated surfaces).
   - Building occupants have been protected or isolated from the hot work area.
   - Cracks or holes in floors, walls, and ceilings (including ductwork) are covered or plugged.
   - Welders have been protected from electrical hazards. Metal equipment and materials have been adequately grounded.
   - Hot work equipment is operable and in good repair. Gas cylinders have been leak tested.
   - Welding machines have been inspected.
   - Drums, barrels and tanks have been cleaned and purged of flammables and toxics, all tank feeds are closed, and tank is vented.
   - Workers and Fire Watch have been trained in the use of equipment and how to sound alarm. Exposed construction
   - Fire extinguishers are available, fully charged and operable; and
   - Fire watch personnel are assigned, equipped and trained

   In the event the DeMaria Project Superintendent is not available, a designated DeMaria employee (i.e. Project Engineer, Foreman, etc.) may step in and issue the daily hot work notices.

2. DeMaria Superintendent to ensure that appropriate extinguishers are provided in the area . Each welding, cutting, or spark-producing operation requires a fire watch
3. Permits will be issued for a specified date and time period – if the work continues over more than one day, another permit should be issued daily or as the work changes.
4. The signed copy of the permit will be kept by the DeMaria Superintendent and a copy issued to the person in control of the work. It is this person responsibility for the hot work operation to ensure all hot work operatives follow the fire precautions listed in the permit.
5. Permit register – after clearance, the completed signed form should be returned to the DeMaria superintendent at the project site office. Completed returned permit forms should be kept by the DeMaria superintendent for the duration of the project.

Note: Drilling or grinding operations on spouting or equipment, which may contain dust, may create an ignition source or set off fire alarms nearby. Please notify all building employees in the event an alarm is inadvertently tripped by dust.

Fire Watch: The sole duty of fire watch personnel shall be to watch for the occurrence of fire during and after hot work operations.

- Individuals designated to fire watch duty shall have fire extinguishing equipment readily available and shall be trained in the use of such equipment.
- Hot work conducted in areas with vertical and horizontal fire exposures that cannot be observed by a single individual shall have additional personnel assigned to fire watches to ensure that all exposed areas are monitored.
- The fire-watch person must remain in the area for a minimum of 30 minutes after the hot work is completed to ensure the site is safe

Post-Work inspection Permit clearance –

- 30 minutes after hot work has been completed, the work area must be thoroughly examined by the subcontractor and DeMaria superintendent to make sure that no hot or smouldering material has been left, the area is clear and smoke/heat detectors have been reinstated.

FIRE PREVENTION & PROTECTION

The fire protection and prevention program for each job site will determine the type and amount of fire-fighting equipment that will be required. Based on the environment of the project and the tasks to be performed, determinations can be made during the pre-task planning phases of each task.

PORTABLE FIRE EXTINGUISHERS

There are many type of fire extinguishers on the market to combat the various classes of fires for buildings or areas with an ordinary and/or extra ordinary hazard occupancy. To avoid confusion and ensure that we always have suitable fire fighting protection on hand, DeMaria utilizes a multipurpose extinguisher known as Class A, B and C for all construction activities.

- At least one portable fire extinguisher, having a rating of not less than 20-B units, shall be located outside of, but not more than 10 feet from, the door opening into any room used for storage of more than 60 gallons of flammable or combustible liquids. At least one portable fire extinguisher having a rating of not less than 20-B units shall be located not less than 25 feet, nor more than 75 feet, from any flammable liquid storage area located outside.
- One 55-gallon open drum of water with two fire pails may be substituted for a fire extinguisher having a 2A rating.
- A fire extinguisher, rated not less than 10B, shall be provided within 50 feet of wherever more than 5 gallons of flammable or combustible liquids or 5 pounds of flammable gas are being used on the jobsite

Fires are classified in the following manner:

Fire Class & Icon	Tips and Information
	• Class A fires involve common combustibles including wood, paper, cloth, rubber, trash and plastics.
	• Class B fires involve flammable liquids, solvents, oil, gasoline, paint, lacquer and other oil-based products. • Class B fires can spread very quickly. • Unless properly suppressed, Class B fires can re-flash after the flames have been extinguished.
	• Class C fires involve energized electrical equipment including wires, motors, machinery and appliances. Always unplug an electrical device before trying to put the fire out. This makes the fire much easier to extinguish. • They can be caused by a spark, power surge or short circuit. • They typically occur in hard to see or reach locations.

FIRE EXTINGUISHER INSPECTION

The contractor shall be responsible for the inspection, maintenance and testing of all portable fire extinguishers in the workplace. Informal inspections must be conducted on each fire extinguisher immediately before staging it in the work area. Formal inspections include Monthly and Annual Inspection:

- **The Monthly Inspection** is to determine if the fire extinguisher will function properly if needed. The inspection includes: Verifying that the gauge needle is in the charged or green area, the handle pin is secured with a special break away tie, there is no obvious physical damage or condition to prevent operation and, that the end of the discharge hose is free of obstructions. This inspection is to be made by the DeMaria Superintendent or designee as evident to all by utilizing a tag system which indicates the month the unit was last inspected and the initials of the inspector. No fire extinguisher should be used without this tag.

- **The Annual Inspection-** The contractor shall assure that portable fire extinguishers are subjected to an annual maintenance check, testing is performed by trained persons with suitable testing equipment and facilities. . The Annual inspection, like the Monthly Inspection, also requires the use of a tag system as a means of informing everyone that the extinguisher has received the required service. If at any time a fire extinguisher is found to be defective, it must immediately be tagged, “Do Not Use”, removed from service and returned to the DeMaria Yard.

LOCATION OF FIRE EXTINGUISHERS

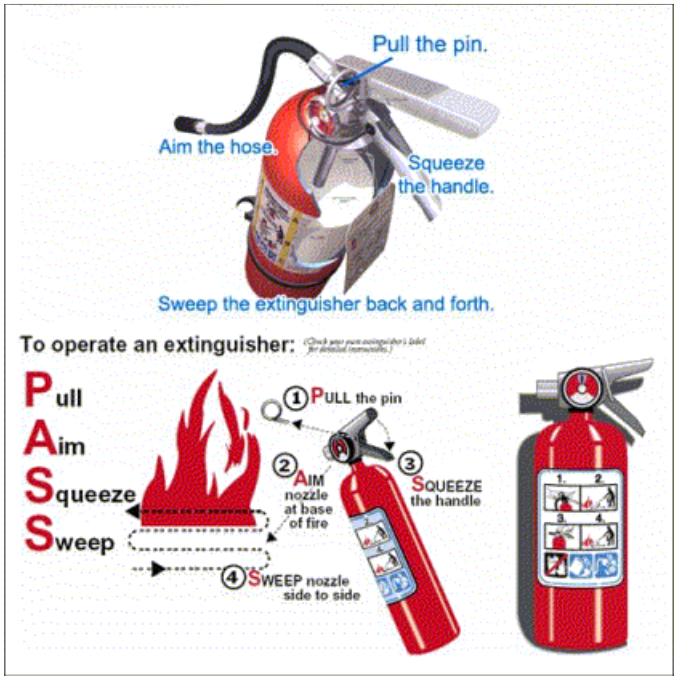
Fire Extinguishers must be marked and located in highly visible areas throughout the job site. At no time should fire extinguishers be staged higher than five feet above the floor level. A fire extinguisher, rated not less than 2A, shall be provided for each 3,000 square feet of the protected building area, or major fraction thereof. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 100 feet. When flammable or combustible liquids are being used, fire extinguishers should be no further than 50 feet from the work area. One or more fire extinguishers, rated not less than 2A, must be provided on each floor. In multistory buildings, at least one fire extinguisher must be located adjacent to stairway

USING FIRE EXTINGISHER

Employees are **not** expected to fight fires. **Your responsibility in a fire situation is to alert others and to evacuate.**

- Do not attempt to extinguish any fire without calling for help and pulling the fire alarm.
- Always leave an exit at your back in order to escape before using an extinguisher.
- To extinguish a fire with a portable extinguisher, a person must have immediate access to the extinguisher, know how to actuate the unit, and know how to apply the agent effectively.
- Attempting to extinguish even a small fire carries some risk. Fires can increase in size and intensity in seconds, blocking the exit path and creating a hazardous atmosphere. In addition,
- Portable fire extinguishers contain a limited amount of extinguishing agent and can be discharged in a matter of seconds. Therefore, individuals should attempt to fight only very small or incipient stage fires.

Remember (P.A.S.S.): Pull, Aim, Squeeze, Sweep



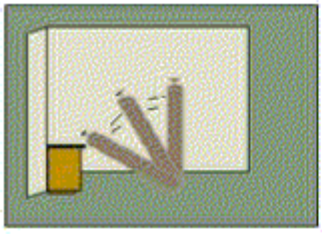
COMPRESSED GAS & FLAMABLE/COMBUSTIBLE LIQUID

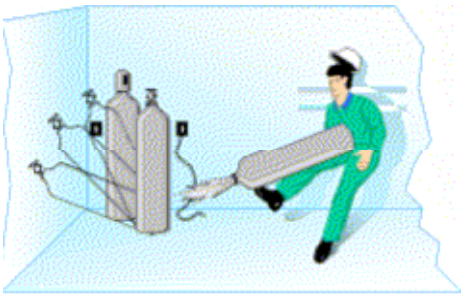
HANDLING/ STORING COMPRESSED GAS CYLINDERS

COMPRESSED GAS CYLINDERS

- Weigh about 175 pounds when filled.
- **Pressurized at 2,200 pounds per square inch (psi).**
- Stand 57 inches tall and 9 inches in diameter.
- Do not leave standing alone on small base with cap removed. If toppled over and valve snapped off—all pressure can be unleashed through an opening no larger than a lead pencil. Which could lead to

  - ❖ Cylinder jetting away—faster than any dragster.
  - ❖ Can smash through brick walls with ease.
  - ❖ Can fly through the air and reach distances of a half-mile or more.
  - ❖ Can spin, ricochet, crash and slash through anything in it's path.
  - ❖ Can, under certain conditions, rupture or explode.





Full or empty—see to it that my cap is on straight and snug. NEVER leave standing alone. Keep in a secure rack or tie so that It cannot fall.

Valve protection caps must be in place and secured when compressed gas cylinders are transported, moved, or stored. Cylinder valves must be closed when work is finished and when cylinders are empty or are moved. Compressed gas cylinders must be secured in an upright position at all times, except if necessary for short periods of time when cylinders are actually being hoisted or carried. Cylinders must be kept far enough away from the actual welding or cutting operations so that sparks, hot slag, or flame will not reach them. When this is impractical, fire-resistant shields must be provided. Cylinders must be placed where they cannot become part of an electrical circuit. Oxygen and fuel gas regulators must be in proper working order while in use.

- A suitable cylinder truck with chain or other secure form of fastening must be used to keep cylinders from being knocked over while in use or in storage**.** An acceptable cylinder wrench must be installed on each cylinder truck.

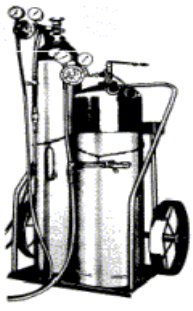


Figure 4.3 A portable oxygas cutting and welding outfit.

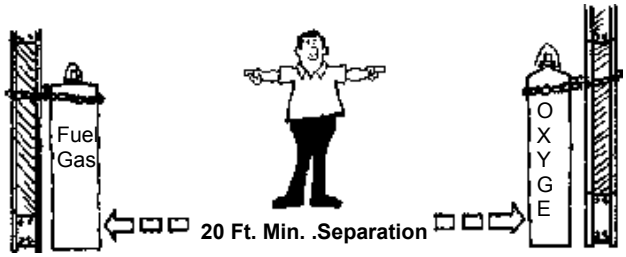
- Cylinders must be legibly marked to identify content.

- Keep oxygen cylinders, cylinder valves, couplings, regulators, hoses, and apparatus free from oil and grease**.** Do not handle oxygen cylinders or apparatus with oily hands or gloves.

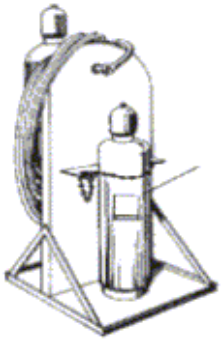
- Keep cylinders in storage away from sources of heat, flame, and direct sunlight**.** Remove combustibles from the storage area. Do not place cylinders where they can contact an electrical circuit.

- Close valves on empty cylinders**.** Keep valve protection caps in place except when cylinders are in use or connected for use

- Do not store cylinders of oxygen near cylinders of acetylene or other fuel gas**.** Separate cylinders by a minimum of 20 feet,**.**



- or with a five-foot non-combustible barrier with at least a one-hour fire rating

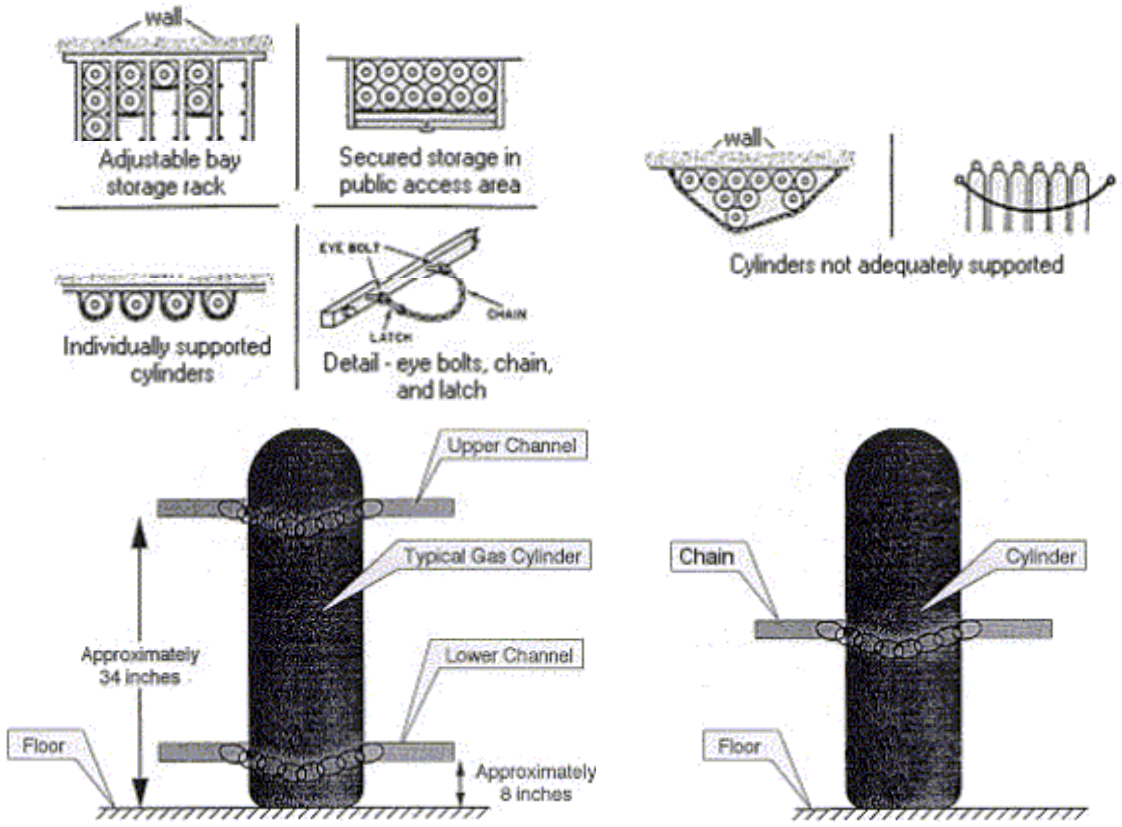


- Provide a suitable platform when moving cylinders by crane or derrick**.** Do not use slings, hooks, or electric magnets**.** Cylinder caps should remain installed on the cylinder until connected to equipment**.** Keep the cylinder cap near the cylinder when in use.

- Secure compressed gas cylinders in an upright position at all times, except for short periods of time when cylinders are being hoisted or carried**.** Empty cylinders must be labeled “Empty”. If a cylinder is not equipped with a valve wheel, keep a key or cylinder wrench on the valve stem while in use**.** Acetylene cylinders should be protected in a cradle while being transported by crane or derrick.

METHODS OF SECURING CYLINDERS

Recommended **Not Recommended**



- Do not store/ take compressed gas cylinders into closed/ confined areas, near elevators or stairs.
- Store compressed gas cylinders in well-ventilated, proper construction storage racks that are labeled for the type of gases to be stored**.** If a leak develops in a cylinder and it cannot be immediately corrected, move the cylinder to a safe location outside the building.
- Visually inspect cylinders to ensure they are safe before use.

Flammable and Combustible Liquids

- Only approved containers and portable tanks must be used for storing and handling flammable and combustible liquids.

Flame arrester screen

- No more than 25 gallons of flammable or combustible liquids must be stored in a room outside of an approved storage cabinet.
- No more than three storage cabinets may be located in a single storage area. Inside storage rooms for flammable and combustible liquids must be of fire-resistive construction, have self-closing fire doors at all openings, 4 inch sills or depressed floors, a ventilation system that provides at least six air changes within the room per hour, & electrical wiring & equipment approved for Class 1, Division 1 locations.
- Storage in containers outside buildings must not exceed 1,100 gallons (4,169 liters) in any one pile or area. The storage area must be graded to divert possible spills away from buildings or other exposures, or must be surrounded by a curb or dike.
- Storage areas must be located at least 20 feet from any building and must be free from weeds, debris, and other combustible materials not necessary to the storage.
- Flammable liquids must be kept in closed containers when not actually in use. Conspicuous and legible signs prohibiting smoking must be posted in service and refueling areas.
- Each system must have containers, valves, connectors, manifold valve assemblies, and regulators of an approved type. Every container and vaporizer must be provided with one or more approved safety relief valves or devices. Containers must be placed upright on firm foundations or otherwise firmly secured.
- Portable heaters must be equipped with an approved automatic device to shut off the flow of gas in the event of flame failure. All cylinders must be equipped with an excess flow valve to minimize the flow of gas in the event the fuel line becomes ruptured. Storage of liquefied petroleum gas within buildings is prohibited. Storage locations must have at least one approved portable fire extinguisher rated not less than 20-B:C.

SIGNS & BARRICADES

There are numerous signs, signals and barricades that employees will encounter on various projects. This section will discuss many of the most commonly used and give instruction to employees on the proper selection for their own usage. Signs and symbols that are required must be visible at all times when work is being performed and must be removed or covered promptly when the hazard no longer exists.

BARRICADE TAPE

Two (2) types of barricade tape are used on projects as a visual warning for employees. Barricade tape **does not** offer physical protection for floor edges, roof edges, floor openings, etc., and shall not be used for physical protection.

1) Listed below are two types of barricade tape and their proper usage.

YELLOW/BLACK TAPE (CAUTION)

This type of barricade tape shall serve as a caution to indicate to employees that a potential hazard exists. Employee may enter without permission from Contractor. This barricade tape shall be used for, but not limited to, the following:

- Excavation less than four (4) feet in depth.
- Identification of trip hazards, low hanging objects, etc.
- Material storage on the site.

RED/BLACK TAPE (DANGER)

- This type of barricade tape shall indicate "DANGER" and that potential serious hazard may be present. NO EMPLOYEE, other than that craft assigned to work inside a RED barricade may enter without first obtaining permission from that Contractor.

TAPE ASSEMBLY

Each foreman or Contractor performing work that requires barricade tape to be erected shall:
a. Erect the tape to enclose the specific area to be protected only. Do not block passageways or access ways unless entirely necessary. If passageways or access ways must be blocked, contact the DeMaria Superintendent for coordination with other crafts and/or possible alternatives.

b. Erect tape in a secure and neat manner that will maintain a height of between 40" and 45" from the floor or ground surface. A second strand shall be placed half the distance between the top strand and the ground.

SIGNS

“Signs” are the warning of hazard, temporarily or permanently affixed or placed at locations where hazards exist.

DANGER SIGNS

Danger signs should only be used where an immediate hazard exists. When a “Danger” sign is posted, this sends a message to all other individuals that the area is off limits. OSHA has specific guidelines regarding the appearance of danger signs. They must have red as the predominate color for the upper panel, black outline on the borders, and a white lower panel for additional sign wording.

CAUTION SIGNS

Caution signs are used only to warn of potential hazardous conditions, but not necessarily forbid access to the area. If a caution sign is posted, employees should survey the area and proceed if possible. During the training of Safety Orientation, employees should be taught the difference between “Danger” and “Caution” signs and/or tape. Caution signs must have yellow as the predominate color, black upper panel and borders, yellow lettering of “Caution” on the black panel, and the lower yellow panel for additional sign wording. Black lettering must be used for additional lettering.

SAFETY INSTRUCTION SIGNES

Safety instruction signs, when used, must be white with a green upper panel with white letters to convey the principal message. Any additional wording on the sign must be black letters on a white background.

BARRICADES

DeMaria generally uses two forms of barricades. **"Barricades"** are obstructions that deter the passage of vehicles or workers.

(1) SOFT BARRICADES

Soft barricades alert personnel to the existence of the hazard, but afford no physical protection from the hazard. Typically, yellow "CAUTION" tape, orange "snow fence," or ropes with signs are used as soft barricades. Soft barricades are intended for visual warnings only and should never be used as a means of employee fall protection.

(2) HARD BARRICADES

Hard barricades provide physical exclusion from the hazard area in addition to providing a warning. Protective barricades are often made from wood and could incorporate sawhorses, tube-loc scaffold components or other suitable material. Protective barricades must be capable of supporting 200 pounds of force in all directions. may be pre-fabricated, purchased or built on the job to suit the needs of the project.

The purpose of hard barricades is two-fold:
(1) Provide a visual warning of an area that is being controlled, and
(2) Provide a physical barrier that will prevent employees from inadvertently entering the area.

Whichever barricade is chosen, there must be a sign accompanying the barricade that will deliver the proper message to employees, (i.e., "Danger, Keep Out," "Caution, Overhead Work," etc.) Whenever a "Danger" or "Caution" tape is used. When operations are such that signs, signals and barricades do not provide the necessary protection on or adjacent to a highway or street, flagmen on other appropriate traffic controls shall be provided. Warning garments worn at night shall be of reflective material.

ASSEMBLY OF BARRICADES

• Subcontractor employees performing work are responsible for erecting barricades around hazard areas. Personnel working inside a barricade are responsible for maintaining the barricade.
• All barricades should be 42 inches in height. Barricade tape should be tied to vertical support posts and kept secure to prevent from collapsing/hanging onto the ground.
• Barricades must be complete. The hazard area shall be entirely isolated. A permanent structure that prevents entry into the hazard area may be used as part of the barricade. The barricaded area shall be of sufficient size to afford adequate protection.
• Barricades shouldn't block emergency equipment, such as fire extinguishers, safety showers, power panels, etc. Personnel access gates or temporary material gates must remain closed when personnel or material are not passing through. These gates shall automatically default to a closed position.

CONCRETE & MASONRY SAFETY

*HAZARD ANALYSIS (HA) REQUIRED

CONCRETE CONSTRUCTION

No construction loads must be placed on a concrete structure or portion of a concrete structure unless the employer determines, based on information received from a person who is qualified in structural design, that the structure or portion of the structure is capable of supporting the loads. No employee must be permitted to work under concrete buckets while buckets are being elevated or lowered into position. To the extent practical, elevated concrete buckets must be routed so that no employee or the fewest number of employees is exposed to the hazards associated with falling concrete buckets.

Formwork must be designed, fabricated, erected, supported, braced, and maintained so that it is capable of supporting—without failure— all vertical and lateral loads that may reasonably be anticipated to be applied to the formwork. Forms and shores (except those used for slabs on grade and slip forms) must not be removed until the employer determines that the concrete has gained sufficient strength to support its weight and superimposed loads. Such determination must be based on compliance with one of the following:

• Plans and specifications stipulate conditions for removal of forms and shores, and such conditions have been followed, or

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

Reinforcing steel.

An employee who is placing and tying reinforced steel and who works from reinforcing steel more than 6 feet above an adjacent working surface shall use a personal fall arrest system

- A route designated as a means of access or egress across reinforcing steel for general traffic shall be provided with a walkway.
- An employee shall not be permitted to work above vertically protruding reinforcing steel unless the steel has been protected to eliminate the hazard of impalement of the employee.

- Reinforcing steel or walls, piers, columns, and other similar vertical structures shall be guyed, braced, or otherwise supported to prevent collapse.
- Reinforcing steel shall not be used as a scaffolding hook or stirrup or as a load-bearing member in a lifting device.
- Reinforcing steel shall not be welded and used as a load-bearing member.
- Roll wire mesh shall be secured at each end to prevent dangerous recoiling action.
- Roll wire mesh spear ends shall be trimmed to the nearest point

Concrete mixing, pouring, and floating.

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.

- A guardrail that is capable of withstanding 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.
- The handle 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.
- 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 hands of the operator are removed from the equipment handles or switch.

- The handles of a concrete buggy shall not extend horizontally beyond the wheels on either side of the buggy.
- 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.
- 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.
- A concrete bucket that is positioned by a crane or cableway shall be suspended from an approved swivel safety-type hook.
- When the point of placement is not readily visible to the crane or cableway operator, a signalman shall be positioned in clear view of the operator and the point of placement. If positioning of a signalman in clear view is not possible, then reliable telephone or radio communication shall be used.
- 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.
- When discharging on a slope, a ready-mix truck's wheels shall be blocked and the brakes set to prevent movement.
- An employee who is green cutting, sandblasting, or applying concrete through a pneumatic hose shall wear head, face, and eye protection.
- A runway, ramp, or scaffold, shall be provided for placement of concrete in areas such as walls, piers, columns, and beams.
- 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.
- Sections of tremies and similar concrete conveyances shall be secured with wire rope, or equivalent materials, in addition to the regular couplings or connections

Placing and removing forms.

- A tag line shall be used to control large panels or large sections.
- 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:
    - The plans and specifications stipulate conditions for removal of forms and shores, and such conditions have been followed.
    - The concrete has been properly tested with an 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.
- Built-up sections shall have lifting attachments that are capable of handling an imposed load.
- 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.
- When using metal pan deck forms, the placement of the pans shall follow a sequence. Planks shall be laid in a manner that reduces the hazard of falling or else solid decking shall be used

Vertical slip forms.

- Field operations 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.
- A lift shall proceed steadily and uniformly and shall not exceed the predetermined rate of lift.
- 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.
- Jacks and vertical supports shall be positioned so that the vertical loads are distributed equally and do not exceed the capacity of the jacks.
- 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.
- Vertical lift forms shall be provided with scaffolding or work platforms that completely encircle the area of placement.
- Lateral and diagonal bracing of vertical slip forms shall be provided to prevent excessive distortion of the structure during the jacking operation.
- During a jacking operation, the form structure shall be maintained in line and plumb

Flying forms.

- A qualified employee shall inspect the formwork for flying forms before any movement to insure that all components are properly placed and adjusted.
- Allowable impact loads for flying forms shall not be exceeded during the rollout operation.
- A safety line shall be attached to the form during the rollout and flying operation.
- Nothing shall be allowed on the forms during movement unless it is securely fastened to the forms.
- No one, other than the rigger, shall be permitted on top of the deck form after rollout operations have been completed.
- Rigging of the deck form shall be completed before the line from the crane takes the total load of the form

Prestressed and post stressed concrete operations.

An expendable strand deflection device that is used to pretension concrete members shall have a designed safety factor of not less than 2. A reusable device shall have a safety factor of not less than 3. Expendable and reusable strand deflection devices shall not be loaded in excess of their maximum intended load. An employer shall designate a qualified employee to inspect all jacking and pulling equipment before each use and during use. An employee shall not stand in the line of, in back of, or over the jacking equipment during tensioning operations. Only an employee who is operating tensioning equipment shall be permitted in the immediate vicinity when

tensioning is in progress. Audible or visual signaling devices shall be operated to warn employees when tensioning operations are under way. All employees who are not directly involved in the tensioning operations shall be cleared from the area and shall remain clear until the tensioning operations are completed and the signaling devices are turned off.

Precast and tilt-up operations.

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 transmitted to the lifting hardware.

Lift-slab operations.

A registered professional engineer who is qualified in lift-slab operations shall design and plan lift-slab operations. An employer shall implement the plans and designs and shall include detailed instructions and sketches that indicate the prescribed method of erection. The plans and designs shall also include provisions for ensuring lateral stability of the building or structure during construction. An employer shall ensure that jacks are marked to indicate the rated capacity established by the manufacturer. An employer shall ensure that jacks are not loaded beyond the rated capacity established by the manufacturer

Concrete paving machines; warning devices.

A concrete paving machine that has a power reverse shall be equipped with an automatic audible warning device which operates when the paver is backing up.

Concrete curing.

An employer shall ensure that all heating devices, including temporary heating devices, are located at a safe distance sufficient to prevent ignition of any materials in their proximity and in accordance with Fire Protection and Prevention, When salamanders or similar heating units are used to protect concrete from freezing, all of the following requirements shall be complied with: All salamanders shall be covered and properly vented. Salamanders shall not be refueled until extinguished and permitted to cool. Where tarpaulins or other materials are used to form protective enclosures for winter protection, the material shall be fire resistant and installed to prevent contact with the heating unit.

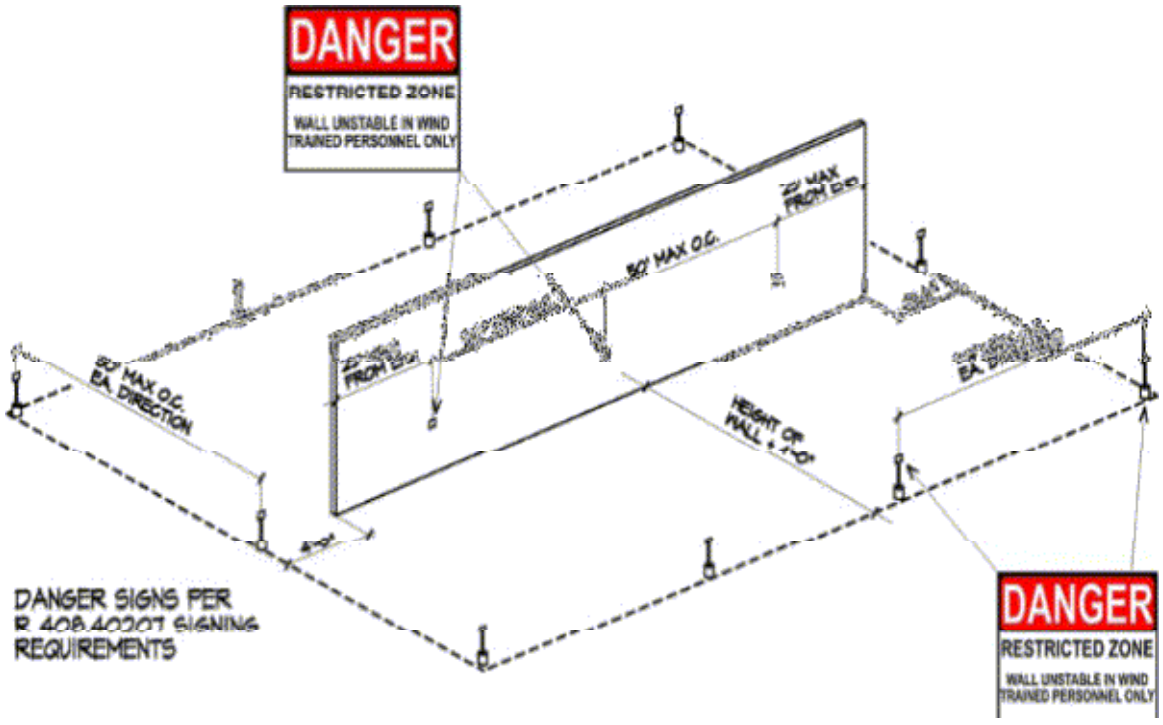
MASONRY WALL BRACING

A Restricted Access Zone must be established whenever a masonry wall is being constructed. The Restricted Zone must conform to the following:

- Must be established prior to the start of construction of the wall.
- Must be equal to the height of the wall to be constructed plus 4 feet, and must run the entire length of the wall.
- Must be established on the side of the wall that will not have a scaffold.
- Must be restricted to entry by employees actively engaged in constructing the wall. No other employees must be permitted to enter the zone.
- Must remain in place until the wall is adequately supported to prevent overturning and to prevent collapse. When the height of a wall is more than 8 feet, the limited access zone must remain in place until the requirements of paragraph (b) of OSHA Standard 1926.706(a)(1) thru (5) have been met

1) Establishing a "Restricted Zone"

- The mason contractor shall notify DeMaria Superintendent, where and when a restricted zone will exist and the installation of the wall bracing system and danger signs, All signs must be removed after the walls have obtained their final lateral support.
- A hazard analysis plan must be provided to DeMaria superintendent prior to the start of work.
- The restricted zone is simply an area around the wall where it may collapse. Signs are placed on the walls and around the perimeter. See sample restricted zone plan below
- Only trained workers may enter the restricted zone.



2) Monitor the wind speed and evacuate the restricted zone when wind speed limits are exceeded.

- Each contractor in the restricted zone must monitor the wind speed.
- There are two "speed limits" for wind. Leave the restricted zone when wind speed limits are exceeded:
  - 20 mph gust for walls that are green (less than 24 hours old). This is called the "Initial Period."
  - 35 mph gust for braced walls that are over 24 hours old. This is called the "Intermediate Period." Even braced walls are only designed for a maximum of 40 mph wind. There is little margin for error.

3) **Training requirements: Two groups require training:**

- Group 1: Those who are involved in installing and maintaining the wall bracing and the restricted zone, this is typically the masons.
- Group 2: All others who must enter the restricted zone
- Training records must be available at the jobsite.

4) **Wall heights allowed and wall bracing designs**

- Walls can only be built so high before bracing must be installed. Wall bracing designs must follow one of following two methods:
  - A Triangle Wall Bracing System, as specified in Rule 212.
  - A bracing plan that is designed using acceptable engineering practices and the engineering content of the mason contractors association of America.

All masonry walls more than 8 feet in height must be adequately braced to prevent overturning and to prevent collapse unless the wall is adequately supported so that it will not overturn or collapse. The bracing must remain in place until permanent supporting elements of the structure are in place. Masonry walls can and do blow over in the wind. Until walls have "final lateral support" there is a risk that they may fall and crush people. Final lateral support means the wall is connected to all structural elements such as roofs, floors, buttresses, crosswalks, piers.

Bracing of Unsupported Masonry Walls Exposed to Wind During Construction

Wall bracing design.

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 miles per hour. Wind speeds shall be determined by a competent person in the vicinity of 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 speeds.

Triangle wall bracing system.

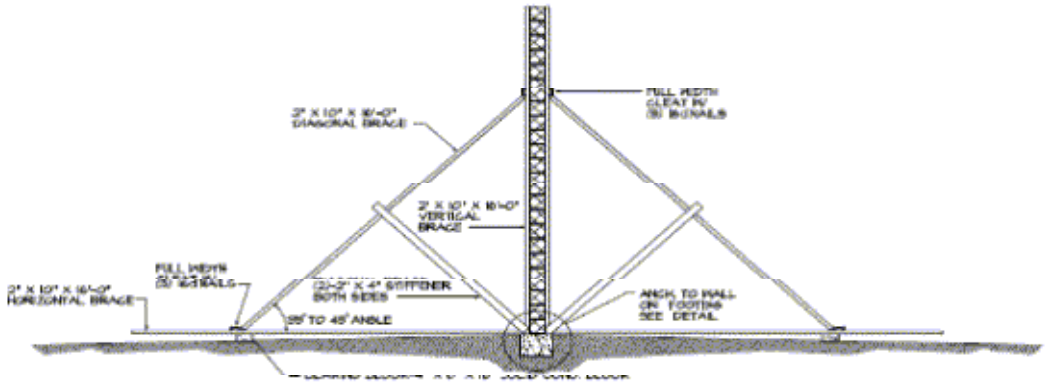
A triangle wall bracing system shall consist of all of the following elements assembled as shown in figure 3:

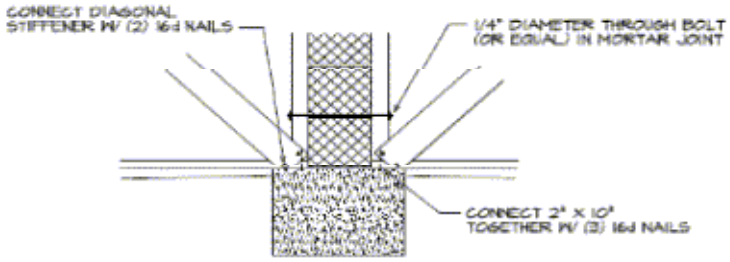
(a) Scaffold grade lumber that is suitable for planking.
(i) A 16-foot, 2-inch by 10-inch vertical brace.
(ii) A 16-foot, 2-inch by 10-inch diagonal brace.
(iii) A 16-foot, 2-inch by 10-inch horizontal brace.
(b) Two nominal 2 x 4 wood stiffeners.
(c) Top wall anchor.
(d) Base of wall or footing anchor.
(e) Bearing block.
(f) Cleats.

(2) The angle of intersection of the diagonal brace and the horizontal brace shall be between 35 and 45 degrees. The diagonal brace shall not intersect the vertical brace below the midpoint height of the masonry wall.

(3) The triangle wall bracing system shall be aligned on both sides of the wall when installed.

TYPICAL TRIANGLE WALL BRACING SYSTEM

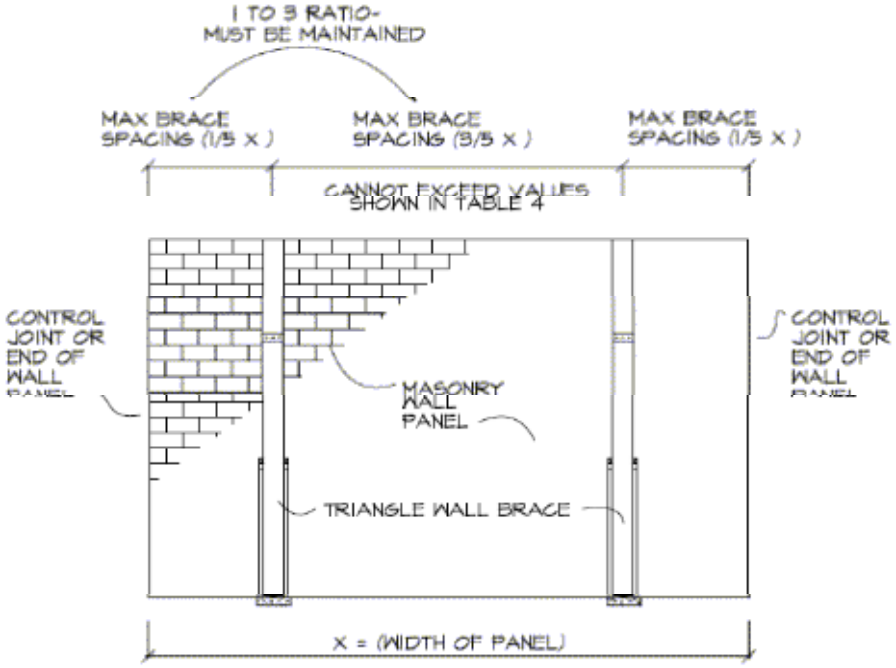




CONNECTION DETAIL

The maximum horizontal spacing for a triangle wall bracing system shall not exceed the values as shown for the corresponding maximum wall heights and as illustrated.

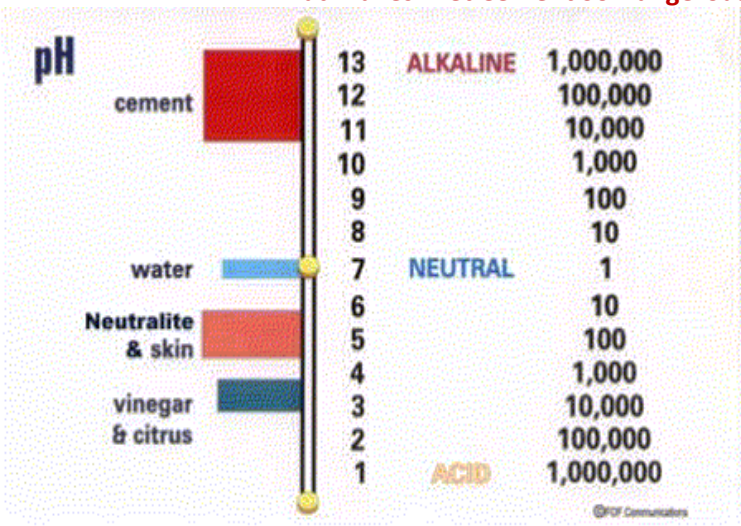
MAXIMUM HORIZONTAL SPACING FOR A TRIANGLE WALL BRACING SYSTEM



Concrete Safety

1. Employees shall wear safety glasses with side shields when working in and pouring wet concrete.
2. Due to the alkaline nature of concrete employees should protect their skin from potential concrete burns; this may include long sleeve shirts and work gloves. When working in wet concrete employees shall wear protective work boots (yellow boots).
3. Work activities generating concrete dust require employees to wear the proper respiratory protection.
4. “Do not penetrate” a concrete slab that is of the post-tension type unless it has been authorized by your direct supervisor. Penetrating a slab may be by drilling, core cutting, jack hammering, and chipping.

What Makes Wet Cement So Dangerous? Cement is a strong alkali



SCAFFOLD SAFETY MANAGEMENT

*HAZARD ANALYSIS (HA) REQUIRED

MIOSHA Part 12, Scaffolds and Scaffold Platforms has specific requirements for suspended scaffolds, including design, capacities, installation, and construction of the scaffold and supports for them.

Scaffolds and Scaffold Platforms

Part 12, Rules 1218(1), (2), & (3) requirements for plywood scaffold platforms are stated below:

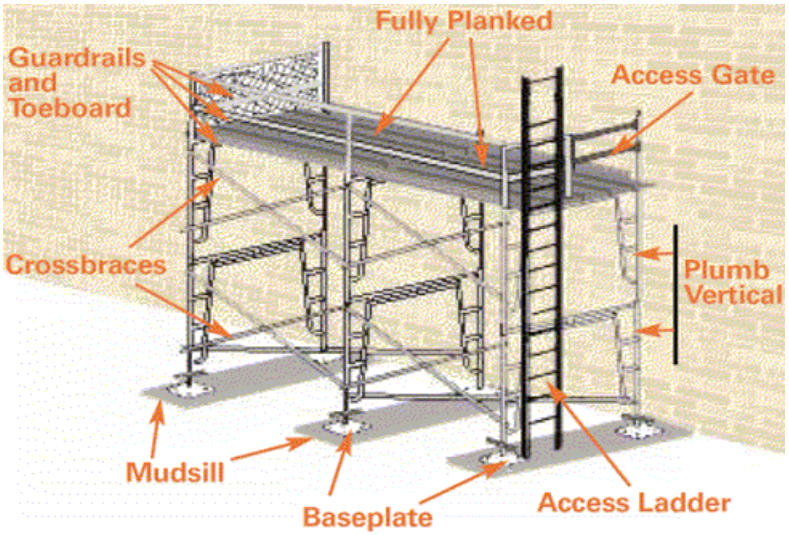
1. If plywood is used as a work platform, the plywood shall be supported by 2 by 10 inch planks. The planks shall support 2 parallel edges of the plywood and shall also be spaced not more than 24 inches center to center.
2. The plywood work surface shall be secured to the planks.
3. If the plywood work surface is a load-carrying member, it shall have a minimum thickness of 5/8 inch.

However, Rule 1210(3) allows for alternate platform designs as long as the scaffold platform and its components are capable of supporting, without failure, not less than 4 times the maximum intended load. These alternate designs must be designed by using acceptable engineering practices.

- Build scaffolds according to manufacturers recommendations and MIOSHA construction safety standard part 12-Scaffolding
- Scaffolds and their components must be capable of supporting four times the maximum intended load
- Scaffolding requires a competent person. Make sure you know who yours is.
- When using baker or mobile scaffolds employees standing on the platforms must never allow themselves to be propelled/moved or propel/move themselves. All wheels must always remain locked to prevent movement.

Before starting work on a scaffold, inspect it for the following:

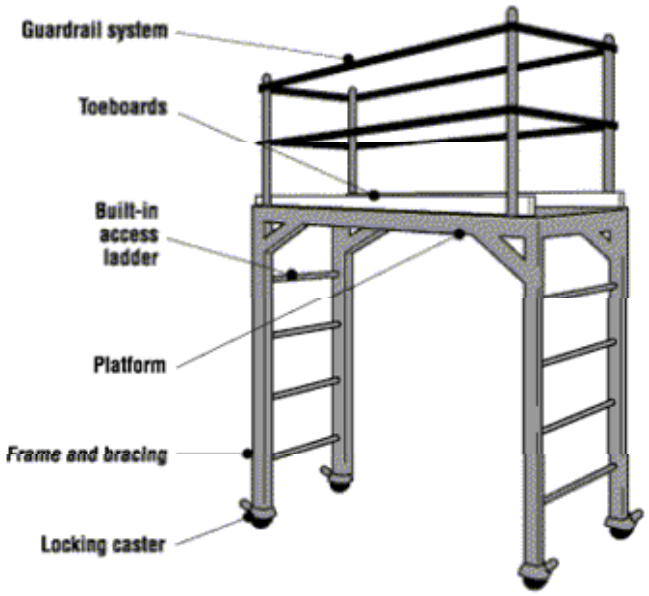
a. Are guardrails, toeboards, and planking in place and secure?
b. Are locking pins at each joint in place?
c. Are all wheels on moveable scaffolds locked?



2. Do not attempt to gain access to a scaffold by climbing on it (unless it is specifically designed for climbing – always use a ladder.
3. Scaffolds and their components must be capable of supporting **four times the maximum intended load**.
4. Any scaffold, including accessories such as braces, brackets, trusses, screw legs, ladders, etc., damaged or weakened in any way, must be immediately repaired or replaced.
5. **Scaffold planks shall be properly overlapped, cleated or otherwise secure to prevent shifting.**
6. Scaffold platforms must be at least 18 inches wide unless otherwise specifically required or exempted.
7. Where persons are required to work or pass under the scaffold, scaffolds shall be provided with a screen between the toeboard and guardrail, extending along the entire opening. The screen must be made of No. 18 gauge U.S. Standard wire, ½ inch mesh or equivalent protection.
8. All scaffolds must be erected level and plumb, and on a solid footing.
9. Do not change or remove scaffold members unless authorized.
10. Remove or secure all materials and tools on deck before moving.
11. Do not alter any scaffold member by welding, burning, cutting, drilling, or bending

Rolling Scaffolds

- Do not ride manually propelled rolling scaffold. No personnel should be on the tower while it is being moved.
- Lock all casters before getting on the tower.
- Work only within the platform area: do not try to extend overhead work area by reaching out over guardrailing.
- Do not bridge between two rolling towers with plank or stages.
- Secure all materials before moving scaffolds.
- Be sure floor surface is clear of obstructions or holes before moving scaffold.
- Be sure there are no overhead obstructions or electric power lines in the path of rolling scaffold.
- Rolling towers must only be used on level surfaces.
- Move rolling towers by pushing at the base level only. Do not pull from the top.

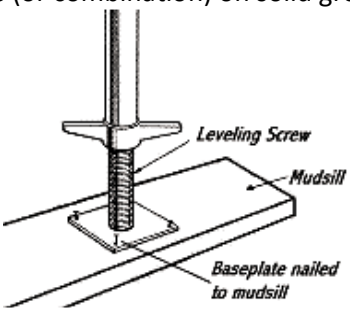


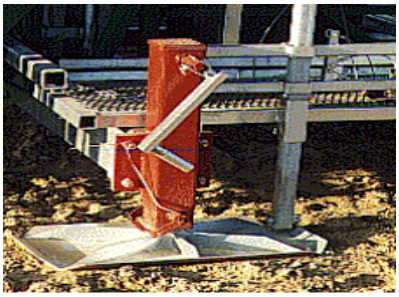
SAFETY TIPS IN SCAFFOLD WORK

CHECK SAFETY CODES:
OSHA, state and local safety codes should be followed

INSPECT AND CHECK:
Take no chances. Inspect the scaffold set up after erection and daily while in use. Don't remove or allow removal of, any parts without the OK from the proper authorities. When wire rope is used, inspect it on each job.

BEGIN WITH GOOD FOOTING:
Use base plates, sills or footers (or combination) on solid ground; make sure scaffold is leveled or plumbed.





DON'T SHORT-CHANGE BRACING:
Use bracing at all points provided; add extra braces if needed to insure stability.

TIE SCAFFOLD TO THE BUILDING:
Scaffolding should be tied to the structure using heavy wire or tie-in devices. The first vertical tie should be at the maximum height of 4 times the narrowest base dimension. Additional ties are not to exceed 26 feet vertically. Maximum horizontal distance between ties is not to exceed 30 feet.

DON'T OVERLOAD SCAFFOLDING:
Follow the safe load capacities as given by the scaffold manufacturer. There's a limit even to what steel can support. A 4-to-1 safety factor must be figured on scaffolding.

USE METAL CATWALKS, PLATFORMS;
Where available, If wood plank is used, it must be scaffold grade or better. Inspect thoroughly before every job to make sure it is free from breaks, knots, cracks or warpage. Decking should be full width.

DON'T RIDE (Surf) MOVING SCAFFOLD;
Remember scaffold units are limited in height to 4* times their narrowest base dimension (unless base is widened by outriggers or more end frames; or tied into building.) Always keep casters locked. (except to re-spot)

DON'T CLIMB BRACES:
Use the steps provided on most steel scaffolds to climb up to or down from work levels. Use scaffold climbing ladders where required.

PROTECT WORKING LEVELS:
Use overhead canopies to protect workers on lower work levels when work is being done overhead. Rope off unsafe areas underneath scaffold or provide wire mesh around work area.

USE DOUBLE GUARD RAILS;
and toeboards on exposed sides at platform heights of 6 feet or more.

BRICKLAYING Employees doing overhand bricklaying from a supported scaffold must be protected by a guard-rail or personal fall arrest system on all sides except the side where the work is being done.

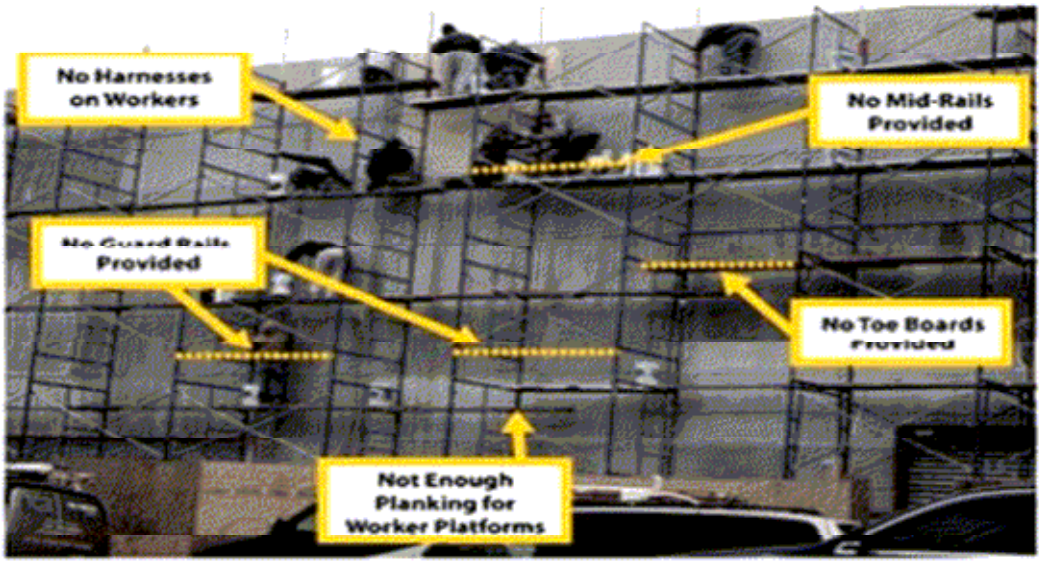
SCAFFOLD FALL PROTECTION REQUIREMENTS

Type of Scaffold	Fall Protection Required
Aerial lifts	Personal fall arrest system
Boatswains' chair	Personal fall arrest system
Catenary scaffold	Personal fall arrest system
Crawling board (chicken ladder)	Personal fall arrest system, or a guardrail system, or by a 3/4 inch (1.9 cm) diameter grabline or equivalent handhold securely fastened beside each crawling board
Float scaffold	Personal fall arrest system
Ladder jack scaffold	Personal fall arrest system
Needle beam scaffold	Personal fall arrest system
Self-contained scaffold	**Both** a personal adjustable scaffold arrest system **and** a guardrail system
Single-point and two-point suspension scaffolds	Both a personal fall arrest system **and** a guardrail system
Supported scaffold	Personal fall arrest system **or** guardrail system
All other scaffolds not specified above	Personal fall arrest system **or** guardrail systems that meet the required criteria

NON-COMPLIANT SUPPORTED SCAFFOLD

Non-Compliant Supported Scaffold

The photograph below shows an example of a non-compliant supported scaffold. This supported scaffold does not provide enough wooden planks to serve as a platform for workers. In addition, this supported scaffold is missing bracing to provide stability and strength, and is missing guard rails and toe boards to protect workers and prevent material from falling. Finally, this supported scaffold does not provide full access to the scaffold ladders.



LADDER & STAIRWAY SAFETY

General:

Inspect before use for physical defects.

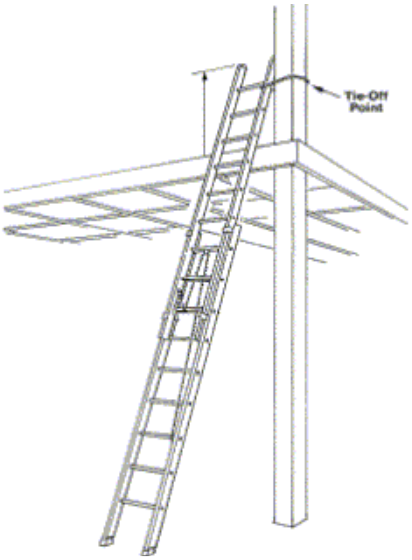
- Ladders are not to be painted except for numbering purposes.
- Do not use ladders for skids, braces, workbenches, or any purpose other than climbing.
- When you are ascending or descending a ladder, do not carry objects that will prevent you from grasping the ladder with both hands.
- Always face the ladder when ascending and descending.
- If you must place a ladder over a doorway, barricade the door to prevent its use and post a warning sign.
- Only one person is allowed on a ladder at a time.
- Do not jump from a ladder when descending.
- All joints between steps, rungs, and side rails must be tight.
- Safety feet must be in good working order and in place.
- Rungs must be free of grease and/or oil.

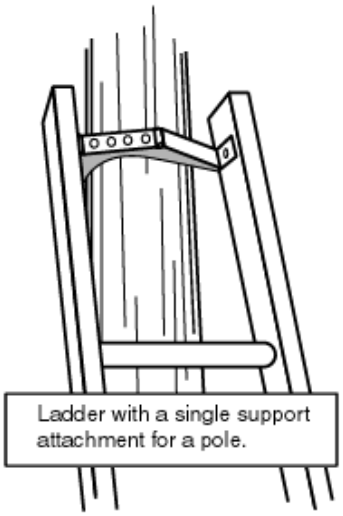
Stepladders

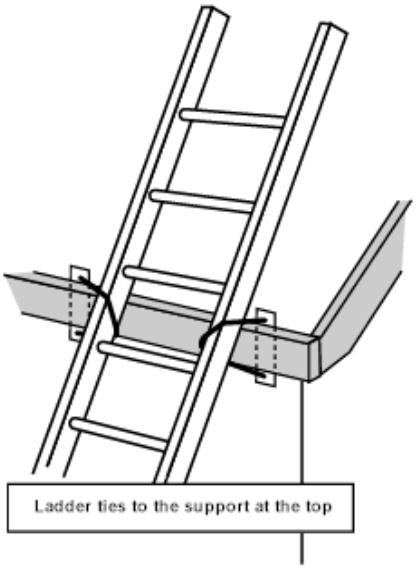
- Do not place tools or materials on the steps or platform of a stepladder
- Do not use the top two steps of a stepladder as a step or stand.
- Always level all four feet and lock spreaders in place.
- A stepladder shall not be used as a straight ladder by leaning it against a wall or other support

Straight type or extension ladders

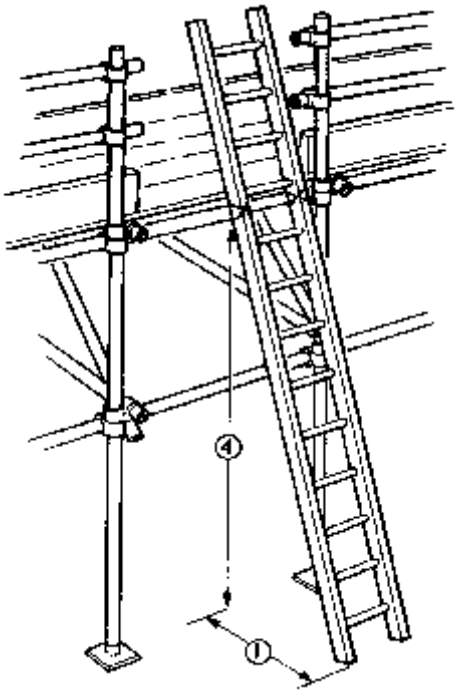
- All straight or extension ladders must extend at least three feet beyond the supporting object when used as an access to an elevated work area.
- After raising the extension portion of a two or more stage ladder to the desired height, check to ensure that the safety dogs or latches are engaged.
- All extension or straight ladders must be secured or tied off at the top.

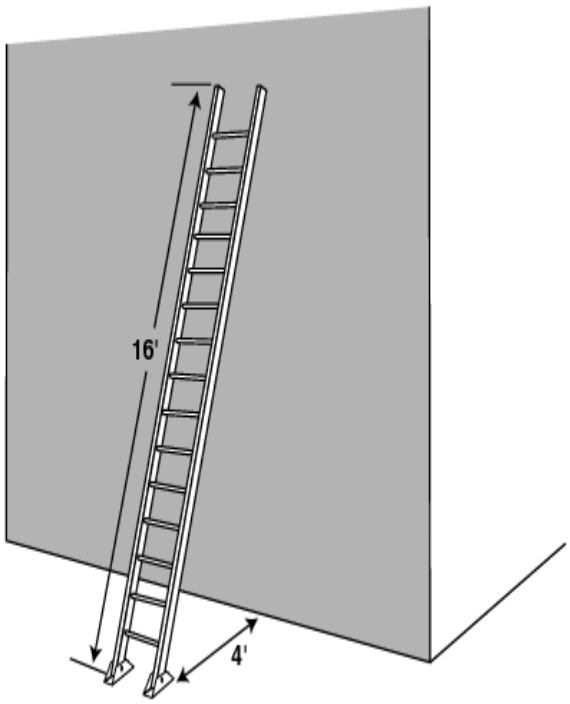



Ladder with a single support attachment for a pole.

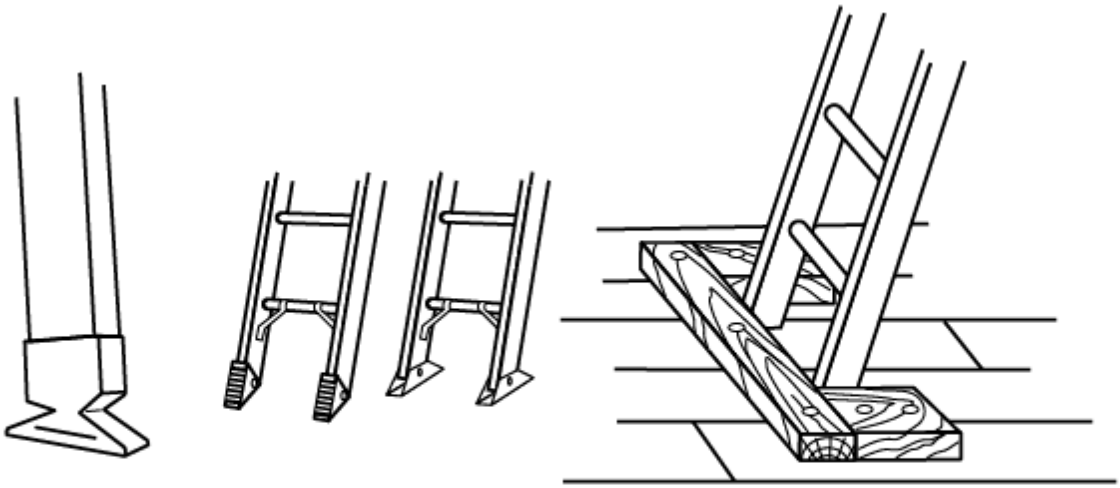

Ladder ties to the support at the top

Portable ladders must be used at such a pitch that the horizontal distance from the top support to the foot of the ladder is about one-quarter of the working length of the ladder. **Use the "four and one" rule** when using a ladder. One foot of base for every four feet of height.





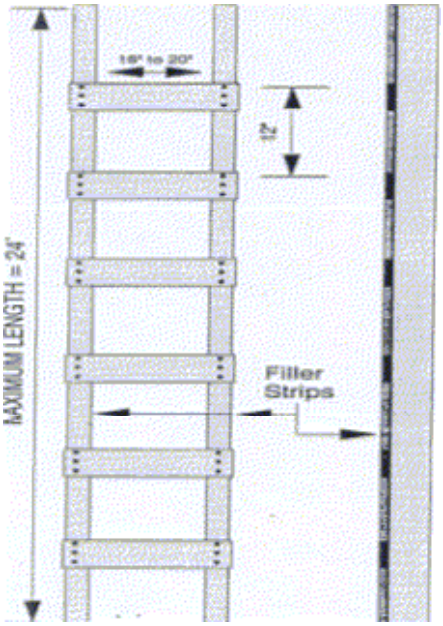
- All ladders must be equipped with safety (non-skid) feet.



Job Made Ladders

- Determine the height the ladder is to reach and add 36 to 42 inches to allow side rails to extend adequately above the top landing to provide a hand hold.
- Set rails on level, even and solid footing at locations where there will be no danger of being struck by passing vehicles or equipment.
- Where ladders shall be placed in passageways or other thoroughfares, they shall be protected by barricades around their base.
- The maximum length of ladder shall not exceed 24 feet between supports (base and top landing).
- If ladders are to connect different landings, or if the length required exceeds the recommended maximum length, use 2 or more separate ladders staggered with a protected platform between each ladder.
- If ladders are to be used by masons or rod carriers, the length shall not exceed 20 feet.
- The width of a single cleat ladder must be at least 16 inches, but no more than 20 inches, measured inside to inside.
- The width between outside rails of a double-cleat ladder shall be not less than 38 inches or more than 46 inches. A double-cleat ladder shall have an additional rail located at the center of the ladder. The side rails and middle rail for a double-cleat ladder shall be not less than nominal 2-inch by 4-inch construction grade lumber for double cleat ladders less than 12 feet in length and not less than nominal 2-inch by 6-inch construction grade lumber for a double cleat ladder from 12 feet to 24 feet in length.
- Wood cleats must be 1x4 inch site inspected material or nominal 2x4 inch stress-grade lumber. Cleats must be parallel and level when the ladder is in position for use.
- The cleats must be attached to the narrow face of the rail using three 3 inch long nails for 1x4 inch cleats or three 3 ¼ inch long nails for 2x4 inch cleats. The nails must be staggered at least a ¼ inch to reduce splitting.
- Filler blocks of the same thickness as the cleats must be inserted between cleats and must be butted tightly against the underside of each cleat.
- All job-made ladders, landings and lashings shall be inspected at least every week by the creating Subcontractor and any defects shall be corrected immediately

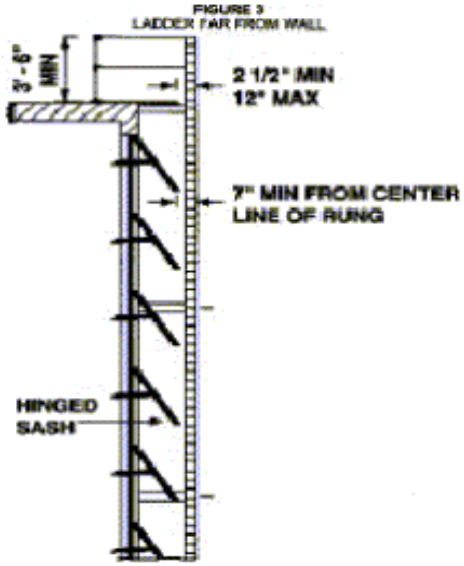
Job Made Ladders



Fixed Ladders

Part 11, Rule 1115 (5) states that; "Through fixed ladders, at their point of access or egress, shall have a step across distance of not less than 7 inches (18 cm) nor more than 12 inches (30 cm), as measured from the center line of the steps or rungs to the nearest edge of the landing area. If the normal step across distance is more than 12 inches (30 cm), a landing platform shall be provided to reduce the distance to the specified limit."

The purpose of Rule 1115 (5) is to establish the acceptable step across distance from the fixed ladder to a landing area. The purpose of the minimum 7 inch distance is to eliminate a potential trip hazard caused by a protruding landing platform. The 12 inches is the maximum distance that the edge of the floor, roof or landing platform can be located from the centerline of the steps or rungs. The rule permits the minimum to be 7 inches, however, figure 3 as it appears in Part 11, (see below) illustrates 2 ½ inches as the minimum distance between the centerline of the steps or rungs and the edge of the landing platform.



Manufacture Guidelines

Ladders should always be used according to manufacturer guidelines. Check the ladder for warnings, rated use, and instructions. If proper information is not available, note the model and check with the manufacturer for proper use instructions and to ensure it is rated for the work you are doing.

Training requirements.

(1) The 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.

Stairway

A stairway or ladder must be provided at all worker points of access where there is a break in elevation of 19 inches or more and no ramp, runway, sloped embankment, or personnel hoist is provided. Except during construction of the actual stairway, skeleton metal frame structures and steps must not be used (where treads and/or landings are to be installed at a later date), unless the stairs are fitted with secured temporary treads and landings.

- When there is only one point of access between levels, it must be kept clear to permit free passage by workers. If free passage becomes restricted, a second point of access must be provided and used
- When there are more than two points of access between levels, at least one point of access must be kept clear. All stairway and ladder fall protection systems must be provided and installed as required by the stairway and ladder rules before employees begin work that requires them to use stairways or ladders and their respective fall protection systems.
- 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 inches in the direction of travel and extend not less than 22 inches in width at every 12 feet or less of vertical rise.
- Stairways must be installed at least 30 degrees, and no more than 50 degrees, from the horizontal. Where doors or gates open directly onto a stairway, a platform must be provided, and the swing of the door must not reduce the effective width of the platform to less than 20 inches
- Except during construction of the actual stairway, stairways with metal pan landings and treads must not be used where the treads and/or landings have not been filled in with concrete or other material, unless the pans of the stairs and/or landings are temporarily filled in with wood or other material. All treads and landings must be replaced when worn below the top edge of the pan.
- Stairways having four or more risers, or rising more than 30 inches in height whichever is less, must have at least one handrail. A stair rail also must be installed along each unprotected side or edge. When the top edge of a stair rail system also serves as a handrail, the height of the top edge must not be more than 37 inches nor less than 36 inches from the upper surface of the stair rail to the surface of the tread in line

with face of riser at forward edge of tread. Midrails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members must be provided between the top rail and stairway steps of the stair rail system.

- Midrails, when used, must be located midway between the top of the stair rail system and the stairway steps. The height of handrails must not be more than 37 inches or less than 30 inches from the upper surface of the handrail to the surface of the tread in line with face of riser at forward edge of tread.
- The height of the top edge of a stair rail system used as a handrail must not be more than 37 inches nor less than 36 inches from the upper surface of the stair rail system to the surface of the tread in line with face of riser at forward edge of tread.
- Temporary handrails must have a minimum clearance of 3 inches (7.62 centimeters) between the handrail and walls, stair rail systems, and other objects. Unprotected sides and edges of stairway landings must be provided with guardrail systems.

Runway and ramp specifications.

- 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 be in compliance with all of the following provisions:
    - Be capable of supporting not less than 2 times the maximum intended load.
    - Consist of a minimum of two 2-inch by 10-inch nominal size planks placed side by side or other material of equal width that provides equivalent strength if guardrails are not required.
    - Consist of a minimum of three 2-inch by 10-inch nominal size planks placed side by side or other material of equal width that provides equivalent strength if guardrails are required.
    - Not be constructed steeper than the ratio of 1 foot of vertical rise to 2 feet of horizontal run.
    - Have a slip-resistant surface or have cleats which are not more than 2 inches by 4 inches nominal size and which are uniformly spaced not more than 24 inches apart.
    - Be constructed to avoid excessive deflection and springing action.
    - Be secured at each end to prevent displacement.
    - Consist of three 2-inch by 10-inch nominal size planks placed side by side or other material of equal width that provides equivalent strength.
    - A ramp or runway used by concrete buggies, fork lift trucks, or other motorized material handling equipment shall be in compliance with all of the following provisions:
    - Be capable of supporting not less than 4 times the maximum intended load.
    - Be not less than 5 feet wide.
    - Be constructed and used as prescribed in subrule (1)(a), (d), (f), (g), (h), and (i) of this rule.

A ramp or runway constructed of 2 or more planks placed side by side shall have the planks securely fastened together.

Access to other elevations.

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 inches (48cm) or more and a runway, sloped embankment, or personnel hoist is not provided.

CONSTRUCTION EQUIPMENT

CONSTRUCTION EQUIPMENT

1. All equipment operators must be trained, experienced and qualified. Certificates of training may be required to verify this. Safety belts are to be worn by all equipment operators at all times.

Operator not wearing seatbelt

2. There will be no riders allowed on equipment or vehicles that do not have seat belts for them. This means no riders in the cab of backhoes, no riders on forklifts, no riders in the back of pickup trucks, and no riders in the backhoe, Bobcat or similar material buckets.

3. All materials carried in the back of vehicles or trucks will be secured down in a manner where items will not become displaced during transport.

4. Competent mechanic(s) will be used to service and maintain equipment. Any repairs related of hydraulic cylinders will need braces installed on the cylinders to prevent release of pressure and crushing of personnel.

5. Audible reverse alarms and/or bi-directional alarms must be present and operable on all earth moving equipment, track hoes and dump trucks. Roll-Over Protection (ROP) will be provided on all equipment unless otherwise specified by the manufacturer. Installed ROP's will not be removed prior to operation of the equipment.

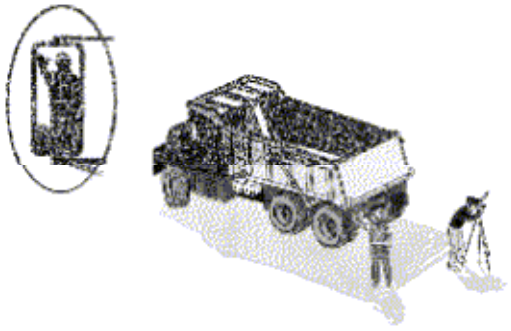
6. Onsite storage of equipment fuel tanks shall contain double walls; shall not be elevated and moved with fluids in the tank; must have physical protection placed around the tank; shall have "No Smoking" signage posted; shall have a 20# fire extinguisher located within 25'; shall be placed in dikes that can hold 1½ times the amount of fluids that are contained in the tank; and spills outside of the dike area must be reported to the Superintendent within 24 hours and properly cleaned up. Fuel tanks and containers will not be stored within 50' of the building.

7. Windshields and other glass will be "safety glass" and shall not contain damages that will interfere or obstruct the operator's vision. Plexiglas or plastic sheeting will not be allowed.

8. A copy of the current 3rd party annual crane inspection certification shall be readily available and requested prior to any use on the project. Any deficiencies will have been resolved prior to its use on the project.

9. Daily and weekly equipment operator visual inspections will be performed and a current logbook maintained to detail that this is taking place.

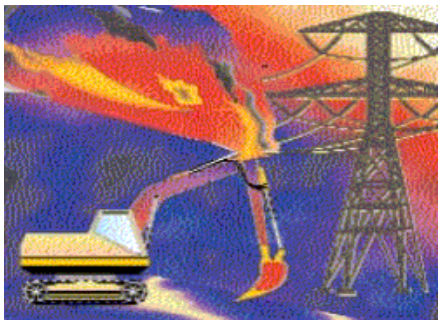
10. Employees are not permitted to work in areas where they may come in contact with moving equipment. Signal persons will wear proper reflective vests when directing traffic. The appropriate Flagger training will be provided and confirmed for those engaged in these activities



This illustration shows how some personnel on foot are visible to the driver while others are not. The driver cannot see the dark figures because they are passing through blind spots at the front and rear of the truck.

11. Equipment will never be left unattended while running or with loads elevated. The operator must be in close proximity to the equipment. Equipment will be locked with the emergency brake engaged when not in use. Nothing will be left elevated without the operator sitting in the cab and monitoring the controls.

12. Boom type or any other type of equipment that could possibly contact overhead electrical power lines shall not be operated within 20 feet at a minimum of electrical lines.



13. Street plates will span the openings enough so that they extend beyond the area a minimum of 2’ on all sides. They shall be secured with pins to prevent displacement and have cold patch placed on all sides. Advanced warning “street plates ahead” signs will be posted.

14. Lift truck (forklift) activities taking place in close proximity to pedestrian areas will be performed with the accompaniment of another employee walking out in front of the lift truck with a flag to assure that personnel do not come in contact with the loads or the lift truck.

15. Before personnel operate lift trucks (forklifts) they must have completed a lift truck training class that included classroom, written and hands-on training and testing specific to each type of lift truck to be used, i.e. warehouse lift truck, rough terrain Lull type extendable boom lift truck, electric powered, propane powered. Evidence related to completion of this training must be available by the operator if requested. Lift truck activities will be stopped if operators are not able to provide this evidence of training.

EQUIPMENT PRE-OPERATION DAILY INSPECTION CHECKLIST

Complete the pre-operation checklist with one of the following responses after each item.

- If working properly, enter an X in the "O.K." column.
- If not working properly, enter an X in the "Needs Repair" column and explain why.
- If operation does not apply to your particular piece of equipment, enter an X in the n/a column.

Maintain pre-operation inspection checklist on each piece of equipment to be inspected.

Equipment # _____ Name of operator: _____
Date: _____ Type of equipment: _____
Company Name: _____
Project Name: _____

CHECKLIST	O.K.	NEEDS REPAIR	N/A
Horn			
Steering			
Battery indicator			
Lift Control			
Tilt Control			
Accessory Control			
Tires and wheels			
Overhead guard			
Lights			
Brakes(s)			
Limit switches			
Forks, mast, chains, Stops, backrest			
Hydraulic cylinders			
Hydraulic hoses and fittings			
Fluid levels			
LP leaks			
Engine Oil			
Radiator Water			
Fuel level			
Obvious damage and leaks			
Hour meter			
Warning signs/stickers			
Warning lights – backup alarms			
Fire extinguisher			
Manufacturer approved tie-off point			
Lifting straps			
Other gauges and instruments			
Annual Inspection Report			

POWER, AIR & HAND TOOLS

Power, air, and hand tools must be operated in accordance with the manufacturer's recommendations. Keep hand tools in good condition, inspected, cleaned, sharpened, oiled, and not abused.

- Inspect tools for damage and worn parts before use. Remove damaged or frayed cords from service. Do not hoist or lower tools by the cord or hose; use hand lines.
- Do not force tools beyond their capacity by using "cheater bars" or other shortcuts. Use the right tool for a particular job and use them only for the purpose for which they are intended.
- Do not use power tools if safety equipment such as shields, tool rests, hoods, and guards have been removed or rendered inoperative.
- Employees must wear the required personal protective equipment when using tools under conditions that expose them to flying objects or harmful dust.
- Ground electrically powered tools. Protect outlets used for 110-volt tools by ground-fault-circuit interruption devices throughout each phase of the work. Do not use hoses or electric cords for hoisting or lowering tools or other materials. Never pull the cord to disconnect it from the receptacle
- Do not use gasoline-powered tools in unventilated areas, enclosed spaces, or outside of enclosed spaces. Dispense gasoline and other flammable liquids only from UL approved safety cans or equivalent.
- Use portable grinders with hood-type guards with side enclosures that cover the spindle and at least 50% of the wheel. Inspect wheels regularly for signs of fracture.
- Equip bench grinders with deflector shields and side-cover guards. Tool rests must have a maximum clearance of 1/8 inch from the wheel.
- Secure couplings to hoses supplying pneumatic tools to prevent accidental disconnection.
- Protect air-supply lines, inspect lines regularly, and maintain lines in good condition. Provide excess flow valves on supplying hoses exceeding 1/2 inch in diameter.
- Reduce the operating pressure of compressed air used for cleaning purposes to 30 psi or less (except for cleaning of forms, etc.). Avoid operating pressure in excess of 30 psi.
- Replace worn tools immediately. Keep all loose tools in a toolbox or secure them against falling or dropping from work surfaces

Powder Actuated Tools (PATs)

- An operator of a powder-actuated tool shall have an operators' card that should be in the operator's possession at all times while using the tool and be presented upon request
- Only trained employees must be allowed to operate powder-actuated tools.

Figure 1 – High-velocity 'Powder Actuated Tools'

Figure 2 – Low-velocity 'Powder Actuated Tools'

- All powder-actuated tools must be tested daily before use and all defects discovered before or during use must be corrected. Tools must not be loaded until immediately before use.
- Loaded tools must not be left unattended.
- Superintendents must enforce compliance with local regulations governing the use of these tools.
- Powder Actuated Fastening Tools shall be handled with the same care as firearms.
- Horseplay by any Contractors employee (i.e. pointing armed or unarmed tool at anything other than work, target practice, making safety devices inoperative, or other unsafe acts, etc) will be grounds for immediate and permanent removal from the job site.
- Only cartridges and fasteners supplied by the manufacturer of the tool shall be used.
- If a powder - actuated tool misfires, wait at least 30 seconds to fire again. If it still will not fire wait another 30 seconds so that the faulty cartridge could be put in water. Use suitable eye protection.
- The muzzle end must have a protective shield or guard on the barrel to confine any flying fragments or protect when the tool is fired

Powder-actuated tool operators' cards.

An operator of a powder-actuated tool shall have an operators' 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. Failure to comply with any of these rules is sufficient cause for the immediate surrender of an operator's card to the employer. The purpose of the card is to certify that the operator has completed the required training to become a qualified operator. The card should be of a size, approximately 2 1/2 by 3 1/2 inches that readily fits into a wallet.

A statement should be provided on the card as follows: "I have received instruction in the safe operation of powder-actuated fastening tools of the makes and models specified, and I agree to conform to the rules governing their use." A note should be printed on the card as follows: "Revocation of Card -- Failure to comply with any rule for safe operation of powder-actuated fastening tools is sufficient cause for the immediate surrender of the card to the employer"

RESPIRATOR PROGRAM

DeMaria Respiratory Protection Program

This program applies to all employees who are required to wear respirators during normal work operations and during some non-routine or emergency operations such as a spill of a hazardous substance. In addition, any employee who voluntarily wears a respirator when a respirator is not required (i.e., in certain maintenance and coating operations) is subject to the medical evaluation, cleaning, maintenance, and storage elements or this program, and must be provided with certain information specified in this section of the program. The Safety Director is the Program Administrator for DeMaria.

RESPONSIBILITIES

Program Administrator

The Program Administrator is responsible for administering the respiratory protection program. Duties of the program administrator include:

- Identifying work areas, processes or tasks that require workers to wear respirators, and evaluating hazards.
- Selection of respiratory protection options.
- Monitoring respirator use to ensure that respirators are used in accordance with their certifications.
- Arranging for and/or conducting training.
- Ensuring proper storage and maintenance of respiratory protection equipment.
- Conducting qualitative fit testing with Bitrex.
- Administering the medical surveillance program.
- Maintaining records required by the program.
- Evaluating the program.
- Updating written program, as needed.

Supervisors

Supervisors are responsible for ensuring that the respiratory protection program is implemented in their particular areas. In addition to being knowledgeable about the program requirements for their own protection, supervisors must also ensure that the program is understood and followed by the employees under their charge. Duties of the supervisor include:

- Ensuring that employees under their supervision (including new hires) have received appropriate training, fit testing, and annual medical evaluation.
- Ensuring the availability of appropriate respirators and accessories.
- Being aware of tasks requiring the use of respiratory protection.
- Enforcing the proper use of respiratory protection when necessary.
- Ensuring that respirators are properly cleaned, maintained, and stored according to the respiratory protection program.
- Ensuring that respirators fit well and do not cause discomfort.
- Continually monitoring work areas and operations to identify respiratory hazards.
- Coordinating with the Program Administrator on how to address respiratory hazards or other concerns regarding the program.

Employees

Each employee has the responsibility to wear his or her respirator when and where required and in the manner in which they were trained. Employees must also:

- Care for and maintain their respirators as instructed, and store them in a clean sanitary location.
- Inform their supervisor if the respirator no longer fits well, and request a new one that fits properly.
- Inform their supervisor or the Program Administrator of any respiratory hazards that they feel are not adequately addressed in the workplace and of any other concerns that they have regarding the program.

Selection Procedures

The Program Administrator will select respirators to be used on site based on the hazards to which workers are exposed and in accordance with all MIOSHA standards. The Program Administrator will conduct a hazard evaluation for each operation, process, or work area where airborne contaminants may be present in routine operations or during an emergency. The hazard evaluation will include:

1) Identification and development of a list of hazardous substances used in the workplace, by department, or work process.
2) Review of work processes to determine where potential exposures to these hazardous substances may occur. This review shall be conducted by surveying the workplace, reviewing process records, and talking with employees and supervisors.

Updating the Hazard Assessment

The Program Administrator must revise and update the hazard assessment as needed (i.e., any time work process changes may potentially affect exposure). If an employee feels that respiratory protection is needed during a particular activity, he/she is to contact his or her supervisor or the Program Administrator. The Program Administrator will then communicate the results of that assessment back to the employees. If it is determined that respiratory protection is necessary, all other elements of this program will be in effect for those tasks and this program will be updated accordingly.

NIOSH Certification

All respirators must be certified by the National Institute for Occupational Safety and Health (NIOSH) and shall be used in accordance with the terms of that certification. Also, all filters, cartridges, and canisters must be labeled with the appropriate NIOSH approval label. The label must not be removed or defaced while it is in use. The Program Administrator will provide all employees who voluntarily choose to wear a respirators with a copy of the standard. Employees choosing to wear a half-facepiece APR must comply with the procedures for Medical Evaluation, Respirator Use, and Cleaning, Maintenance and Storage. The Program Administrator shall authorize voluntary use of respiratory protective equipment as requested by all other workers on a case-by-case basis, depending on specific workplace conditions and the results of the medical evaluations.

Medical Evaluation

Employees who are either required to wear respirators, or who choose to wear an APR voluntarily, must pass a medical exam before being permitted to wear a respirator on the job. Employees are not permitted to wear respirators until a physician has determined that they are medically able to do so. Any employee refusing the medical evaluation will not be allowed to work in an area requiring respirator use.

A licensed physician at Concentra medical clinics, where all company medical services are provided, will provide the medical evaluations. Medical evaluation procedures are as follows:

- The medical evaluation will be conducted using the questionnaire provided. The Program Administrator will provide a copy of this questionnaire to all employees requiring medical evaluations.

- Follow-up medical exams will be granted to employees as required by the standard, and/or as deemed necessary by the Concentra medical clinic physician.

- Any employee required for medical reasons to wear a positive pressure air-purifying respirator will be provided with a powered air-purifying respirator.

- After an employee has received clearance and begun to wear his or her respirator, additional medical evaluations will be provided under the following circumstances:

    - Employee reports signs and/or symptoms related to their ability to use a respirator, such as shortness of breath, dizziness, chest pains, or wheezing.
    - The Concentra medical clinic physician or supervisor informs the Program Administrator that the employee needs to be reevaluated;
    - Information from this program, including observations made during fit testing and program evaluation, indicates a need for reevaluation;
    - A change occurs in workplace conditions that may result in an increased physiological burden on the employee.

All examinations and questionnaires are to remain confidential between the employee and the physician.

Fit Testing

Fit testing is required for employees wearing half-facepiece APRs for exposure to wood dust in Prep and Assembly, and maintenance workers who ear a tight-fitting SAR for dip tank cleaning. Employees voluntarily wearing half-facepiece APRs may also be fit tested upon request. Employees who are required to wear any tight-fitting respirator facepiece will be fit tested Prior to being allowed to use that type of respirator.

Employees will be fit tested with the make, model, and size of respirator that they will actually wear. Fit testing of PAPRs is to be conducted in the negative pressure mode. The Program Administrator will conduct fit tests under MIOSHA Respiratory Protection standard. If the Program Administrator has determined that quantitative fit-testing (QNFT) is not required for the respirators used under current conditions at a DeMaria project site. If conditions affecting respirator use change, the Program Administrator will evaluate on a case-by-case basis whether QNFT is required.

Respirator Use Procedures:

- Employees will use their respirators under conditions specified by this program, and in accordance with the training they receive on the use of each particular model. In addition, the respirator shall not be used in a manner for which it is not certified by NIOSH or by its manufacturer.

- All employees shall conduct user seal checks each time that they wear their respirator. Employees shall use either the positive or negative pressure check (depending on which test works best for them) specified in Appendix B-1 of the Respiratory Protection Standard.

- All employees shall be permitted to leave the work area to go to the locker room to maintain their respirator for the following reasons: to clean their respirator if the respirator is impeding their ability to work, change filters or cartridges, replace parts, or to inspect respirator if it stops functioning as intended. Employees should notify their supervisor before leaving the area.

- Employees are not permitted to wear tight-fitting respirators if they have any condition, such as facial scars, facial hair, or missing dentures, that prevents them from achieving a good seal. Employees are not permitted to wear headphones, jewelry, or other articles that may interfere with the facepiece-to-face seal.

Respirator Malfunction

APR Respirator Malfunction: For any malfunction of an APR (e.g., such as contaminant breakthrough, facepiece leakage, or improperly working valve), the respirator wearer should inform his or her supervisor that the respirator no long functions as intended, and go to the designated safe area to maintain the respirator. The supervisor must ensure that the employee receives the needed parts to repair the respirator, or is provided with a new respirator.

Atmosphere-supplying Respirator Malfunction: All workers wearing atmosphere-supplying respirators will work with a buddy. Buddies shall assist workers who experience an SAR malfunction. If a worker experiences a malfunction of an SAR, he or she should signal to the buddy that he or she has had a respirator malfunction. The buddy shall aid the worker in immediately exiting the area.

Cleaning, Maintenance, Change Schedules and Storage

Cleaning

Respirators are to be regularly cleaned and disinfected at the designated respirator cleaning station located in the employee locker room. Respirators issued for the exclusive use of an employee shall be cleaned as often as necessary, but at least once a day. Atmosphere supplying and emergency use respirators are to be cleaned and disinfected after each use.

The following procedure is to be used when cleaning and disinfecting respirators:

Disassemble respirator, removing any filters, canisters, or cartridges. Wash the facepiece and associated parts in a mild detergent with warm water. Do not use organic solvents. Rinse completely in clean warm water. Wipe the respirator with disinfectant wipes (70% Isopropyl Alcohol) to kill germs. Air dry in a clean area. Reassemble the respirator and replace any defective parts. Place in a clean, dry plastic bag or other airtight container.

Note: The Program Administrator will ensure an adequate supply of appropriate cleaning and disinfecting material at the cleaning station. If supplies are low, employees should contact their supervisor, who will inform the Program Administrator.

Maintenance

Respirators are to be properly maintained at all times in order to ensure that they function properly and adequately protect the employee. Maintenance involves a thorough visual inspection for cleanliness and defects. Worn or deteriorated parts will be replaced prior to use. No components will be replaced or repairs made beyond those recommended by the manufacturer. Repairs to regulators or alarms of atmosphere-supplying respirators will be conducted by the manufacturer.

The following checklist will be used when inspecting respirators:

- Facepiece: Cracks, tears, or holes, Facemask distortion, Cracked or loose lenses/faceshield
- Headstraps: Breaks or tears, Broken buckles
- Valves: Residue or dirt, Cracks or tears in valve material
- Filters/Cartridges: Approval designation, Gaskets, Cracks or dents in housing, Proper cartridge for hazard
- Air Supply Systems: Breathing air quality/grade, Condition of supply hoses, Hose connections, Settings on regulators and valves

Employees are permitted to leave their work area to perform limited maintenance on their respirator in a designated area that is free of respiratory hazards. Situations when this is permitted include to wash their face and respirator facepiece to prevent any eye or skin irritation, to replace the filter, cartridge or canister, and if they detect vapor or gas breakthrough or leakage in the facepiece or if they detect any other damage to the respirator or its components.

Change Schedules

Employees wearing APRs or PAPRs with P100 filters for protection against wood dust and other particulates shall change the cartridges on their respirators when they first begin to experience difficulty breathing (i.e., resistance) while wearing their masks.

Storage

Respirators must be stored in a clean, dry area, and in accordance with the manufacturer's recommendations. Each employee will clean and inspect their own air-purifying respirator in accordance with the provisions of this program and will store their respirator in a plastic bag in their own locker. Each employee will have his/her name on the bag and that bag will only be used to store that employee's respirator. Atmosphere supplying respirators will be stored in the storage cabinet outside the Program Administrator's office.

Defective Respirators

Respirators that are defective or have defective parts shall be taken out of service immediately. If, during an inspection, an employee discovers a defect in a respirator, he/she is to bring the defect to the attention of his or her supervisor. Supervisors will give all defective respirators to the Program Administrator. The Program Administrator will decide whether to:

- Temporarily take the respirator out of service until it can be repaired.
- Perform a simple fix on the spot such as replacing a head strap.
- Dispose of the respirator due to an irreparable problem or defect.

When a respirator is taken out of service for an extended period of time, the respirator will be tagged out of service, and the employee will be given a replacement of similar make, model, and size. All tagged out respirators will be kept in the storage cabinet inside the Program Administrator office.

Training

The Program Administrator will provide training to respirator users and their supervisors on the contents of the DeMaria Respiratory Protection Program and their responsibilities under it, and on the MIOSHA Respiratory Protection standard. Workers will be trained prior to using a respirator in the workplace. Supervisors will also be trained prior to using a respirator in the workplace or prior to supervising employees that must wear respirators.

The training course will cover the following topics: The Company Respiratory Protection Program, The MIOSHA Respiratory Protection standard, Respiratory hazards that may be encountered and their health effects, Proper selection and use of respirators, Limitations of respirators, Respirator donning and user seal (fit) checks, Fit testing, Emergency use procedures, Maintenance and storage, Medical signs and symptoms limiting the effective use of respirators

Employees will be tested as needed, employees must demonstrate their understanding of the topics covered in the training through hands-on exercises and a written test. Respirator training will be documented by the Program Administrator and the documentation will include the type, model, and size of respirator for which each employee has been trained and fit tested.

Program Evaluation

The Program Administrator will conduct periodic evaluations of the workplace to ensure that the provisions of this program are being implemented. The evaluations will include regular consultations with employees who use respirators and their supervisors, site inspections, air monitoring and a review of records. Problems identified will be noted in an inspection log and addressed by the Program Administrator.

Documentation and Recordkeeping

A written copy of this program and the MIOSHA standard is kept in the Program Administrator's office and is available to all employees who wish to review it. Also copies of training and fit test records. These records will be updated as new employees are trained, as existing employees receive refresher training, and as new fit tests are conducted. The Program Administrator will also maintain copies of the medical records for all employees covered under the respirator program. The completed medical questionnaire and the physician's documented findings are confidential and will remain at Concentra Medical Clinic. The company will only retain the physician's written recommendation regarding each employee's ability to wear a respirator.

PROTECT YOURSELF- RESPIRATORS

Respiratory protection must be worn whenever you are working in a hazardous atmosphere. The appropriate respirator will depend on the contaminant(s) to which you are exposed and the protection factor (PF) required. Required respirators must be NIOSH-approved and medical evaluation and training must be provided before use.

Single-strap dust masks are usually not NIOSH-approved. They must not be used to protect from hazardous atmospheres. However, they may be useful in providing comfort from pollen or other allergens.	
Approved filtering face pieces (dust masks) can be used for dust, mists, welding fumes, etc. They do not provide protection from gases or vapors. DO NOT USE FOR ASBESTOS OR LEAD; instead, select from the respirators below.	
Half-face respirators can be used for protection against most vapors, acid gases, dust or welding fumes. Cartridges/filters must match contaminant(s) and be changed periodically.	
Full-face respirators are more protective than half-face respirators. They can also be used for protection against most vapors, acid gases, dust or welding fumes. The face-shield protects face and eyes from irritants and contaminants. Cartridges/filters must match contaminant(s) and be changed periodically.	
Loose-fitting powered-air-purifying respirators (PAPR) offer breathing comfort from a battery-powered fan which pulls air through filters and circulates air throughout helmet/hood. They can be worn by most workers who have beards. Cartridges/filters must match contaminant(s) and be changed periodically.	
A Self-Contained Breathing Apparatus (SCBA) is used for entry and escape from atmospheres that are considered immediately dangerous to life and health (IDLH) or oxygen deficient. They use their own air tank.	

HOW TO SELECT THE CORRECT RESPIRATOR

The type and brands of respirators vary widely ranging from simple dust masks to supplied air respirators like the kind firemen wear. Following is description of the main types of respirators.

Dust Masks (filtering face pieces)

These simple, two-strap disposable dust masks are designed only for dusts. They are not as protective as other respirators, but do an adequate job in many cases, unless the dust is really toxic or copious. Don't confuse these two-strap masks with the less protective one-strap dust mask designed only for pollen or non-toxic dust.

Half-Face Air-Purifying Respirator

These respirators are sometimes called “half-face” or “half-mask” respirators since they cover just the nose and mouth. They have removable cartridges that filter out either dust, chemicals or both. Selecting the correct cartridges is essential since they are designed for particular types of chemicals or dust. The cartridges must be changed out or replaced periodically. The change-out schedule is based on the chemical concentration, physical work effort, temperature and humidity.

Full-Face Air-Purifying Respirator

In some situations, you may need or want to use full-face respirators. This type of respirator is used when the air contaminant irritates the eyes. They also provide somewhat higher protection to the lungs since they tend to fit tighter and are less prone to leaking. The respirators replaceable cartridges that must be changed regularly.

Powered Air Purifying Respirator (PAPR)

Powered Air Purifying Respirators have a battery pack that draws air through replaceable cartridges and blows into a full face piece, helmet or hood. These respirators are often more comfortable in hot weather and some can provide more protection, depending on the type. The cartridges must be changed regularly

Supplied Air Respirators and Self-Contained Breathing Apparatus (SCBA)

In a few situations, you may need to provide a supplied air respirator to your employees. These situations include entering a confined space where there is lack of oxygen or high levels of air contaminants, or working around extremely toxic chemicals or hazardous waste sites, during sandblasting or in some spray painting operations. “Supplied air,” means that clean air is provided by means of an air hose from a compressor or pressurized air tank.

HEARING CONSERVATION PROGRAM

Purpose:

The purpose of the Hearing Conservation Program is to ensure that all employees are protected from exposure to noise hazards. Employers whose workers are exposed to high noise levels must have an active program for protecting their employees' hearing

Employer Responsibilities

The Noise Exposure For Construction Standard establishes permissible exposures limits (PEL) for continuous or intermittent noise. The PEL for an 8 hour day is a time weighted average of 90 decibels measured on the A-scale (dBA). The permissible exposure time decreases as the sound level increases (e.g., 15 minute maximum exposure to 115 dBA sound level). If the PEL is exceeded, the employer must implement feasible administrative or engineering controls to reduce exposure levels within the limits. If controls fail to reduce exposure levels within limits, the employer must implement a hearing conservation program. Part 680 also establishes a peak sound pressure limit of 140 dB for impulse or impact noise, which may not be exceeded at any time.

Procedure:

An effective hearing conservation program should first assess company wide noise exposures in order to identify any employee or group of employees exposed to noise. Noise is measured with a sound level meter or noise dosimeters, which measure average noise levels over time. Employees who are exposed to noise at or above an eight-hour time-weighted average of 85 dB (decibels) must be covered under a hearing conservation program. For these employees, the employer must develop, implement, and maintain (at no cost to the employees) a program consisting of:

1. Mandatory audiometric testing
2. Making hearing protectors available and ensuring their use.
3. Comprehensive training explaining hearing loss, hearing protective devices and the employer's hearing conservation program.
4. Warning signs for high noise areas (115 dBA or higher).
5. Keeping accurate records.
6. Ensuring employee access to their records.

Additionally, the employer must post a copy of the hearing conservation standard or post a notice to affected employees or their representatives that a copy of the standard is available at the workplace for their review.

If you need assistance in noise measurements, you can contact the Consultation Section of the Department of Labor and Industries; the industrial hygiene consultants can help you free of charge.

Types of Hearing Protectors

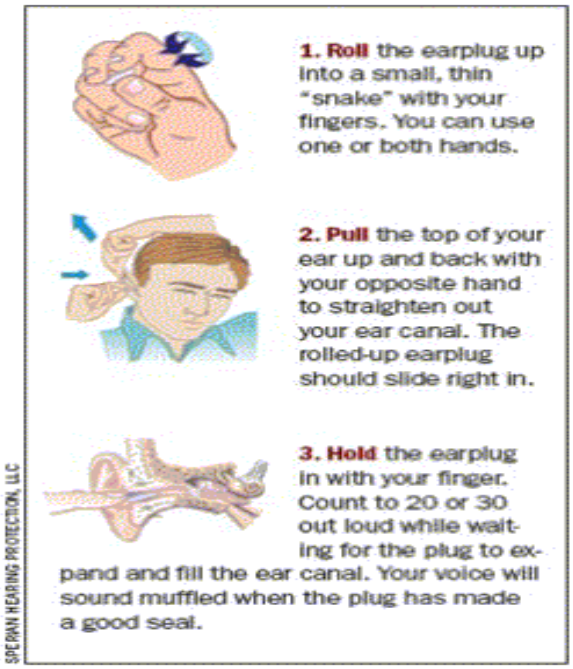
There are three types of hearing protectors generally used in industry,

Ear Muffs

Design to fit around the head using a band, noise-attenuating cups with soft cushions surrounds the outer ear to seal out noise. Most workers can use the same size ear muffs; which usually have three different band positions: over-the-head, behind-the-neck, and under-the-chin. Many ear muffs have all three positions available through rotating headbands (the position worn may have an effect on the muffs' noise attenuation, indicated by the NPR). Most models are available as hard-hat mountable units, some may require adapters.
Applications requiring frequent removal of hearing protection are well suited to ear muffs. Ear muffs when well-cared-for can last for many years; ear cushions and other wearable parts should be replaced often.

Ear Plugs

Designed to fit snugly into the ear canal, ear plugs are made of a soft, pliable material to seal out unwanted noise. They are the least expensive type of hearing protection and can be purchased with or without attached cords. Attached cords will prevent accidental loss; cords also stand out so supervisors can easily verify compliance. Usually the molded foam style plugs are categorized as disposable (good for several usages); while the plastic style are more durable and can be used for much longer periods of time.



Ear Bands

These semi-aural devices are fitted with small pods made of a soft material or flexible tips that seal off the ear canal entrances. Ear bands only require a minimal insertion to be effective. The band itself, usually made of plastic, is designed to be worn under the chin or behind the neck. Ear bands are easy to keep track of because of

higher visibility, compliance is also easier to verify for this same reason. With easy storage around the neck, they are well suited to applications that require repeated on-and-off use.

Exposure Levels

Noise levels are measured in decibels (dBA). We talk at about 70 decibels. Decibels are measured on a scale like the one for earthquakes. So when the decibels go up a little, the noise goes up a lot. 73 decibels is 2 times as loud as 70. OSHA has rules about how long you may be exposed to a noise level, before you must wear hearing protection:

Allowed to be unprotected	**At this noise level**
Up to 8 hours	90 decibels
Up to 4 hours	95 decibels
Up to 1 hour	105 decibels

When the noise is 95 decibels, OSHA says you may work with no hearing protection for only 4 hours. Even so, this noise level is not safe; 1 in 5 people exposed regularly to 90 decibels (as OSHA allows) will lose some hearing. Short, very loud (impact) noises can do the most harm.

If you have to raise your voice for someone 3 feet away to hear you, the site may be too noisy and you need hearing protection.

Most construction noise comes from equipment. These decibel levels have been measured:

Equipment	**decibels**	**Equipment**	**decibels**
Pneumatic chip hammer	103-113	Earth Tamper	90-96
Jackhammer	102-111	Crane	90-96
Concrete joint cutter	99-102	Hammer	87-95
Portable saw	88-102	Earthmover	87-94
Stud welder	101	Front-end loader	86-94
Bulldozer	93-96	Backhoe	84-93

The noise levels change. The noise from an earthmover is 94 decibels from 10 feet away. The noise is only 82 decibels if you are 70 feet away. A crane lifting a load can make 96 decibels of noise; at rest, it may make less than 80 decibels.

OSHA's Permissible Noise Exposure	
90 dB	8.0 hours
92 dB	6.0 hours
95 dB	4.0 hours
97 dB	3.0 hours
100 dB	2.0 hours
102 dB	1.5 hours
105 dB	1.0 hours
110 dB	30 minutes
115 dB	15 minutes

TEMPURATURE EXTREME SAFETY

Workers subjected to temperature extremes, radiant heat, humidity, or air velocity combinations which, over a period of time, may produce physical illness. Protection by use of adequate controls, methods or procedures, or use of protective clothing will be provided to employees working in these conditions. Excessive exposure to heat is referred to as heat stress and excessive exposure to cold is referred to as cold stress.

Heat related illness (HRI) and cold-induced illnesses (Hypothermia/frostbite) are well known, recognized workplace hazards. All work operations involving exposure to temperature extremes, either humidity/heat extremes or cold extremes have the potential for inducing heat stress and heat related illnesses or cold stress resulting in frostbite or hypothermia.

HEAT STRESS

Supply adequate water and encourage workers who work in hot weather to drink regularly, even when not thirsty. A small amount of water every 15 minutes is recommended rather that a large amount after hours of sweating.

- Learn the signs and symptoms of heat-related illness.
- Inform workers they should avoid alcohol or drinks with caffeine before or during work in hot weather.
- Try to do the heaviest work during the cooler parts of the day.
- Adjusting to work in heat takes time. Allow workers to acclimatize. Start slower/ work up to your normal pace.
- Wear lightweight, loose-fitting, light-colored, breathable (e.g. cotton) clothing and a hat.
- Allow workers to take regular breaks from the sun. Loosen or remove clothing that restricts cooling.
- Watch workers for symptoms of heat-related illness. This is especially important for non-acclimatized workers, those returning from vacations and for all workers during heat-wave events.
- If exertion causes someone's heart to pound or makes them gasp for breath, become lightheaded, confused, weak or faint, they should STOP all activity and get into a cool area or at least into the shade, and rest.

The two major heat-related illnesses are **heat exhaustion** and **heat stroke**.
Heat exhaustion, if untreated, may progress to deadly heat stroke. **Heat stroke is very dangerous and frequently fatal.** If workers show symptoms, *always take this seriously* and have them take a break and cool down before returning to work. *Stay with them*. If symptoms worsen or the worker does not recover within about 15 minutes, call 911 and have them transported and medically evaluated. *Do not delay transport.*

Heat Stroke or Heat Exhaustion? How <u>do</u> you tell the difference?
The telling difference is mental confusion or disorientation in ALL heat stroke victims
You can ask these 3 questions: What is your name? What day is this? Where are we?
If a worker can't answer these questions, assume it is heat stroke.

<u>NOT</u> A SAFE WAY TO FIND SHADE!!

What are the symptoms of heat exhaustion and heat stroke?

Heat Exhaustion	Heat Stroke
• Heavy sweating • Exhaustion, weakness • Fainting / Lightheadedness • Paleness • Headache • Clumsiness, dizziness • Nausea or vomiting • Irritability	• Sweating may or may not be present • Red or flushed, hot dry skin • Any symptom of heat exhaustion but more severe • Confusion / Bizarre behavior • Convulsions before or during cooling • Collapse • Panting/rapid breathing • Rapid, weak pulse • Note: May resemble a heart attack

What do you do if someone is suffering from heat exhaustion or heat stroke?

Heat Exhaustion	Heat Stroke (medical emergency)

• Move the worker to a cool, shaded area to rest; **do not leave them alone.**
  • Loosen and remove heavy clothing that restricts evaporative cooling.
  • Give cool water to drink, about a cup every 15 minutes.
  • Fan the worker, spray with cool water, or apply a wet cloth to their skin to increase evaporative cooling.
  • Recovery should be rapid. Call 911 if they do not feel better in a few minutes.
• Do not further expose the worker to heat that day. Have them rest and continue to drink cool water or electrolyte drinks.
	• Get medical help immediately, call 911 and transport as soon as possible.
	• Move the worker to a cool, shaded area and remove clothing that restricts cooling.
	• Seconds count – Cool the worker rapidly using whatever methods you can. For example, immerse the worker in a tub of cool water; place the worker in a cool shower; spray the worker with cool water from a garden hose; sponge the worker with cool water; or, if the humidity is low, wrap the worker in a cool, wet sheet and fan them vigorously. Continue cooling until medical help arrives.
	• If emergency medical personnel are delayed, call the hospital emergency room for further instruction.
	• Do not give the worker water to drink until instructed by medical personnel.

COLD STRESS

When the temperature turns south for the winter, construction workers need to take precautions to protect themselves against the cold weather, according to the Occupational Safety and Health Administration (OSHA). "When the body is unable to warm itself, serious cold-related illnesses and injuries may occur," OSHA warns, "and permanent tissue damage and death may result."

Hypothermia

Workers who are exposed to a combination of low temperatures, not necessarily below freezing, and brisk winds or wet clothing can succumb to hypothermia, in which body temperature drops to or below 95-degrees Fahrenheit.

- The first thing to do for a case of hypothermia is to call for emergency help.
- Workers suffering from hypothermia should be moved to a warm, dry area. Wet clothing should be replaced by dry clothing or blankets. If the person is alert, they should drink warm, sweet beverages, but avoid coffee, tea, hot chocolate or alcohol.
- Have the person suffering from hypothermia move their arms and legs to create muscle heat. If they are unable to do this, place warm bottles or hot packs in the arm pits, groin, neck and head areas. However, do not rub the person's body or place them in warm bath water, which can stop the heart.

Prolonged exposure to below-zero temperatures can lead to frost bite, in which the skin becomes pale, waxy, hard and numb. Fingers, hands, toes, feet, ears and the nose are usually affected.

Frost Bite

For frost bite, seek medical attention as soon as possible.

- Move the person to a dry area and remove any wet or tight clothing that might be cutting off the flow of blood to the affected area. Do not rub the affected area.
- Gently place the affected area in a warm (105-degree Fahrenheit) water bath and monitor the water temperature to slowly warm the tissue. Pouring warm water directly on the affected area can result in tissue damage by causing it to warm up too quickly. Warming takes about 25-40 minutes.
- After it is warmed, the affected area can become puffy and blister and have a burning feeling or numbness. When normal feeling, movement and skin color have returned, the affected area should be dried and wrapped to keep it warm.

To avoid severe tissue damage, if there is a chance the affected area will get cold again, do not warm the skin.

Wind Chill

Wind chill involves the combined effect of air temperature and air movement. The higher the wind speed and the lower the temperature in the work environment, the greater the insulation value of the protective clothing required

HANDLING & STORAGE OF MATERIAL

General provisions; storage.

- All material shall be stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, falling, or collapse during storage or transit.
- Structural steel, poles, pipe, bar stock, and other cylindrical materials, unless racked, shall be stacked and blocked so as to prevent spreading or tilting.
- The maximum safe load limit in pounds per square foot of a floor or roof of a building shall be conspicuously posted in all storage areas, except a slab on grade. The maximum safe load limit shall not be exceeded.
- Except for masonry and mortar, material shall not be stored within 4 feet (1.2 m) of a working edge during overhand bricklaying or related work.
- Gravel, sand, and crushed stone shall be withdrawn from a pile or barrow area in a manner that prevents overhangs and vertical faces.
- Storage areas, aisles, and passageways shall be kept free of the accumulation of materials that constitutes a hazard to the movement of material-handling equipment and employees. Such areas shall be kept in good repair.
- 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.
- A railcar, truck, or semitrailer shall be chocked or otherwise secured during loading and unloading if the movement of a railcar, truck, or trailer could create a hazard for the employee.
- A load line shall not be wrapped around the material being lifted.
- A material shall not be stored with any other material with which it could react and cause a hazardous condition.
- While roofing work is being performed, materials and equipment shall not be stored within 6 feet (1.8 m) of a roof edge, unless guardrails are erected at the roof edge.
- Materials that are piled, grouped, or stacked near a roof edge shall be stable and self-supporting.
- Material stored inside buildings under construction shall not be placed within 6 feet of any hoist way or inside floor openings, nor within 10 feet of an exterior wall that does not extend above the top of the material stored.
- Storage areas shall be kept free from accumulation of materials that constitute hazards from tripping, fire, explosion, or pest harborage. Vegetation control shall be exercised when necessary.
- Materials shall not be stored on scaffolds or runways in excess of supplies needed for immediate operations.

Indoor Storage

- Storage shall not obstruct, or adversely affect, means of exit. All materials shall be stored, handled, and piled with due regard to their fire characteristics.
- Noncompatible materials, which may create a fire hazard, shall be segregated by a barrier having a fire resistance of at least 1 hour.
- Material shall be piled to minimize the spread of fire internally and to permit convenient access for firefighting. Stable piling shall be maintained at all times.
- Aisle space shall be maintained to safely accommodate the widest vehicle that may be used within the building for firefighting purposes.
- Clearance of at least 36 inches shall be maintained between the top level of the stored material and the sprinkler deflectors.
- Clearance shall be maintained around lights and heating units to prevent ignition of combustible materials.

- A clearance of 24 inches shall be maintained around the path of travel of fire doors unless a barricade is provided, in which case no clearance is needed. Material shall not be stored within 36 inches of a fire door opening.

Indoor Storage of Flammable and Combustible Liquids

Only approved containers and portable tanks shall be used for storage and handling of flammable and combustible liquids. Approved metal safety cans shall be used for the handling and use of flammable liquids in quantities greater than one gallon, except that this shall not apply to those flammable liquid materials which are highly viscid (extremely hard to pour), which may be used and handled in original shipping containers. For quantities of one gallon or less, only the original container or approved metal safety cans shall be used for storage, use, and handling of flammable liquids.

Flammable or combustible liquids shall not be stored in areas used for exits, stairways, or normally used for the safe passage of people.

- No more than 25 gallons of flammable or combustible liquids shall be stored in a room outside of an approved storage cabinet. For storage of liquefied petroleum gas.
- Quantities of flammable and combustible liquid in excess of 25 gallons shall be stored in an acceptable or approved cabinet

Storage Outside Buildings

Storage of containers (not more than 60 gallons each) shall not exceed 1,100 gallons in any one pile or area. Piles or groups of containers shall be separated by a 5-foot clearance. Piles or groups of containers shall not be nearer than 20 feet to a building.

- Within 200 feet of each pile of containers, there shall be a 12-foot-wide access way to permit approach of fire control apparatus.
- The storage area shall be graded in a manner to divert possible spills away from buildings or other exposures, or shall be surrounded by a curb or earth dike at least 12 inches high. When curbs or dikes are used, provisions shall be made for draining off accumulations of ground or rain water, or spills of flammable or combustible liquids. Drains shall terminate at a safe location and shall be accessible to operation under fire conditions.

Outdoor portable tank storage:

- Portable tanks shall not be nearer than 20 feet from any building.
- Two or more portable tanks, grouped together, having a combined capacity in excess of 2,200 gallons, shall be separated by a 5-foot-clear area. Individual portable tanks exceeding 1,100 gallons shall be separated by a 5-foot-clear area.
- Within 200 feet of each portable tank, there shall be a 12-foot-wide access way to permit approach of fire control apparatus.
- Storage areas shall be kept free of weeds, debris, and other combustible material not necessary to the storage.
- Portable tanks, not exceeding 660 gallons, shall be provided with emergency venting and other devices, as required by chapters III and IV of NFPA 30-1969, The Flammable and Combustible Liquids Code.
- Portable tanks, in excess of 660 gallons, shall have emergency venting and other devices, as required by chapters II and III of The Flammable and Combustible Liquids Code, NFPA 30-1969.

Storage of bagged material, brick, and block.

- The height of a manually stacked pile of bagged material, weighing more than 30 pounds per bag, shall not exceed 5 feet.
- (Bagged material on a pallet shall be all of the following:
  (a) Not more than 36 inches 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.
- A loose brick or tile stack shall be all of the following:
- Tapered back 2 inches in every foot of height above 4 feet.
  (b) Not exceed 6 feet in height.
  (c) Cross-keyed at each 2-foot level.
- A loose block stack shall be all of the following:
  (a) Not exceed 6 feet in height.
  (b) Cross-keyed at each 3-foot level.
- Brick on a pallet shall be all of the following:
  (a) Not more than 30 inches in height.
  (b) Secured to prevent displacement from the pallet before moving.
  (c) Stacked not more than 2 pallets high.
- Block on a pallet shall be all of the following:
  (a) Not more than 46 inches in height.
  (b) Cross-keyed every course or secured to pallet.
  (c) Stacked not more than 2 pallets high
- Brick or block in a banded cube shall not be stacked more than 2 cubes high.

Storage of lumber.

- Lumber shall be stacked on level and solidly supported sills so as to be self-supporting and stable.
- The width of a pile of lumber shall be no less than 1/2 the height.
- A pile of lumber manually stacked, and a pile of lumber to be manually unstacked, shall not exceed 6 feet in height.
- Lumber which is mechanically stacked shall not exceed 10 feet in height. This lumber shall not be rehandled manually, except as prescribed in subrule (3) of this rule.
- Used lumber shall have all protruding nails removed or bent into the lumber before stacking.

Tomorrow –

Your Reward For Working Safely Today